Motor control and protection

Motor protection circuit breakers



- Wide adjustment range 0.1 to 100A
- IEC breaking capacity Icu 50kA (400V) up to 100A
- Suitable for isolation
- Certified UL Type E and Type F
- Comprehensive line of accessories
- Magnetic-only version
- Transformer protection version
- Automatic trip indicators
- High reliability and accuracy of tripping.

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SM1P...
- Motor protection
- Push button control
- Ranges 0.1...40A (16 choices)
- IEC breaking capacity Icu at 400V: from 100 to 10kA
- Suitable for mounting in modular panels.



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SM1PF...
- Fuse monitoring function
- Push button control
- Fixed thermal protection: 0.2A
- Magnetic trip threshold: 1.2A.



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SM1R...
- Motor protection
- Rotary knob type
- Ranges 0.1...40A (16 choices)
- IEC breaking capacity Icu at 400V: from 100 to 20kA
- Thermal and magnetic trip indicator
- UL 60947-4-1 Type E, Type F.



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SM1RM...
- Starter protection (magnetic only)
- Rotary knob type
- Rated current from 0.16 to 40A
- IEC breaking capacity Icu at 400V: from 100 to 20kA.



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SM1RT...
- Transformer protection
- Rotary knob type
- Ranges 0.1...25A (14 choices)
- Magnetic tripping 20 x In.



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SM2R...
- Motor protection
- Rotary knob type
- Ranges 34...63A (2 choices)
- IEC breaking capacity Icu at 400V: 50kA
- UL 60947-4-1 Type E, Type F.



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SM3R...
- Motor protection
- Rotary knob type
- Ranges 55...100A (3 choices)
- IEC breaking capacity Icu at 400V: 50kA
- Thermal and magnetic trip indicator
- UL 60947-4-1 Type E, Type F.

IE3 READY

LOVATO Electric motor protection circuit breakers are suitable for new motors with high IE3 efficiency values

Lovato electric

IEC ratings - short-circuit breaking capacity

Motor protection (magnetic and thermal protection)





Starter protection (magnetic protection)

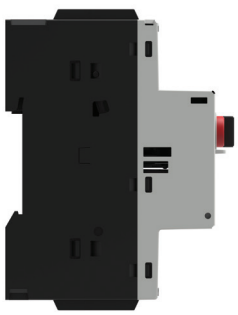


	SM1P... ❶	SM1R...	SM2R...	SM3R...	SM1RM...
Rated current	0.1...40A	0.1...40A	34...63A	55...100A	0.1...40A
Thermal protection	●	●	●	●	
Magnetic protection	●	●	●	●	●
TRIP position		●	●	●	●
Phase failure sensitive	●	●	●	●	
Padlockable in O	●	●	●	●	●

Range	230V		400V		440V		500V		690V		230V		400V		440V		500V		690V		230V		400V		440V		500V		690V	
	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics
[A]	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA	kA
0.1...0.16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
0.16...0.25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
0.25...0.4	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
0.4...0.63	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
0.63...1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1...1.6	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1.6...2.5	100	100	100	100	100	100	100	100	3	3	100	100	100	100	100	100	100	100	10	10	100	100	100	100	100	100	100	100	10	10
2.5...4	100	100	100	100	100	100	100	100	3	3	100	100	100	100	100	100	100	100	10	10	100	100	100	100	100	100	100	100	10	10
4...6.5	100	100	100	100	100	100	100	100	3	3	100	100	100	100	100	100	100	100	4	2	100	100	100	100	100	100	100	100	4	2
6.3...10	100	100	100	100	25	12.5	25	12.5	3	3	100	100	100	100	42	42	42	42	4	2	100	100	100	100	42	42	42	42	4	2
9...14	100	100	25	12.5	10	5	10	5	3	3	100	100	100	100	42	42	42	42	4	2	100	100	100	100	42	42	42	42	4	2
13...18	100	50	25	12.5	10	5	10	5	3	3	100	100	100	100	10	5	10	5	4	2	100	100	100	100	10	5	10	5	4	2
17...23	50	50	15	5	10	5	10	5	3	2	100	100	50	25	10	5	10	5	4	2	100	100	50	25	10	5	10	5	4	2
20...25	50	50	15	5	10	5	10	5	3	2	100	100	50	25	10	5	10	5	4	2	100	100	50	25	10	5	10	5	4	2
24...32	50	50	10	5	10	5	10	5	3	2	100	100	50	25	10	5	10	5	4	2	100	100	50	25	10	5	10	5	4	2
30...40	20	20	10	5	10	5	10	5	3	2	100	100	20	10	10	5	10	5	4	2	100	100	20	25	10	5	10	5	4	2
34...50	-	-	-	-	-	-	-	-	-	-	100	100	50	50	35	27	10	8	5	5	-	-	-	-	-	-	-	-	-	-
45...63	-	-	-	-	-	-	-	-	-	-	100	100	50	50	35	27	10	8	5	5	-	-	-	-	-	-	-	-	-	-
55...75	-	-	-	-	-	-	-	-	-	-	100	100	50	38	40	30	8	6	5	4	-	-	-	-	-	-	-	-	-	-
70...90	-	-	-	-	-	-	-	-	-	-	100	100	50	38	40	30	8	6	5	4	-	-	-	-	-	-	-	-	-	-
80...100	-	-	-	-	-	-	-	-	-	-	100	100	50	38	40	30	8	6	5	4	-	-	-	-	-	-	-	-	-	-

❶ The fuse monitoring version is also available (on page 1-6).

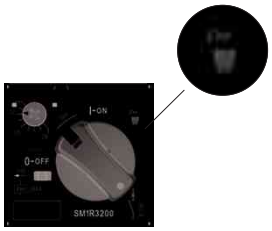
SM1P... MODULAR SIZE
- Mounting on front of panels or in modular panels for rapid access to buttons, avoiding the opening of the door by non-technical staff.
- Auxiliary contacts, indicator contacts and releases compatible with modular panels.



40A IN 45mm
- From 0.1A to 40A in a device just 45mm wide.
- High short-circuit breaking capacity up to 40A.
- Small, cost-effective starters.



SM1R... TRIP INDICATION
- Thermal and magnetic trip indication with trip position of knob.
- Specific visual indication for short-circuit tripping; guarantees maximum safety for operators and reliability of the system.
- Auxiliary trip indication contacts with ability to distinguish overload from short circuit.



SM1... HIGH-PERFORMANCE PLASTICS
- IEC/EN/BS 60335-compliant plastics for domestic and similar applications. Can be used in catering equipment.
- EN 45545-compliant plastics: fire behaviour and emissions of fumes. Suitable for railway applications.

DOOR COUPLING HANDLES
- Padlockable door coupling handles for the entire rotary knob type. Make systems compliant with safety regulations.
- Tough, easy and quick to install.



UL508 ratings - short-circuit breaking capacity (horse power ratings on page 1-4)

Transformer protection (magnetic protection 20 x In)







SM1RT...											SM1P...				SM1R...❹ - SM2R... - SM3R...									
0.1...25A											UL508 / UL 60947-4-1 Manual Motor Controller - Short circuit current in kA												UL508 / UL 60947-4-1 Manual Self Protected Combination Motor Controller (Type E) Short circuit current in kA (Type F ratings see on page 1-5)		
●											Motor Disconnect Group Motor Installation			Protection	Motor Disconnect		Group Motor Installation		Protection	Tap Conductor Protection				
●																								
●																								
●																								
230V		400V		440V		500V		690V			240V	480V	600V		480V	600V	480V	600V		480Y/277V	600Y/347V	240V	480Y/277V	600Y/347V
Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics															
kA	kA	kA	kA	kA	kA	kA	kA	kA	kA		kA	kA	kA		kA	kA	kA	kA		kA	kA	kA	kA	kA
100	100	100	100	100	100	100	100	100	100		50	50	50	❷	65	50	65	50	❷	65	50	65	65	50
100	100	100	100	100	100	100	100	100	100		50	50	50	❷	65	50	65	50	❷	65	50	65	65	50
100	100	100	100	100	100	100	100	100	100		50	50	50	❷	65	50	65	50	❷	65	50	65	65	50
100	100	100	100	100	100	100	100	100	100		50	50	50	❷	65	50	65	50	❷	65	50	65	65	50
100	100	100	100	100	100	100	100	100	100		50	50	50	❷	65	50	65	50	❷	65	50	65	65	50
100	100	100	100	100	100	100	100	100	100		50	50	50	❷	65	50	65	50	❷	65	50	65	65	50
100	100	100	100	100	100	100	100	3	3		30	30	30	100A Class J	65	30	65	30	❷	65	30	65	65	30
100	100	100	100	100	100	100	100	3	3		30	30	30	100A Class J	65	30	65	30	❷	65	30	65	65	30
100	100	100	100	100	100	100	100	3	3		30	30	30	100A Class J	65	30	65	30	❷	65	30	65	65	30
100	100	100	100	25	12.5	25	12.5	3	3		30	30	30	100A Class J	30	30	30	30	100A Class J	65❸	30❸	65❸	65❸	30❸
100	100	25	12.5	10	5	10	5	3	3		30	30	-	100A Class J	30	30	30	30	200A Class J	65❸	30❸	65❸	65❸	30❸
100	50	25	12.5	10	5	10	5	3	3		30	30	-	100A Class J	30	30	30	30	200A Class J	65❸	-	65❸	65❸	-
50	50	15	5	10	5	10	5	3	2		5	5	-	❷	30	30	30	30	200A Class J	30❸	-	30❸	30❸	-
50	50	15	5	10	5	10	5	3	2		5	5	-	❷	30	30	30	30	200A Class J	30❸	-	30❸	30❸	-
-	-	-	-	-	-	-	-	-	-		5	5	-	❷	30	30	30	30	200A Class J	10❸	-	10❸	10❸	-
-	-	-	-	-	-	-	-	-	-		5	5	-	❷	30	30	30	30	200A Class J	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-		-	-	-	-	50	10	50	10	❷	50	10	100	50	-
-	-	-	-	-	-	-	-	-	-		-	-	-	-	50	10	50	10	❷	50	10	100	50	-
-	-	-	-	-	-	-	-	-	-		-	-	-	-	40	10	40	10	❷	40	10	100	40	-
-	-	-	-	-	-	-	-	-	-		-	-	-	-	40	10	40	10	❷	40	10	100	40	-
-	-	-	-	-	-	-	-	-	-		-	-	-	-	40	10	40	10	❷	40	10	100	40	-

❷ Fuse or CB. ❸ Values valid for SM1RE... only. ❹ For SM1RT values see page 1-7.

ENCLOSURES

- Various types of plastic enclosures are available for rotating and button-controlled motor protection circuit breakers up to 40A.
- Surface and flush mount.
- Ideal for small machines and isolated motors.
- IP65 (UL Type 4X) protection rating and UV-ray resistant.
- Very robust plastics, IK07; pass even the strict UL "ball impact" test.
- UL-certified.



SM1... PADLOCKABLE

- All of the devices, in both the rotary knob type and push button controlled motor protection circuit breaker range, are padlockable.
  This provides greater operator safety during maintenance and bypassing of equipment.



UL Type E

- The entire rotary knob type is certified UL Type E except for the SM1R4000.
- Type E is a specific requirement of the UL standards that requires, of short-circuit protection devices, increased terminal isolation distances and strict breaking capacity tests.
- Eliminates the need for further short-circuit protection devices upstream of the motor protection.

UL Type F

- Type F starters are a combination of a motor protection circuit breaker and a contactor tested in specified short circuit conditions to verify their coordination.
- The SM1R motor protection circuit breakers are certified UL type F in combination with BG and BF contactors.
- A Type F starter is the most complete and preferred way to control and protect a motor.

UL ratings
Type E and Type F combination motor controllers

The UL standard indicates a combination motor controller, also called a combination starter, as equipment consisting of a protected starter incorporating an isolation function. The protection includes both thermal overload and short circuit.
In the standard of UL508 (now harmonized with IEC as UL 60947-4-1), we can find different construction types of starters stated as Type A, Type B, etc... composed of different type of devices intended to control, disconnect and protect a motor.
Type E and Type F controllers usually provide the best solution to control and protect a motor.

Type E

A Type E starter is a listed combination starter suitable for use without additional upstream circuit short-circuit protection. The typical Type E starter is a motor protection circuit breaker (MPCB), also known as manual motor protector that includes in a single device the following functions: manual motor control, disconnection, short circuit protection and motor overload protection.
A "NON Type E" motor protection circuit breaker, despite including short circuit protection, requires additional upstream short circuit protect ion.

FUNCTIONS:
- Disconnect
- Branch circuit protection
- Motor control
- Motor overload protection.



Type F

A Type F starter has the same functions of Type E but in addition to the motor protection circuit breaker (MPCB) commonly known as manual motor protector, also includes a contactor to have remote or automatic control of the motor.

FUNCTIONS:
- Disconnect (MPCB)
- Branch circuit protection (MPCB)
- Motor control (contactor)
- Motor overload protection (MPCB).



❶ Code SM1X9000R or SM1X9050.

CO-ORDINATION TYPE 1 AND CO-ORDINATION TYPE 2

The concept of co-ordination Type 1 and Type 2 was recently introduced in the UL 60947-4-1.
In the co-ordination Type 1, after a short-circuit, the starter shall cause no danger to persons or installation, but may not be suitable for further service and may need parts repair and replacement.
In the co-ordination Type 2, after a short-circuit, the starter shall cause no danger to persons or installation and is suitable for further use.
On the next page the co-ordination tables are provided.

TAP CONDUCTOR PROTECTION

SM... motor protection circuit breakers are also suitable as Tap Conductor Protection for Group Installation.
When manual motor starters are employed in group installations, in specified conditions by the standard, it is possible to reduce the wire sections.
The use of smaller wires reduces the cost of the panel and makes the wiring easier.
Furthermore, these motor protection circuit breakers can be used for control transformers protection instead of fuses or circuit breaker certified as UL 489.

Maximum UL/CSA horsepower ratings

		Single-phase		Three-phase, 3-pole			
		110V-120V	220V-240V	200V-208V	220-240V	440/-480V	550V-600V
		[HP]	[HP]	[HP]	[HP]	[HP]	[HP]
SM1R0016	SM1P0016	–	–	–	–	–	–
SM1R0025	SM1P0025	–	–	–	–	–	–
SM1R0040	SM1P0040	–	–	–	–	–	–
SM1R0063	SM1P0063	–	–	–	–	–	–
SM1R0100	SM1P0100	–	–	–	–	1/2	1/2
SM1R0160	SM1P0160	–	1/10	–	–	3/4	1
SM1R0250	SM1P0250	–	1/6	1/2	1/2	1	1.5
SM1R0400	SM1P0400	1/8	1/3	3/4	3/4	2	3
SM1R0650	SM1P0650	1/4	1/2	1.5	1.5	3	5
SM1R1000	SM1P1000	1/2	1.5	2	3	5	7.5
SM1R1400 / SM1RE1400	SM1P1400	3/4	2	3	3	10	10❶
SM1R1800 / SM1RE1800	SM1P1800	1	3	5	5	10	15❶
SM1R2300 / SM1RE2300	SM1P2300	1.5	3	5	7.5	15	20❶
SM1R2500 / SM1RE2500	SM1P2500	2	3	5	7.5	15	20❶
SM1R3200 / SM1RE3200	SM1P3200	2	5	10	10	20	30❶
SM1R4000	SM1P4000	3	7.5	10	10	30	30❶
SM2R5000	—	3	10	15	15	30	40
SM2R6300	—	5	10	20	20	40	60
SM3R7500	—	5	15	20	25	50	60
SM3R9000	—	7 1/2	20	25	30	60	75
SM3R9900	—	10	20	30	30	75	100

❶ SM1R... and SM1RE... only.

Combination Motor Controllers (Type F)

Coordination Type 1 - In the co-ordination Type 1, after a short-circuit, the starter shall cause no danger to persons or installation, but may not be suitable for further service and may need parts repair and replacement.

Motor protection circuit breaker type	Thermal setting range	Contactor types	SCCR in kA		
	[A]		240V	480Y/277V	600Y/347V
SM1R0016	0.1...0.16	BG06...BG12, BF09...BF38	65	65	50
SM1R0025	0.16...0.25	BG06...BG12, BF09...BF38	65	65	50
SM1R0040	0.25...0.4	BG06...BG12, BF09...BF38	65	65	50
SM1R0063	0.4...0.63	BG06...BG12, BF09...BF38	65	65	50
SM1R0100	0.63...1	BG06...BG12, BF09...BF38	65	65	50
SM1R0160	1...1.6	BG06...BG12, BF09...BF38	65	65	50
SM1R0250	1.6...2.5	BG06...BG12, BF09...BF38	65	65	30
SM1R0400	2.5...4	BG06...BG12, BF09...BF38	65	65	30
SM1R0650	4...6.5	BG06❶...BG12, BF09...BF38	65	65	30
SM1RE1000	6.3...10	BF09...BF38	65	65	30
SM1RE1400	9...14	BF18...BF38	65	65	30
SM1RE1800	13...18	BF18...BF38	65	65	–
SM1RE2300	17...23	BF18...BF38	30	30	–
SM1RE2500	20...25	BF25...BF38	30	30	–
SM1RE3200	24...32	BF32, BF38	10	10	–
SM2R5000	34...50	BF40...BF150	50	50	–
SM2R6300	45...63	BF50...BF150	50	50	–
SM3R7500	55...75	BF65...BF150	40	40	–
SM3R9000	70...90	BF80...BF150	40	40	–
SM3R9900	80...100	BF115...BF150	40	40	–

❶ BG06 not for 600Y/347V.

Coordination Type 2 - In the co-ordination Type 2, after a short-circuit, the starter shall cause no danger to persons or installation and is suitable for further use.

Motor protection circuit breaker type	Thermal setting range	Contactor types	SCCR in kA		
	[A]		240V	480Y/277V	600Y/347V
SM1R0016	0.1...0.16	BF26, BF32, BF38	65	65	50
SM1R0025	0.16...0.25	BF26, BF32, BF38	65	65	50
SM1R0040	0.25...0.4	BF26, BF32, BF38	65	65	50
SM1R0063	0.4...0.63	BF26, BF32, BF38	65	65	50
SM1R0100	0.63...1	BF26, BF32, BF38	65	65	50
SM1R0160	1...1.6	BF26, BF32, BF38	65	65	50
SM1R0250	1.6...2.5	BF26, BF32, BF38	65	65	30
SM1R0400	2.5...4	BF26, BF32, BF38	65	65	30
SM1R0650	4...6.5	BF26, BF32, BF38	65	65	30
SM1RE1000	6.3...10	BF26, BF32, BF38	65	65	30
SM1RE1400	9...14	BF26, BF32, BF38	65	65	30
SM1RE1800	13...18	BF26, BF32, BF38	65	65	–
SM1RE2300	17...23	BF26, BF32, / BF38	10 / 30	10 / 30	–
SM1RE2500	20...25	BF26, BF32, / BF38	10 / 30	10 / 30	–
SM1RE3200	24...32	BF32, BF38	10	10	–
SM2R5000	34...50	BF95, BF115, BF150	50	50	–
SM2R6300	45...63	BF95, BF115, BF150	50	50	–
SM3R7500	55...75	BF95, BF115, BF150	40	40	–
SM3R9000	70...90	BF95, BF115, BF150	40	40	–
SM3R9900	80...100	BF115, BF150	40	40	–

Motor protection circuit breakers SM1… up to 40A. Magnetic and thermal protection



SM1P…



SM1PF0020
Fuse monitoring function



SM1R…

❶ For SM1R... breakers, certified UL Type E, add E letter to the code. Ex. SM1R**E**1000.
❷ 10 x In max for 0.1...0.16A and 0.16...0.25A setting ranges.
❸ Intended specifically for monitoring the status of fuses:- rated current: 0.2A- magnetic tripping: 1.2A.

Order code	Thermal trip adjustment range	Short circuit breaking capacity at 400V Icu	Ics	Qty per pkg	Wt
	[A]	[kA]	[kA]	n°	[kg]
Push button control. For UL ratings see page 1-4.					
SM1P0016	0.1...0.16	100	100	1	0.240
SM1P0025	0.16...0.25	100	100	1	0.240
SM1P0040	0.25...0.4	100	100	1	0.240
SM1P0063	0.4...0.63	100	100	1	0.240
SM1P0100	0.63...1	100	100	5	0.260
SM1P0160	1...1.6	100	100	5	0.270
SM1P0250	1.6...2.5	100	100	5	0.300
SM1P0400	2.5...4	100	100	5	0.300
SM1P0650	4...6.5	100	100	5	0.300
SM1P1000	6.3...10	100	100	5	0.300
SM1P1400	9...14	25	12.5	5	0.300
SM1P1800	13...18	25	12.5	5	0.300
SM1P2300	17...23	15	5	1	0.300
SM1P2500	20...25	15	5	1	0.300
SM1P3200	24...32	10	5	1	0.300
SM1P4000	30...40	10	5	1	0.300
SM1PF0020❸	0.20	100	100	5	0.280
Rotary knob type. For UL ratings see page 1-4.					
SM1R0016	0.1...0.16	100	100	1	0.270
SM1R0025	0.16...0.25	100	100	1	0.270
SM1R0040	0.25...0.4	100	100	1	0.278
SM1R0063	0.4...0.63	100	100	1	0.278
SM1R0100	0.63...1	100	100	5	0.280
SM1R0160	1...1.6	100	100	5	0.280
SM1R0250	1.6...2.5	100	100	5	0.340
SM1R0400	2.5...4	100	100	5	0.340
SM1R0650	4...6.5	100	100	5	0.340
SM1R1000❶	6.3...10	100	100	5	0.340
SM1R1400❶	9...14	100	100	5	0.340
SM1R1800❶	13...18	100	100	5	0.340
SM1R2300❶	17...23	50	25	1	0.340
SM1R2500❶	20...25	50	25	1	0.340
SM1R3200❶	24...32	50	25	1	0.340
SM1R4000	30...40	20	10	1	0.340

General characteristics
SM1P... and SM1R... are modern circuit breakers with thermal and magnetic trip releases and high breaking capacity.
Motor control and protection of up to 22kW (400V) are possible by choosing the suitable adjustment range, 0.1 to 40A.
The dimensions of SM1P... breakers are compliant with the DIN 43880 standard, allowing them to be mounted in all modular enclosures on the market.
A magnetic trip indicator integrated on the SM1R... breakers avoids dangerous closing operations during short-circuit conditions, previously disconnected by the breaker.
SM1R... up to 32A breakers, with SM1X9000R or SM1X9050 accessory, are Type E-certified according to UL 60947-4-1; only for range from 6.5 to 32A the Type E version must be ordered with specific code SM1RE...❶. SM1R... motor protection circuit breakers combined with BG... and BF... contactors are Type F certified in compliance with UL 60947-4-1 standard (see page 1-4 and 1-5).
SM1P... and SM1R... motor protection circuit breakers are suitable for isolation in accordance with IEC/EN/BS 60947 standards and can be padlocked in OFF position without using accessories. Their high breaking capacity removes the need for protection fuses on the majority of the installations.

Operational characteristics
- IEC rated insulation voltage Ui: 690V
- IEC rated impulse withstand voltage: 6kV
- IEC rated frequency: 50/60Hz
- Maximum rated current: 40A
- Adjustment ranges: 16
- IEC breaking capacity: see table on page 1-2
- Heat dissipation per phase: 0.7...3.3W
- Magnetic tripping: 13 x In max❷
- Tripping class: 10A
- Phase failure sensitive
- Mechanical and electrical life: 100,000 cycles
- Mounting on 35mm DIN rail (IEC/EN/BS 60715)
- Mounting position: any
- IEC utilisation category: A
- Padlocking in OFF: Ø4mm/0.16”
- IEC degree of protection: IP20 on front.

Certifications and compliance
Certifications obtained: cULus, EAC.
SM1R... circuit breakers up to 32A are Type E and Type F certified (Self-Protected Combination Motor Controllers) according to UL 60947-4-1.
Certifications pending: CCC.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-2, IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.
Plastic materials compliant with standards: IEC/EN/BS 60335 and EN/BS 45545.

Motor protection circuit breakers SM1RM… up to 40A. Magnetic protection



SM1RM…

Order code	Rated and magnetic trip current Rat.	Trip.	Short circuit breaking capacity at 400V Icu	Ics	Qty per pkg	Wt
	[A]	[A]	[kA]	[kA]	n°	[kg]
Rotary knob type. For UL ratings see page 1-4.						
SM1RM0016	0.16	1.6	100	100	1	0.270
SM1RM0025	0.25	3.2	100	100	1	0.270
SM1RM0040	0.4	5.2	100	100	1	0.278
SM1RM0063	0.63	8.2	100	100	1	0.278
SM1RM0100	1	13	100	100	5	0.280
SM1RM0160	1.6	21	100	100	5	0.280
SM1RM0250	2.5	33	100	100	5	0.340
SM1RM0400	4	52	100	100	5	0.340
SM1RM0650	6.5	85	100	100	5	0.340
SM1RM1000	10	130	100	100	5	0.340
SM1RM1400	14	182	100	100	5	0.340
SM1RM1800	18	234	100	100	5	0.340
SM1RM2300	23	299	50	25	1	0.340
SM1RM2500	25	325	50	25	1	0.340
SM1RM3200	32	416	50	25	1	0.340
SM1RM4000	40	520	20	10	1	0.340

General characteristics
SM1RM... are motor protection circuit breakers with magnetic tripping only and high breaking capacity.
They are typically used to protect starters where there is a thermal relay or other overload protection.
Starter control and protection of up to 22kW (400V) are possible by choosing the suitable adjustment range, from 0.1 to 40A.

Operational characteristics
- IEC rated insulation voltage Ui: 690V
- IEC rated impulse withstand voltage: 6kV
- IEC rated frequency: 50/60Hz
- Maximum rated current: 40A
- IEC breaking capacity: see table on page 1-2
- Heat dissipation per phase: 0.7...3.3W
- Magnetic tripping: 13 x In max❷
- Mechanical and electrical life: 100,000 cycles
- Mounting on 35mm DIN rail (IEC/EN/BS 60715)
- Mounting position: any
- IEC utilisation category: A
- Padlocking in OFF: Ø4mm
- IEC degree of protection: IP20 on front.

Certifications and compliance
Certifications obtained: cULus, EAC.
Certifications pending: CCC.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-2, IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.
Plastic materials compliant with standards: IEC/EN/BS 60335 and EN/BS 45545.

Motor protection circuit breakers SM1RT... up to 25A. Transformer protection



SM1RT...

new

Order code	Thermal trip adjustment range	Short circuit breaking capacity at 400V Icu	Ics	Qty per pkg	Wt
	[A]	[kA]	[kA]	n°	[kg]
Rotary knob type.					
SM1RT0016	0.1...0.16	100	100	1	0.270
SM1RT0025	0.16...0.25	100	100	1	0.270
SM1RT0040	0.25...0.4	100	100	1	0.278
SM1RT0063	0.4...0.63	100	100	1	0.278
SM1RT0100	0.63...1	100	100	5	0.280
SM1RT0160	1...1.6	100	100	5	0.280
SM1RT0250	1.6...2.5	100	100	5	0.340
SM1RT0400	2.5...4	100	100	5	0.340
SM1RT0650	4...6.5	100	100	5	0.340
SM1RT1000	6.3...10	100	100	5	0.340
SM1RT1400	9...14	25	12.5	5	0.340
SM1RT1800	13...18	25	12.5	5	0.340
SM1RT2300	17...23	15	5	1	0.340
SM1RT2500	20...25	15	5	1	0.340

General characteristics
SM1RT... are circuit breakers with thermal and magnetic trip releases intended specifically for transformers control and protection.
The magnetic trip threshold of 20 x In enable the connection of transformers avoiding unintentional tripping due to the high in-rush currents.
The various adjustment ranges from 0.1A to 25A enable control and protection of transformers up to 17kVA (400V).

Operational characteristics
- IEC rated insulation voltage Ui: 690V
- IEC rated impulse withstand voltage: 6kV
- IEC rated frequency: 50/60Hz
- Maximum rated current: 25A
- Max. heat dissipation per phase: 0.7...3.4 W
- Magnetic tripping: 20 x In max (16 x In max for SM1RT0016, SM1RT2300, SM1RT2500)
- Mechanical and electrical life: 100.000 cycles
- Mounting on 35mm DIN rail (IEC/EN/BS 60715)
- Mounting position: any
- IEC utilisation category: A
- Padlocking in OFF: Ø4mm/0.16"
- IEC degree of protection: IP20 on front.

Certifications and compliance
Certifications obtained: cULus, EAC.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-2, IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.
Plastics compliant with standards: IEC/EN/BS 60335 and EN/BS 45545.

UL 60947-1 characteristics
Short circuit breaking capacity as per UL 60947-1 at 240V and 480/277V:
– from SM1RT0016 to SM1RT0650 - 65kA
– from SM1RT1000 to SM1RT2500 - 30kA
Only from circuit breakers from SM1RT0650 to SM1RT2500: fuse protection 200A class J.

Motor protection circuit breakers SM2... and SM3... up to 100A. Magnetic and thermal protection



SM2R...



SM3R...

Order code	Thermal trip adjustment range	Short circuit breaking capacity at 400V Icu	Ics	Qty per pkg	Wt
	[A]	[kA]	[kA]	n°	[kg]
Rotary knob type. For UL ratings see page 1-4.					
SM2R5000	34...50	50	50	1	1.000
SM2R6300	45...63	50	50	1	1.000
Rotary knob type. For UL ratings see page 1-4.					
SM3R7500	55...75	50	38	1	2.200
SM3R9000	70...90	50	38	1	2.200
SM3R9900	80...100	50	38	1	2.200

General characteristics
SM2R... and SM3R... are modern circuit breakers with thermal and magnetic trip releases and high breaking capacity.
Motor control and protection, up to 55kW (400V) are possible by choosing the suitable adjustment range, up to 100A.
SM2R... and SM3R... breakers are Type E and Type F according to UL 60947-4-1.
The SM2R... and SM3R... types are suitable for isolation according to IEC/EN/BS 60947 standards and can be padlocked in OFF position without using accessories.
SM2R... and SM3R... have has a trip function which indicates thermal and magnetic tripping.
Their high breaking capacity removes the need for back up fuse protection on the majority of installations.

Operational characteristics
- IEC rated insulation voltage Ui: 1000V
- IEC rated impulse withstand voltage: 8kV
- IEC rated frequency: 50/60Hz
- Maximum rated current:63A (for SM2...); 100A (for SM3...)
- Adjustment ranges: 2 (for SM2...); 3 (for SM3...)
- IEC breaking capacity: see table on page 1-2 and 1-3
- Max. heat dissipation per phase: 7W
- Magnetic tripping: 13 x In max
- Tripping class: 10A
- Phase failure sensitive
- Mechanical life: 50,000 cycles
- Electrical life: 25,000 cycles
- Mounting on 35mm DIN rail (IEC/EN/BS 60715)
- Mounting position: any
- IEC utilisation category: A
- Padlocking in OFF: Ø4mm/0.16"
- IEC degree of protection: IP20 on front.

Certifications and compliance
Certifications obtained: cULus, EAC.
SM2... and SM3... circuit breakers are Type E and Type F certified (Self-Protected Combination Motor Controllers) according to UL 60947-4-1; for Type E and Type F, SM3 only with accessory SM3X9000R.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-2, IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.

Motor protection circuit breakers

Add-on blocks and accessories for SM1...



SM1X11...



SM1X12...



SM1X1311



SM1X1311M



SM1X14...



SM1X15...R



SM1X15...P



SM1X16...



SM1X18200R



SM1X18S



SM1X9000R



BFX8901



SM1X8902

Order code	Characteristics	Qty per pkg	Wt
		n°	[kg]
Add-on auxiliary contacts.			
SM1X1120	Front mount 2NO	10	0.016
SM1X1111	Front mount 1NO+1NC	10	0.016
SM1X1220	Side mount 2NO	1	0.036
SM1X1211	Side mount 1NO+1NC	10	0.036
SM1X1202	Side mount 2NC	1	0.036
SM1X1311	Side mount. Contacts for thermal and magnetic tripping indication 1NO+1NC	1	0.036
SM1X1311M	Side mount. Contacts for magnetic tripping indication 1NO+1NC	1	0.036
Undervoltage trip releases.			
SM1X14024	24VAC 50Hz	1	0.130
SM1X14110	110VAC 50Hz; 120VAC 60Hz	1	0.130
SM1X1422060	220VAC 60Hz	1	0.130
SM1X14230	230VAC 50Hz	1	0.130
SM1X14400	400VAC 50Hz; 440VAC 60Hz	1	0.130
SM1X1457560	575VAC 60Hz	1	0.130
SM1X15024❶	With early-make contacts 24VAC 50Hz	1	0.140
SM1X15110❶	With early-make contacts 110VAC 50Hz; 120VAC 60Hz	1	0.140
SM1X15230❶	With early-make contacts 230VAC 50Hz	1	0.140
SM1X15400❶	With early-make contacts 400VAC 50Hz	1	0.140
Shunt trip releases.			
SM1X16024	24VAC 50/60Hz	1	0.130
SM1X16110	110VAC 50/60Hz	1	0.130
SM1X16230	230VAC 50/60Hz	1	0.130
SM1X16400	400VAC 50/60Hz	1	0.130
Adjuster sealing kit.			
SM1X1812	With wire and lead included	1	0.006
IP65 (4X) padlockable door coupling handle for SM1R...			
SM1X18200R	Red/yellow complete with rod length 200mm/7.87"	1	0.115
SM1X18B200R	Black complete with rod length 200mm/7.87"	1	0.115
SM1X18S❷	Support for rod >145mm/5.71"	1	0,030
Phase separation barriers for SM1R...			
SM1X9000R	For Type E and Type F as UL60947-4-1	5	0.016
Three-phase connection busbars 45mm/1.77" spacing.			
11SMX9032	For 2 breakers	10	0.028
11SMX9033	For 3 breakers	10	0.050
11SMX9034	For 4 breakers	10	0.071
11SMX9035	For 5 breakers	10	0.092
Three-phase connection busbars 54mm/2.13" spacing.			
11SMX9042	For 2 breakers	10	0.031
11SMX9043	For 3 breakers	10	0.056
11SMX9044	For 4 breakers	10	0.081
11SMX9045	For 5 breakers	10	0.090
Terminal block for busbar supply.			
11SMX9030	For all busbar types	10	0.048
SM1X9050	For all busbar types Type E and F as per UL508 / UL60947-4-1	10	0.050
Safety cover.			
11SMX9031	For unused terminals	10	0.004
Accessories for motor protection breaker fixing.			
SM1X8902	Metal bracket for fixing SM1... motor protection with screws	10	0.006
BFX8901	Universal plastic base for screw-fixing SM1... motor protection circuit breaker	2	0.016

General and operational characteristics

ADD-ON AUXILIARY CONTACTS
- Connectable to the left side of the breaker or on the front
- Maximum combinations: 3 SM1X... blocks with 6 auxiliary contacts in total of which 1 front block and 2 side blocks
- IEC conventional free air thermal current Ith: 10A (5A for SM1X11...)
- IEC rated insulation voltage Ui: 690V (300V for SM1X11...)
- Rated impulse withstand voltage Uimp: 4kV
- UL/CSA and IEC/EN/BS 60947-5-1 designation: A600 - Q600 (C300 - R300 for SM1X11...)
- Maximum tightening torque: 1Nm / 9lb.in
- Conductor cross section minimum-maximum (1 or 2 wires): 0.75...2.5mm² or 18...14AWG.
- Screw tightening tool: Phillips 2
- Maximum tightening torque: 1Nm / 9lb.in
- Width of side-mount auxiliary contacts equal to 0.5 DIN 46880 modules
- IEC degree of protection: IP20.

UNDERVOLTAGE TRIP RELEASES
- Snap on to the right side of the breaker
- Consumption inrush/holding: 12/3.5VA
- Release voltage: 0.35...0.7Us
- Operating voltage: 0.85...1.1Us
- Maximum tightening torque: 1Nm / 9lb.in
- Conductor cross section minimum-maximum (1 or 2 wires): 0.75...2.5mm² or 18...14AWG.
- Screw tightening tool: Phillips 2
- Maximum tightening torque: 1Nm / 9lb.in
- Width of side-mount undervoltage trip releases equal to 1 DIN 46880 module
- IEC degree of protection: IP20.

SHUNT TRIP RELEASES
- Snap on to the right side of the breaker
- In-rush consumption: 20VA
- Operating voltage: 0.7...1.1Us
- Conductor cross section minimum-maximum (1 or 2 wires): 0.75...2.5mm² or 18...14AWG
- Screw tightening tool: Phillips 2
- Maximum tightening torque: 1Nm / 9lb.in
- Width of side-mount shunt trip releases equal to 1 standard DIN 46880 module
- IEC degree of protection: IP20.

PADLOCKABLE DOOR COUPLING HANDLE FOR SM1R...
- IEC degree of protection: IP65
- Degree of protection according to UL: Type 1, 2, 3R, 12, 12K, 4, 4X; external use
- Adjustable rod from 48 to 212mm (1.89" to 8.35")
- Ring-fixing in 22mm/0.87" hole.

THREE-PHASE CONNECTION BUSBARS
- Imax: 63A
- SMX903... 45mm/1.77" spacing to reduce the width to the minimum
- SMX904... 54mm/2.13" spacing to consent to fit one side-mount auxiliary contact block on the breaker.

TERMINAL BLOCKS FOR BUSBAR SUPPLY
- Imax: 63A
- Screw tightening tool: Phillips 2
- Maximum tightening torque: 2.3Nm / 20lb.in
- Conductor cross section minimum-maximum: 4...25mm² or 10...4AWG.

Certifications and compliance

Certifications obtained: cULus (except terminal block for busbar supply), EAC.
Certifications pending: CCC.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-5-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.

❶ Complete the order code by indicating P for mounting on SM1P... motor protection circuit breakers, or R for SM1R... motor protection circuit breakers.
❷ Mounting also possible with side-mount auxiliary contacts SM1X12... and SM1X13...

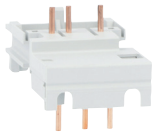
Dimensions page 1-15 and 16

Wiring diagrams page 1-18

Motor protection circuit breakers
Add-on blocks and accessories for SM1...



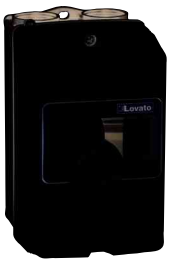
SM1X30...



SM1X31...
SM1X32...



SM1Z1701P



SM1Z1702P



SM1Z1705P



SM1Z1715R



SM1Z1725R



SM1X1740P

SM1X1745P



SM1X1746P



SM1X17024R

Order code	Characteristics	Qty per pkg	Wt
		n°	[kg]
Rigid SM1 breaker-contactor connections.			
SM1X3040P	For motor protection breaker SM1P... with BG... mini-contactors	10	0.019
SM1X3141P	For motor protection breaker SM1P... with BF09..25A contactors	10	0.035
SM1X3241P	For motor protection breaker SM1P... with BF26..38A contactors	10	0.045
SM1X3040R	For motor protection breaker SM1R... with BG... mini-contactors	10	0.019
SM1X3141R	For motor protection breaker SM1R... with BF09..25A contactors	10	0.035
SM1X3142R	For motor protection breaker SM1R... with contactors BF09..25D and BF09...25L	10	0.044
SM1X3241R	For motor protection breaker SM1R... with contactors BF26..38A	10	0.045
Surface mount enclosures IP65 (4X) for SM1P...			
SM1Z1701P	Width 80mm/3.15"❶	1	0.235
SM1Z1702P	Width 80mm/3.15". With button for emergency stop	1	0.275
SM1Z1711P	Width 100mm/3.94"❶	1	0.315
SM1Z1712P	Width 100mm/3.94". With button for emergency stop	1	0.345
Flush mount enclosure IP65 (4X) for SM1P...			
SM1Z1705P	Width 87mm/3.42"❶	1	0.205
Surface mount enclosures IP65 (4X) for SM1R...			
SM1Z1715R	With rotary actuator red/yellow. Width 100mm/3.94"	1	0.350
SM1Z1710R	With black rotary actuator Width 100mm/3.94"	1	0.350
Flush mount enclosures IP65 for SM1R (UL type 4X)			
SM1Z1725R	With rotary actuator yellow/red Width 87mm/3.42"	1	0.245
SM1Z1720R	With rotary actuator black Width 87mm/3.42"	1	0.245
ENCLOSURE ACCESSORIES AND SPARE PARTS. For SM1Z...P enclosures.			
SM1X1740P	Emergency stop button. IP65 (4X)	1	0.044
SM1X1745P	Rubber membrane with rim. IP65 (4X)	1	0.016
SM1X1746P	Lockable block. IP65 (4X)	1	0.030
MX02	Earth / Neutral terminal	10	0.035
LED pilot lights IP65. Wire length 200mm/7.87".			
SM1X17024G	Green 24VAC/DC	1	0.007
SM1X17024R	Red 24VAC/DC	1	0.007
SM1X17400G	Green 110...400VAC	1	0.007
SM1X17400R	Red 110...400VAC	1	0.007
Plastic M25 to ½" NPT entry adapter.			
11LMM25PG16	For enclosures SM1Z1701P and SM1Z1702P	10	0.009

❶ Complete with rubber membrane.

General and operational characteristics
RIGID SM1 BREAKER-CONTACTOR CONNECTIONS
The SM1X3... connections electrically and mechanically fasten the motor protection breaker together with the contactor.
This forms a highly compact single-unit starter for quick installation on a single 35mm DIN rail.
The SM1X3... connections can also be mounted in combination with reversing and star-delta starters made with the rigid connections indicated in section 2.

SURFACE MOUNT ENCLOSURES
- Top or bottom cable entry:
  - SM1Z1701P and SM1Z1702P 4 M25-threaded knock-outs
  - SM1Z1711P and SM1Z1712P 4 knock-out with Ø20.5mm/0.81" or Ø26.5mm/1.04"
  - SM1Z1710R and SM1Z1715R 4 - knock-out with Ø20.5mm/0.81" or Ø26.5mm/1.04"
- Possibility of rear entry too
- Protection rating: IP65 (UL Type 4X)
- Holds a breaker, one front-mount auxiliary contact block either one shunt or undervoltage release and one pilot light; only for enclosures 100mm/3.94" width side mount auxiliary contact blocks can be fitted as well
- The SM1Z1710R and SM1Z1715R rotary actuators can be padlocked with a maximum of 3 padlocks Ø4...8mm/0.16...0.31"
- Earth/ground terminal included
- Operating temperature: -25...+60°C
- Storage temperature: -50...+80°C.

FLUSH MOUNT ENCLOSURES FOR SM1P AND SM1R
- Holds a SM1P breaker, one front-mount auxiliary contact block and either one shunt or undervoltage release
- Protection rating: IP65 (UL Type 4X)
- Earth/ground terminal included
- 70x115mm/2.76x4.53" cutout for SM1P
  70x143mm/2.77x5.65" cutout for SM1R
- Operating temperature: -25...+60°C
- Storage temperature: -50...+80°C.

ENCLOSURE ACCESSORIES
Emergency stop button:
- Turn to release
- Red button Ø35mm/1.38".

Lockable block:
- Prevents closing operation; 3 padlocks maximum Ø4...8mm/0.16...0.31".

Certifications and compliance
Certifications obtained: cULus except SM1X17024..., SM1X17400..., SMX90.... and 11LMM25PG16), EAC.
Certifications pending: CCC for rigid connections and enclosures (maximum current enclosures for cULus: 25A).
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-5-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.


SM2X11...


SM2X12...


SM2X1311


SM2X14...


SM2X16...


SM2X18...

Order	Characteristics	Qty per pkg	Wt
		n°	[kg]
Add-on auxiliary contacts.			
SM2X1120	Front mount 2NO	10	0.020
SM2X1111	Front mount 1NO+1NC	10	0.020
SM2X1102	Front mount 2NC	10	0.020
SM2X1220	Side mount 2NO	2	0.040
SM2X1211	Side mount 1NO+1NC	10	0.040
SM2X1202	Side mount 2NC	2	0.040
SM2X1311	Side mount. Indicator contacts for thermal and magnetic tripping 1NO+1NC	2	0.040
Undervoltage trip releases.			
SM2X14230	230VAC 50/60Hz	5	0.100
SM2X14400	400VAC 50/60Hz	5	0.100
SM2X14440	440VAC 50/60Hz	5	0.100
Shunt trip releases.			
SM2X16024	24VAC 50/60Hz	5	0.100
SM2X16110	110VAC 50/60Hz	5	0.100
SM2X16230	230VAC 50/60Hz	5	0.100
SM2X16400	400VAC 50/60Hz	5	0.100
SM2X16440	440VAC 50/60Hz	5	0.100
Padlockable IP65 (4X) door coupling handle for SM2R... and SM3R....			
SM2X18200R	Red/yellow complete with rod length 200mm/7.87"	1	0.115
SM2X18B200R	Black complete with rod with rod length 200mm/7.87"	1	0.115
Phase separation barriers set for SM3R...❶			
SM3X9000R	For Type E as per UL60947-4-1	1	0.175

❶ Note: SM2R... motor protection circuit breakers are UL Type E without the need of phase separation barriers.

General and operational characteristics

ADD-ON AUXILIARY CONTACTS
- Insert on the top front or snap on the left side of the breaker
- Maximum combinations: 3 SM2X... blocks with 6 auxiliary contacts in total of which 1 front block and 2 side blocks❷
- IEC conventional free air thermal current Ith: 10A (5A for SM2X11...)
- IEC rated insulation voltage Ui: 690V (250V for SM2X11...)
- UL/CSA and IEC/EN/BS 60947-5-1 designation: A600 – Q300 (B300 - R300 for SM1X11...)
- Conductor cross section minimum-maximum (1 or 2 wires): 0.75...2.5m^2 or 18...14AWG
- Screw tightening tool: Pz 2
- Maximum tightening torque: 1Nm / 9lb.in
- Width of side-mount auxiliary contacts equal to 0.5 DIN 46880 modules.

UNDERVOLTAGE TRIP RELEASES
- Snap on to the right side of the breaker for motor protection
- Consumption in-rush/holding: 8.5/3VA
- Release voltage: 0.35...0.7Us
- Operating limits: 0.85...1.1Us
- Conductor cross section minimum-maximum (1 or 2 wires): 0.75...2.5mm^2 or 18...14AWG
- Screw tightening tool: Pz 2
- Maximum tightening torque: 1.2Nm / 10lb.in
- Width of side-mount undervoltage trip releases equal to 1 DIN 46880 module.

SHUNT TRIP RELEASES
- Snap on to the right side of the breaker
- In-rush consumption: 20VA
- Operating limits: 0.85...1.1Us
- Conductor cross section minimum-maximum (1 or 2 wires): 0.75...2.5mm^2 or 18...14AWG
- Screw tightening tool: Pz 2
- Maximum tightening torque: 1.2Nm / 10lb.in
- Width of side-mount shunt trip releases equal to 1 standard DIN 46880 module.

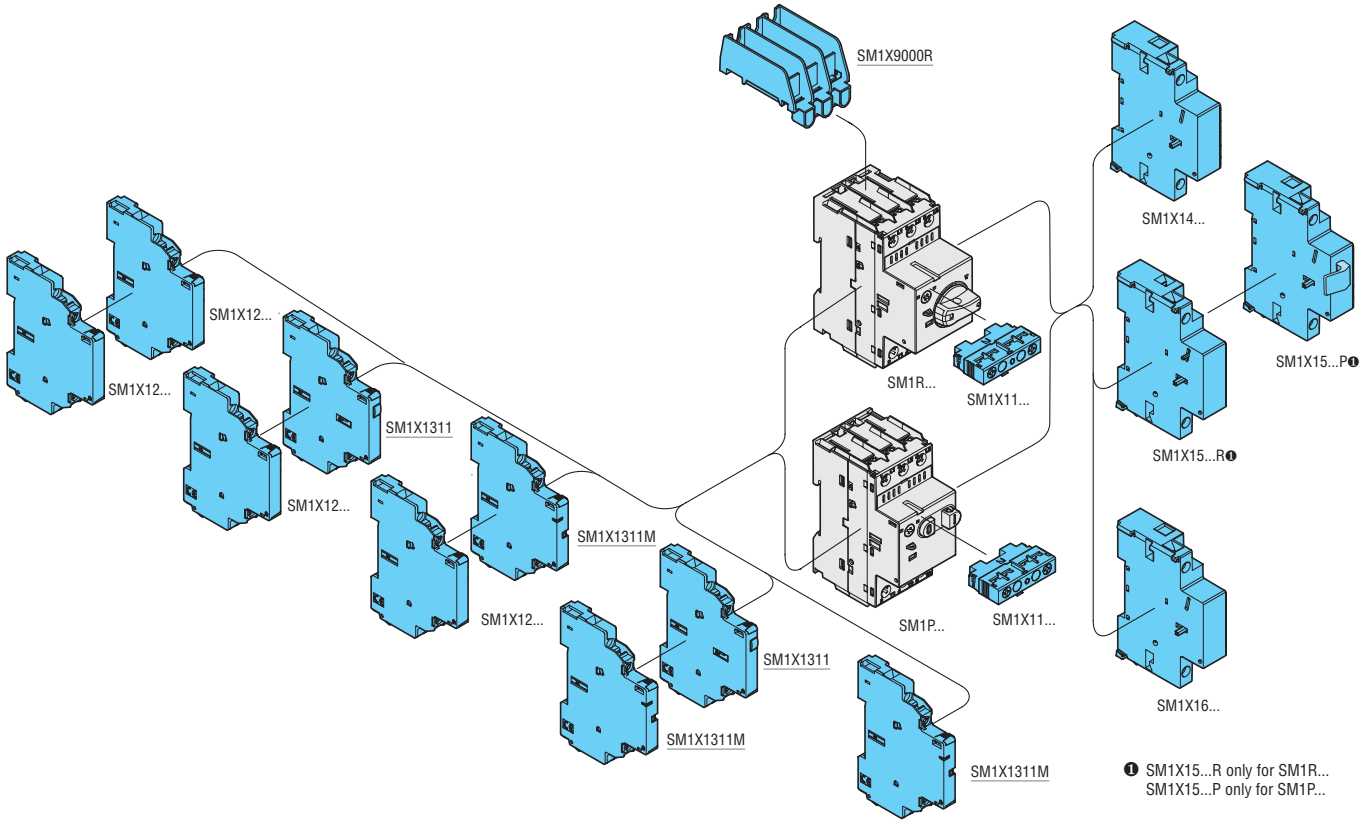
PADLOCKABLE DOOR COUPLING HANDLE FOR SM2R and SM3R
- IEC degree of protection: IP65
- Degree of protection according to UL: Type 1, 2, 3R, 12, 12K, 4, 4X; external use
- Adjustable rod from 48 to 212mm (1.89" to 8.35")
- Ring-fixing in 22mm/0.87" hole.

Certifications and compliance

Certifications obtained: cULus, EAC.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-5-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.

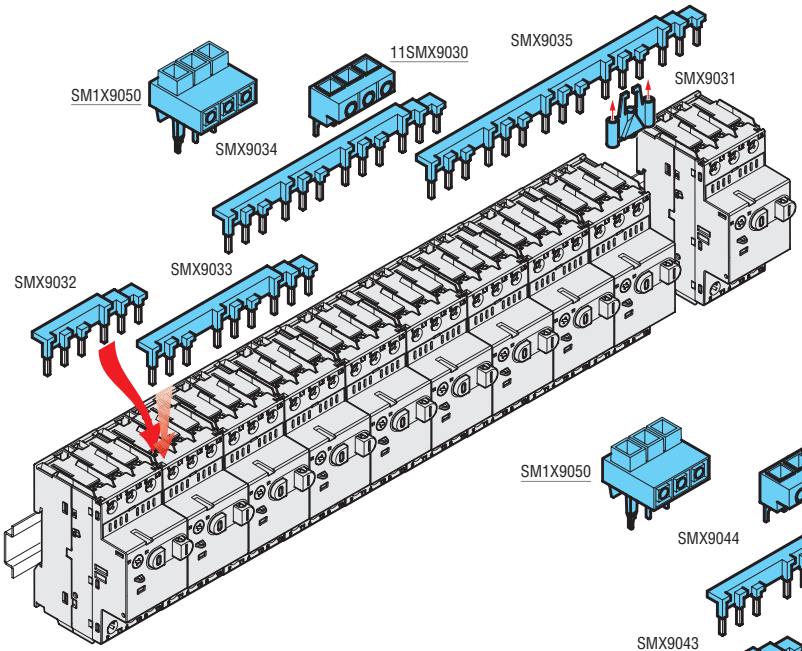
❷ Side blocks: n. 1 SM2X12... + SM2X1311.
It is not possible to mount 2 blocks SM2X12...

Combinations

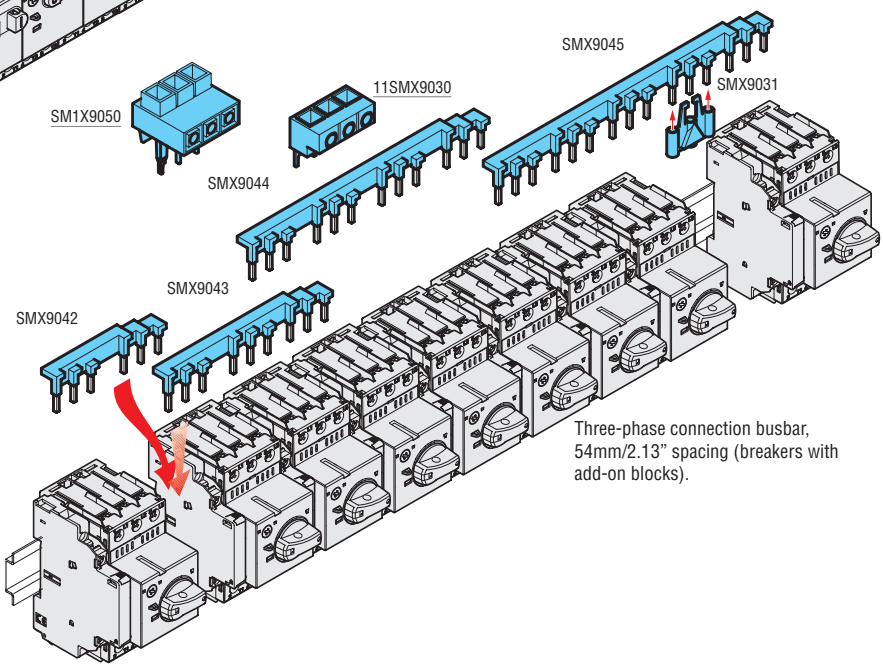


❶ SM1X15...R only for SM1R...
SM1X15...P only for SM1P...

Three-phase connection busbars.



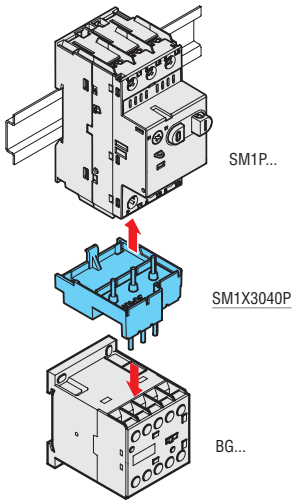
Three-phase connection busbar, 45mm/1.77" spacing (breakers without add-on blocks).

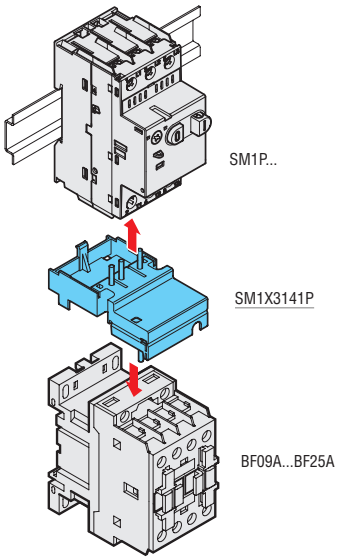


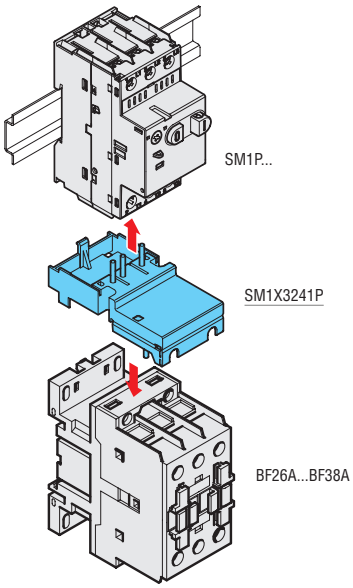
Three-phase connection busbar, 54mm/2.13" spacing (breakers with add-on blocks).

Combinations

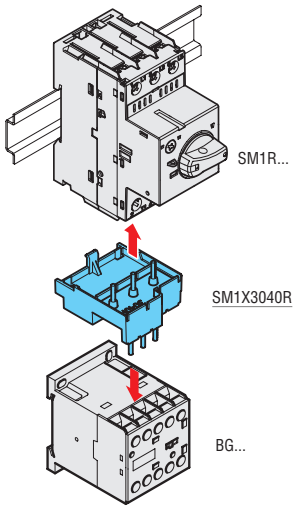
Rigid SM1P... breaker - contactor connections.

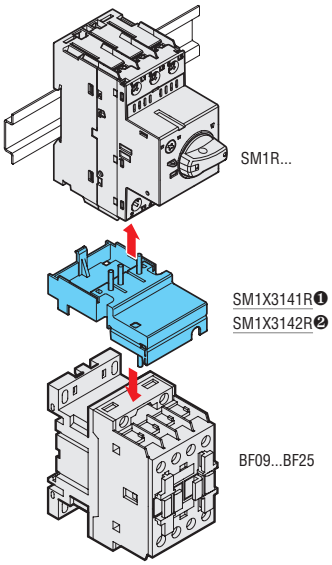


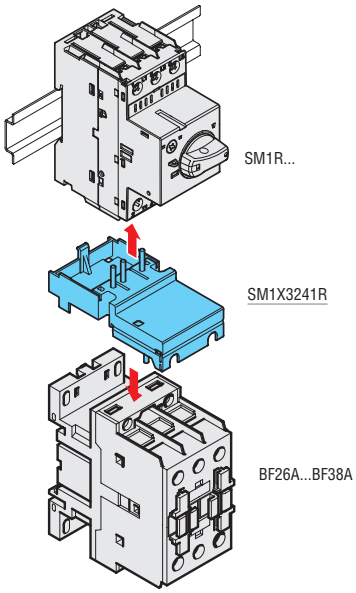




Rigid SM1R... breaker - contactor connections.

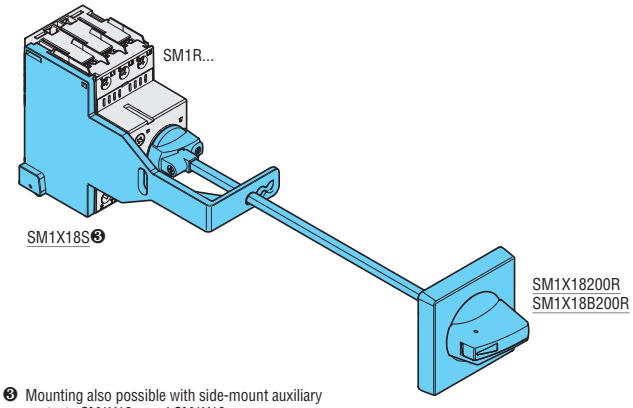






❶ For BF09A...BF25A contactors.
❷ For BF09D...BF25D and BF09L...BF25L contactors.

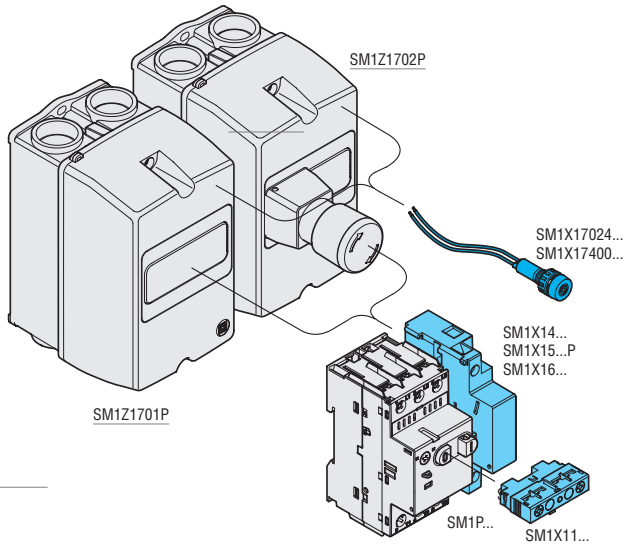
Padlockable door coupling handle.



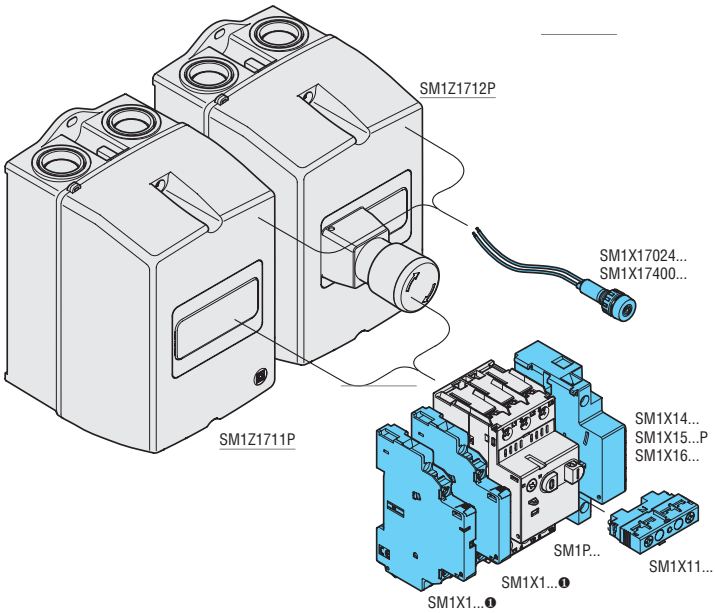
❸ Mounting also possible with side-mount auxiliary contacts SM1X12... and SM1X13...

Combinations

Surface mount enclosures for SM1P... Width 80mm.

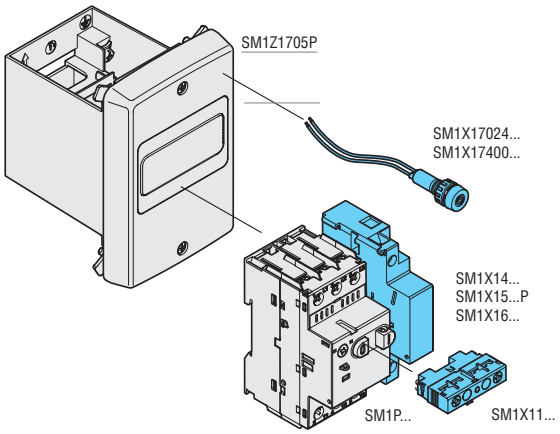


Surface mount enclosures for SM1P... Width 100mm.

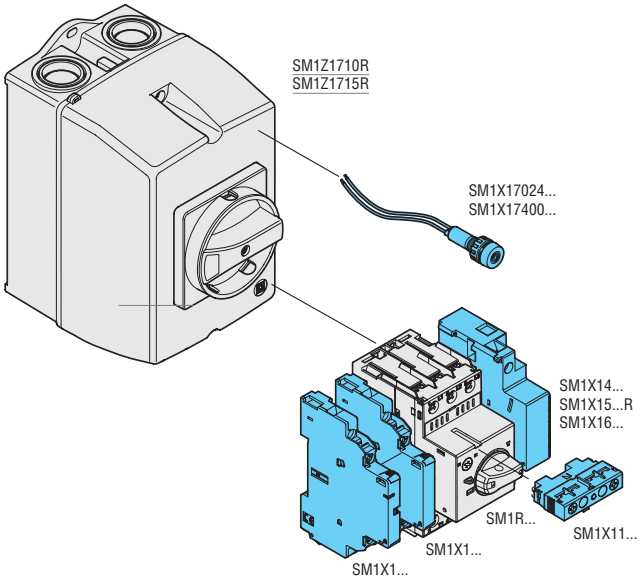


❶ Contacts for magnetic tripping indication SM1X1311M when mounted in SM1Z1711P and SM1Z1712P, can't be mounted alone, but shall be mounted in combination with SM1X12... on SM1X1311.

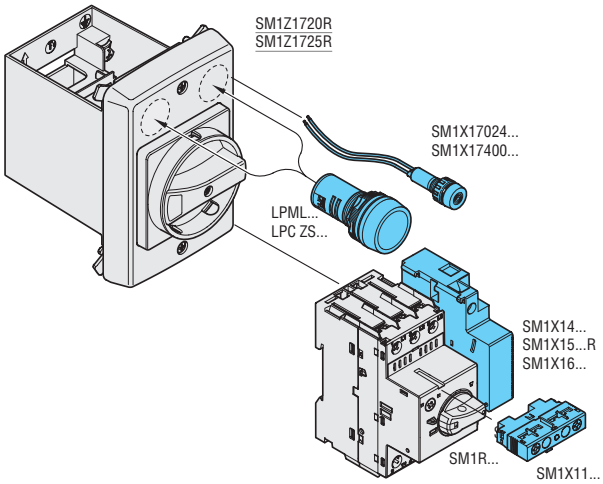
Flush mount enclosures for SM1P... Width 87mm/3.42".



Surface mount enclosures for SM1R... Width 100mm/3.94".

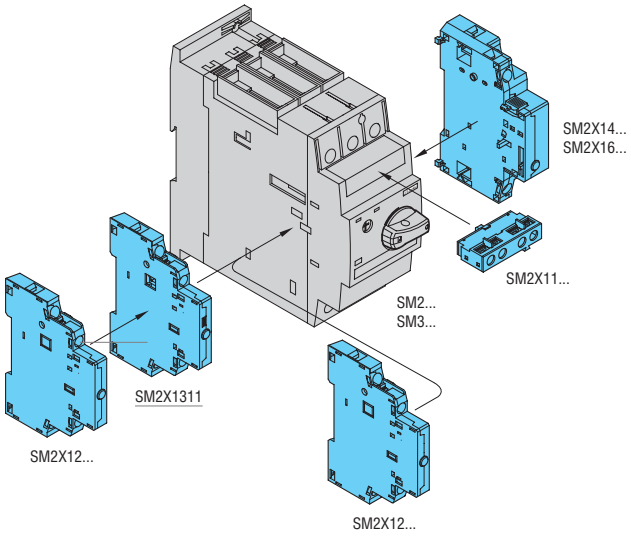


Flush mount enclosures for SM1R... width 87mm/3.42".

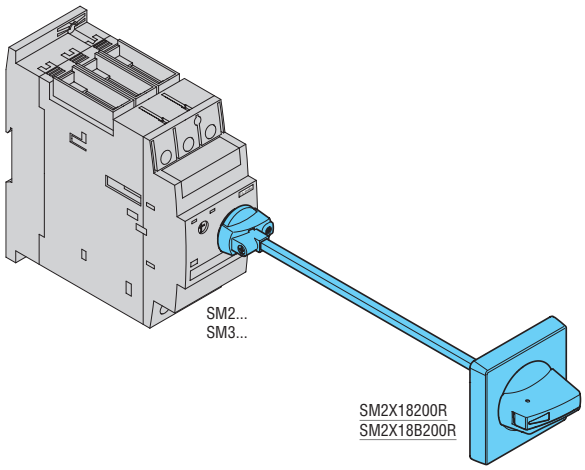


Combinations

Combinations of SM2... and SM3... motor protection circuit breakers.

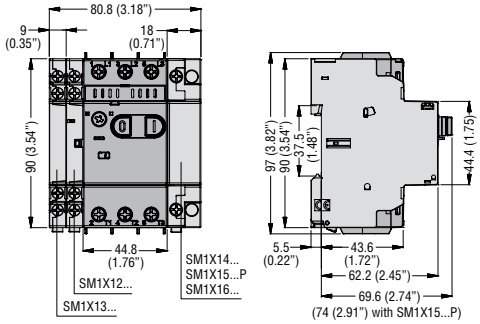


Padlockable door coupling handle.

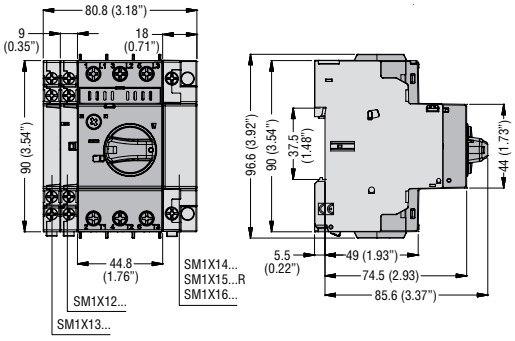


Motor protection circuit breakers
Dimensions [mm (in)]

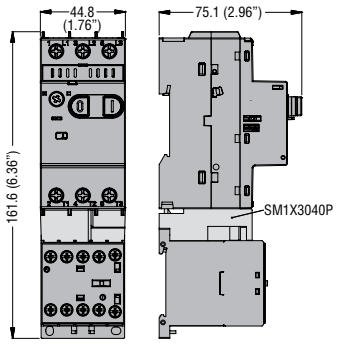
SM1P... with side-mount auxiliary contacts



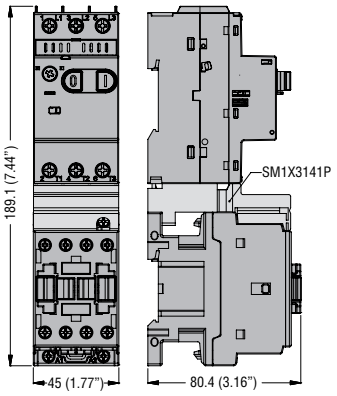
SM1R... with side-mount auxiliary contacts



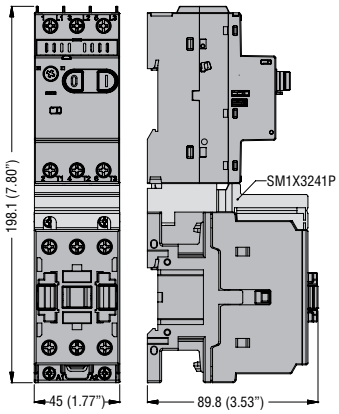
SM1P... with BG... mini-contactors and connection **SM1X3040P**



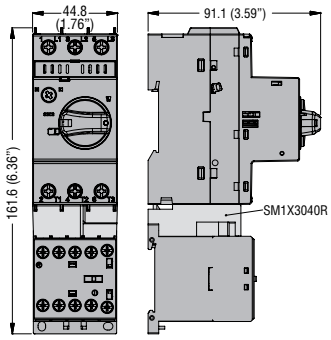
SM1P... with BF09 A...BF25 A... contactors and connection **SM1X3141P**



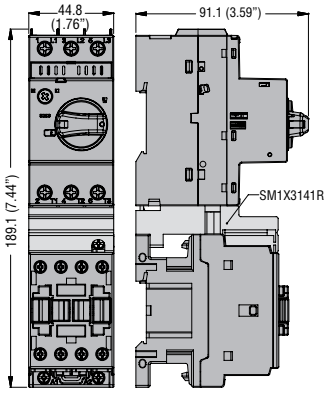
SM1P... with BF26 A...BF38 A... contactors and connection **SM1X3241P**



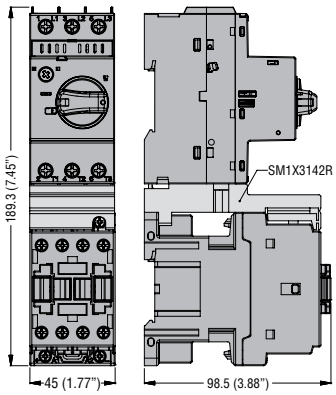
SM1R... with BG... mini-contactors and connection **SM1X3040R**



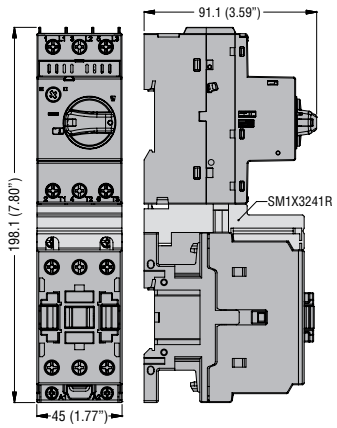
SM1R... with BF09 A...BF25 A... contactors and connection **SM1X3141R**



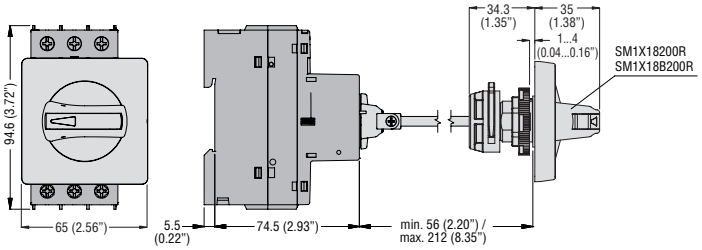
SM1R... with BF09 D...BF25 D... contactors BF09 L...BF25 L... and connection **SM1X3142R**



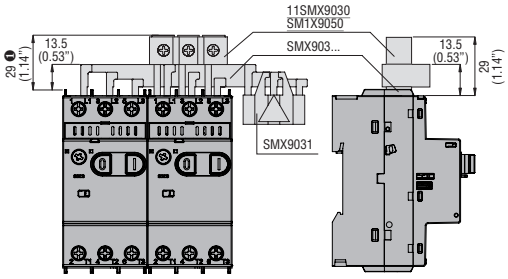
SM1R... with BF26 A...BF38 A... contactors and connection **SM1X3241R**



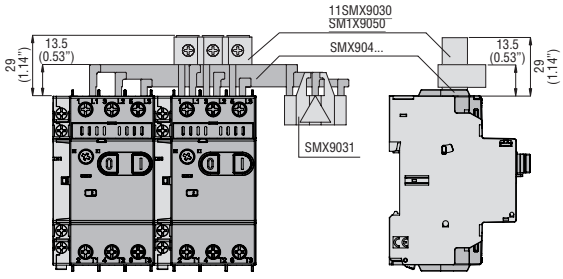
SM1R... padlockable door coupling handle **SM1X18200R** or **SM1X18B200R**



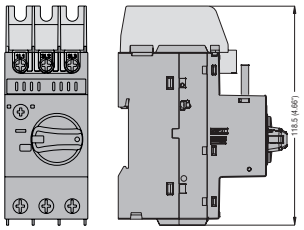
These elements mounted with **SM1… breakers**
without side-mount auxiliary contacts



These elements mounted with **SM1… breakers**
with side-mount auxiliary contacts **SMX12…** or **SMX13 11**

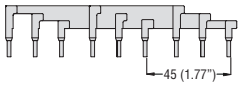


SM1X9000R

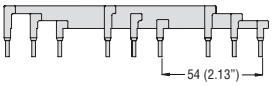


❶ 37mm (1.45") for SM1X9050

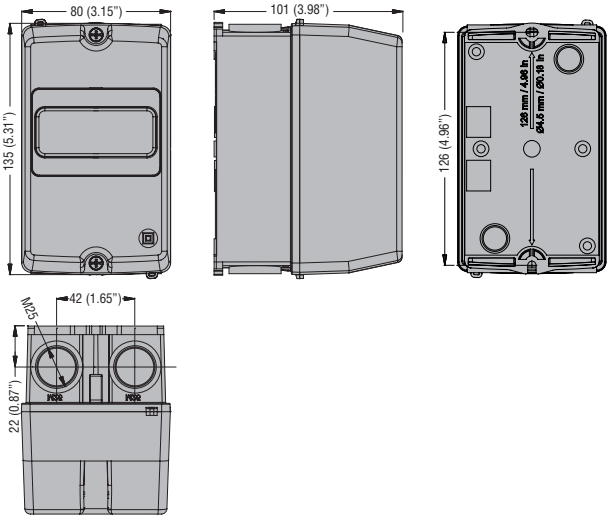
SMX9032 - SMX9033 - SMX9034 - SMX9035
Connection busbars – 45mm/1.77" spacing



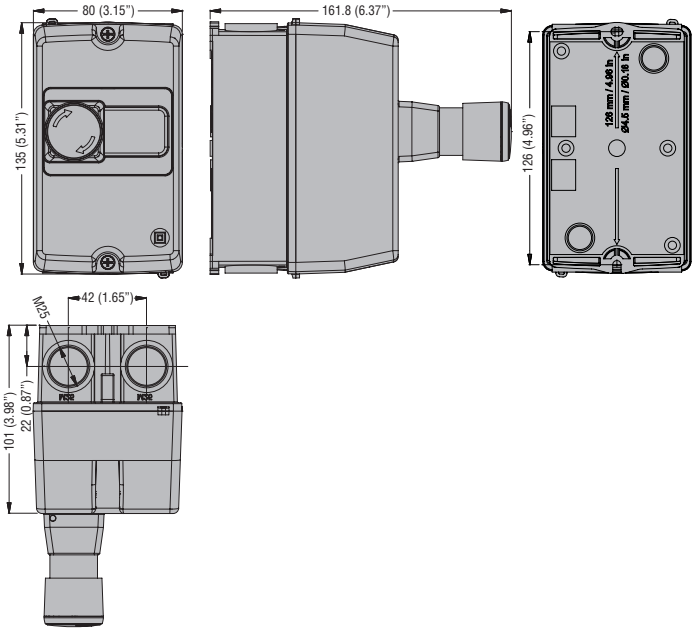
SMX9042 - SMX9043 - SMX9044 - SMX9045
Connection busbars – 54mm/2.13" spacing



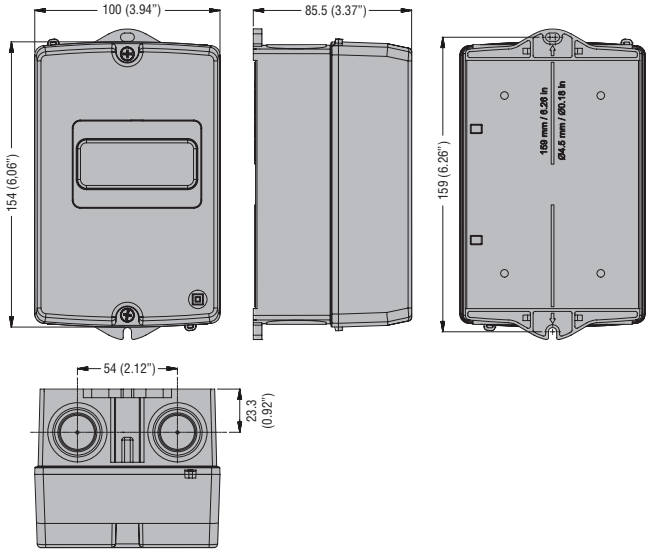
Enclosures **SM1Z1701P**



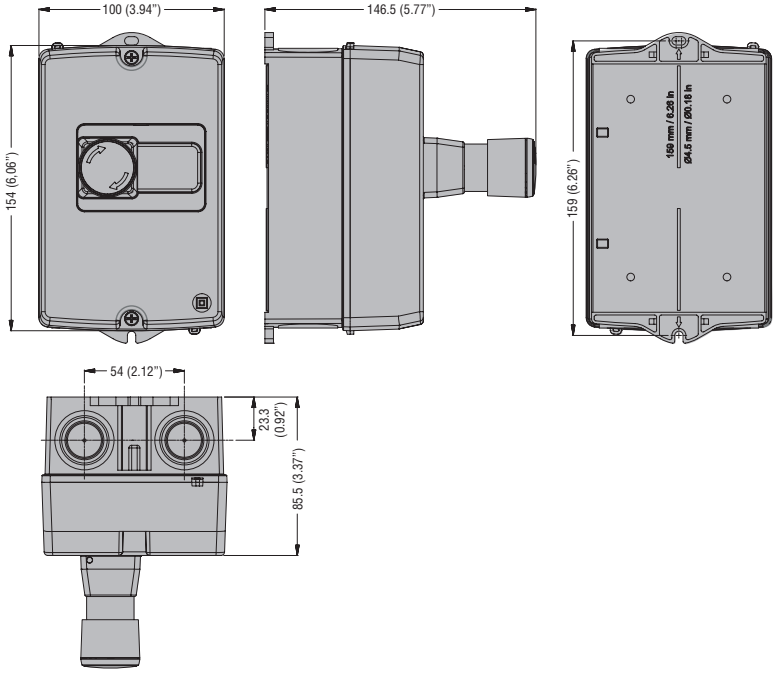
Enclosures **SM1Z1702P**



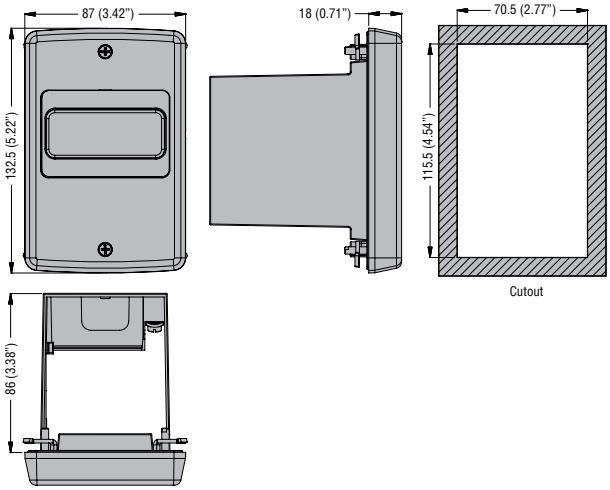
Enclosures **SM1Z1711P**



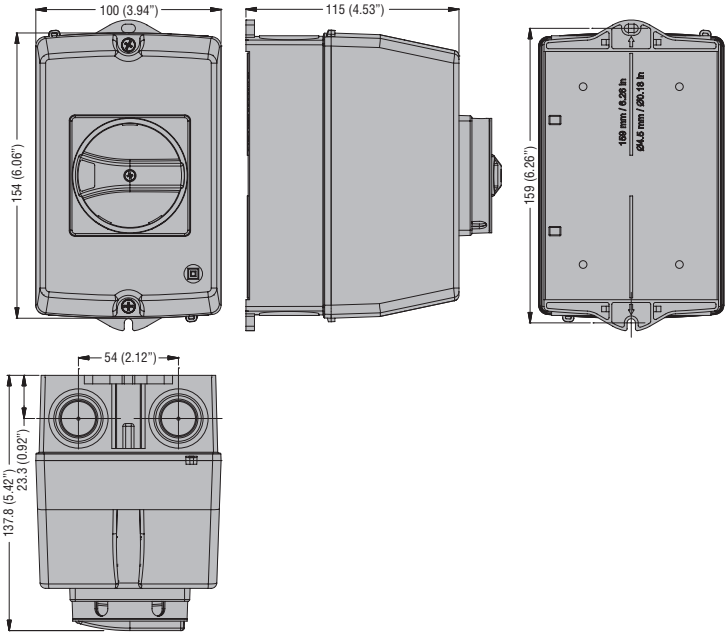
Enclosures **SM1Z1712P**



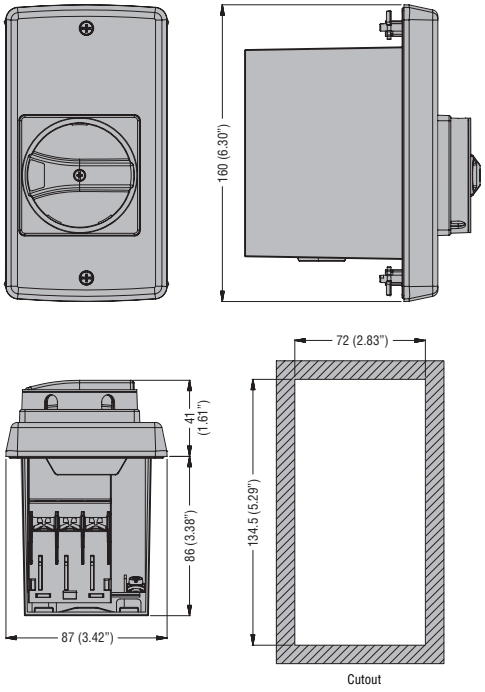
Enclosures SM1Z1705P



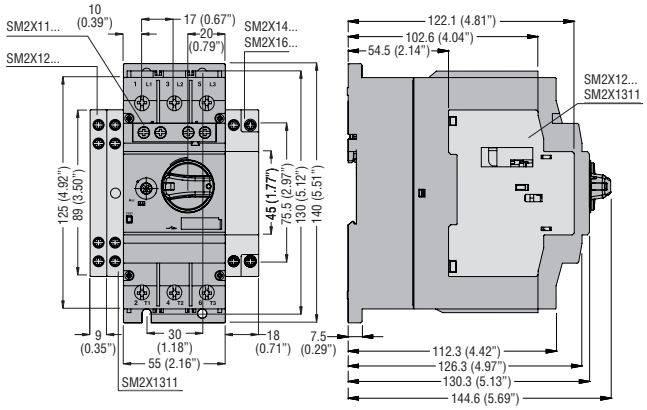
Enclosures SM1Z1715R and SM1Z1710R



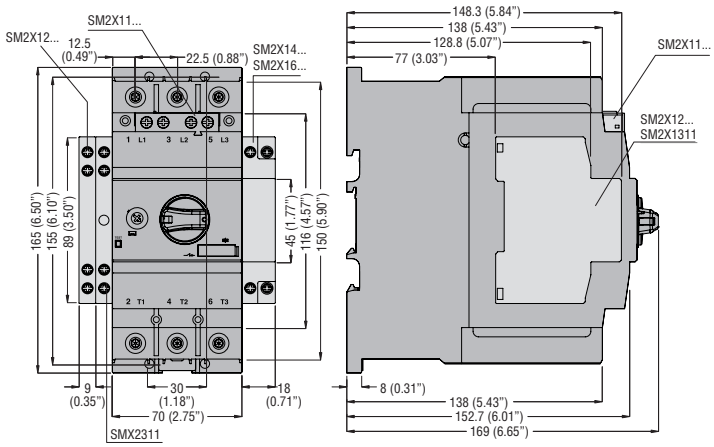
Enclosures SM1Z1720R and SM1Z1725R



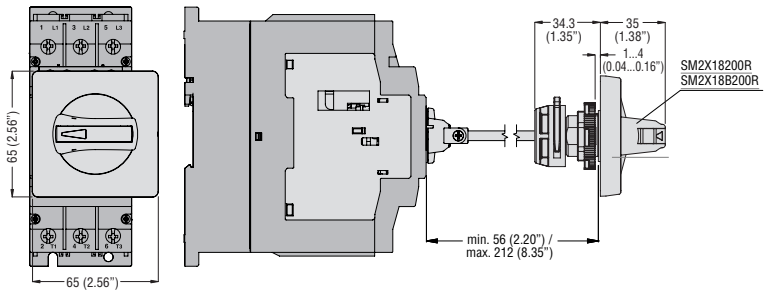
SM2… with side-mount auxiliary contacts



SM3… with side-mount auxiliary contacts



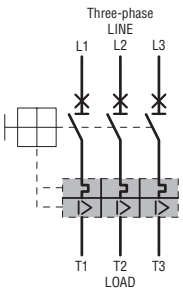
SM2… and **SM3…** padlockable door coupling handle
SM2X18200R or **SM2X18B200R**



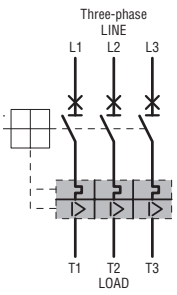
Wiring diagrams

MOTOR PROTECTION CIRCUIT BREAKERS

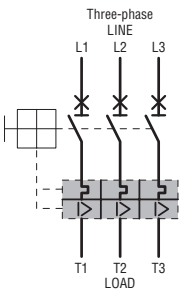
SM1P…



SM1R… - SM1RT… - SM2R… - SM3R… - SM1RE…

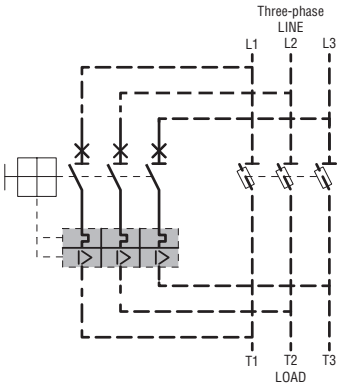


SM1RM…

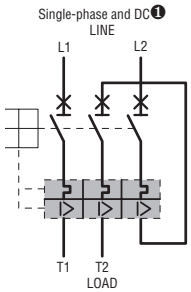


CIRCUIT BREAKERS

SM1PF…



For all motor protection circuit breakers

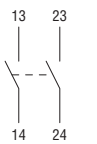


❶ Consult our Technical support for DC use.

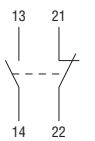
ADD-ON BLOCKS

For SM1... types
Front mount auxiliary contacts

SM1X1120

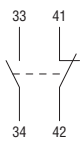


SM1X1111

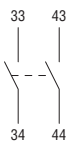


Side mount auxiliary contacts

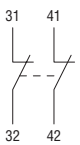
SM1X1211



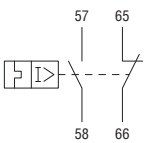
SM1X1220



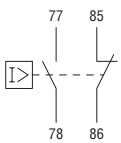
SM1X1202



SM1X1311



SM1X1311M



Side mount undervoltage trip releases

SM1X14…

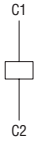


SM1X15…



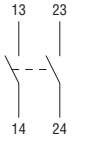
Side mount shunt trip release

SM1X16…

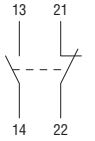


For SM2R... and SM3R... types
Front mount auxiliary contacts

SM2X1120



SM2X1111

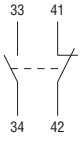


SM2X1102



Side mount auxiliary contacts

SM2X1211



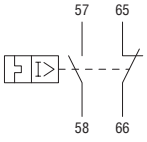
SM2X1220



SM2X1202



SM2X1311



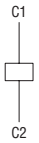
Side mount undervoltage trip release

SM2X14…



Side mount shunt trip release

SM2X16…



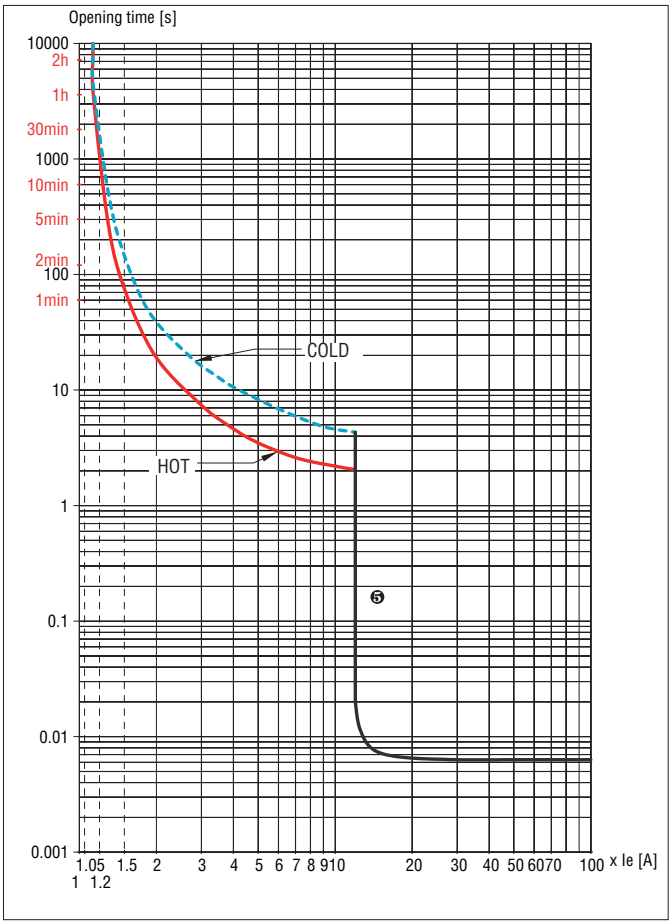
TYPE			SM1P...	SM1R...- SM1RM...	SM1RT...	SM2R...	SM3R...
Rated insulation voltage Ui		V	690			1000	
Rated impulse withstand voltage Uimp		kV	6				
Rated frequency		Hz	50/60Hz				
Maximum rated current		A	40	40	25	63	100
Number of adjustment ranges		No.	16	16	14	2	3
Total power dissipation at maximum current		W	2.1...18.3	2.1...18.3	2.1...10.2	6.1...21	5.4...18
Magnetic tripping		A	13 x In❶	13 x In max❷	20 x In max❸	13 x In	13 x In
Mechanical life		cycles	100,000	100,000	100,000	50,000	50,000
Electrical life (Ie max AC3)		cycles	100,000	100,000	100,000	25,000	25,000
Terminal tightening torque		Nm	2.5...3	2.5...3	2.5...3	3...4,5	4...6
		lb.in	22...26.5	22...26.5	22...26.5	36	53
		Tool	PH2	PH2	PH2	PZ2	Allen 4mm
Conductor section minimum and maximum (1 or 2 wires)	AWG	No.	16...8	16...8	16...8	18...3	10...1/0
Flexible without lug		mm^2	1...10	1...10	0.75...25	0.75...25	10...50
AMBIENT CONDITIONS							
Temperature	operating	°C	-20...+60❹	-20...+60❹	-20...+60❹	-20...+70❹	-20...+70❹
	storage	°C	-50...+80	-50...+80	-50...+80	-50...+80	-50...+80
	compensation	°C	-20...+50	-20...+50	-20...+50	-5...+40	-5...+40
Maximum altitude		m	3000				
Mounting position			Any				
Fixing			On 35mm DIN rail or screw via accessory			On 35mm DIN rail or screw	

E.g. PH = Phillips; PZ = Pozidriv; Allen is metric type.

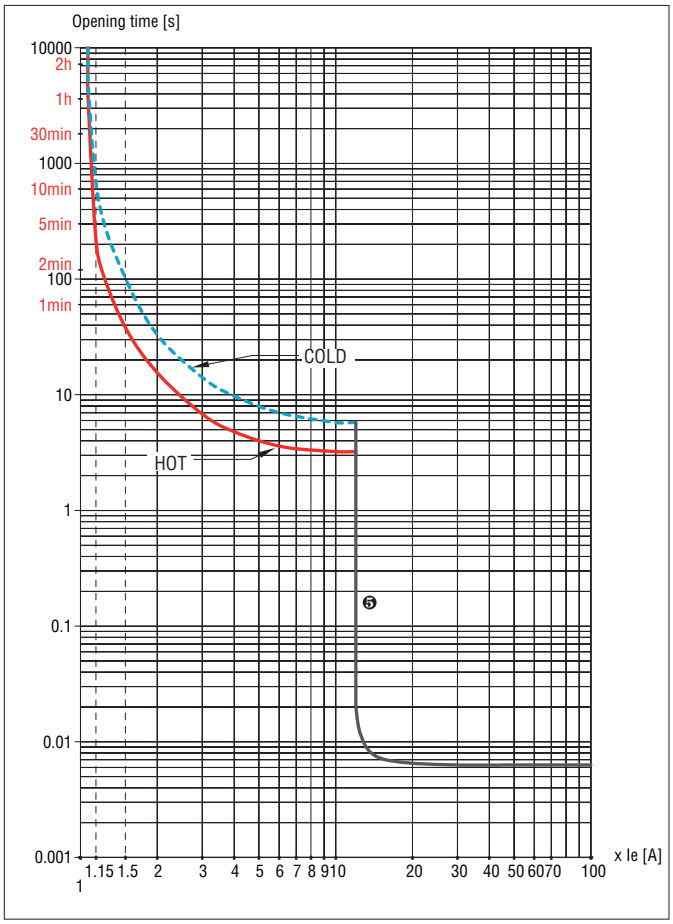
❶ SM1PF0020 has a single 0.2A thermal adjustment and magnetic tripping at 6 x In (1.2A).
❷ 10 x In max for 0.1...0.16A and 0.16...0.25A setting ranges.
❸ 16 x In max for 0.1...0.16A setting range.
❹ When fitting more than one breaker side by side, without leaving space between each to consent free air circulation on the breaker sides, and have simultaneous operation, the thermal trip adjuster must be positioned at a value 15% higher than the rated motor current.

THERMAL TRIPPING CURVE (AVERAGE TIMES)

Three-phase balanced operation



Two-phase operation (phase failure/single phasing)



Tripping times can have a ±20% deviation with respect to the average tripping curve value above.
❺ 20 x Ie for SM1RT....



- Three-pole versions up to 630A in IEC AC3 duty
- Four-pole versions up to 1600A in IEC AC1 duty
- Three-pole safety versions up to 38A (AC3).
- Versions for power factor correction up to 100kvar at 400VAC
- Four-pole versions with 2NO+2NC or 4NC main poles
- Versions for photovoltaic application
- Versions with AC, DC or AC/DC control
- Low-consumption versions with DC control circuit for control relays and 9-38A contactors in IEC AC3 duty
- Extensive choice of add-on blocks and accessories
- Certified by primary international authorities.

SEC. - PAGE

Contactors
Three-pole ..... 2 - 6
Four-pole ..... 2 - 10
Safety contactors ..... 2 - 14
Four-pole with 2NO and 2NC poles or 4NC poles ..... 2 - 16
For photovoltaic applications ..... 2 - 17
For power factor correction ..... 2 - 18
Control relays ..... 2 - 19

Add-on blocks and accessories
For BG series mini-contactors ..... 2 - 20
For BF series contactors ..... 2 - 22
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Spare parts
AC coils for BF series contactors ..... 2 - 34
AC/DC and DC coils for BF series contactors ..... 2 - 35
AC/DC coils for B series contactors ..... 2 - 36
Main contacts for BF and B series contactors ..... 2 - 37
Arc chutes for BF and B series contactors ..... 2 - 37

Dimensions ..... 2 - 38
Wiring diagrams ..... 2 - 53
Technical characteristics ..... 2 - 58



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THREE-POLE CONTACTORS

- IEC Ith ratings in AC1 duty at ≤40°C: 16 to 1600A
- IEC Ie ratings in AC3 440V duty: 6 to 630A
- IEC Power ratings in AC3 400V duty: 2.2 to 335kW
- UL/CSA ratings: 3 to 500HP at 480V and 600V
- AC, DC, AC/DC and DC low-consumption coil.



Page 2-10

FOUR-POLE CONTACTORS

- IEC Ith ratings in AC1 duty at ≤40°C: 20 to 1600A
- IEC Power ratings in AC1 400V duty: 14 to 950kW
- UL/CSA general use: 20 to 1000A
- AC, DC, AC/DC and DC low-consumption coil.



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SAFETY CONTACTORS

- IEC Ie ratings in AC3 440V duty: 9 to 38A
- IEC Power ratings in AC3 400V duty: 4.2 to 18.5kW
- UL/CSA ratings: 5 to 30HP at 480V and 600V
- AC and DC coil.



Page 2-16

FOUR-POLE CONTACTORS WITH 2NO+2NC MAIN POWER POLES AND WITH 4 NC POLES

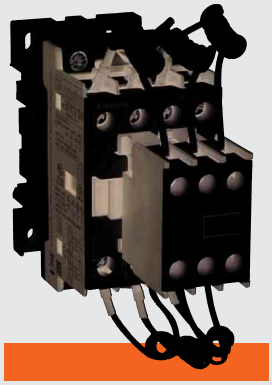
- IEC Ith ratings in AC1 duty at ≤40°C: 20 to 115A for type 2NO+2NC
- UL/CSA general use: 20 to 115A
- IEC Ith ratings in AC1 duty at ≤40°C: 32 to 45A
- UL/CSA general use: 20 to 55A for 4NC types
- AC, DC, AC/DC and DC low-consumption coil.



Page 2-17

CONTACTORS FOR PHOTOVOLTAIC APPLICATIONS

- Operational current up to 165A (DC1 600V at ≤55°C with 4 NO poles in series) for photovoltaic applications.
- AC, and AC/DC coil.



Page 2-18

CONTACTORS FOR POWER FACTOR CORRECTION

- With limiting resistors included
- IEC Power ratings at 400V: 7.5 to 100kvar
- UL/CSA ratings: 9 to 100kvar at 480V; 10 to 125kvar at 600V
- AC coil.



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CONTROL RELAYS

- AC, DC and DC low-consumption coil
- Screw or Faston termination
- 4, 8 or 11 auxiliary contact composition.

IE3 READY

LOVATO Electric contactors are suitable for new motors with high IE3 efficiency values

Lovato electric

THE IDEAL SOLUTION!



CONTACTORS WITH REDUCED WIDTH

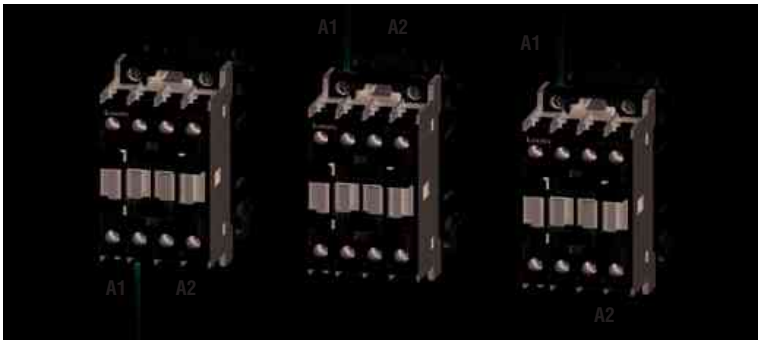
A considerable dimensional advantage in system design.
45mm width up to 38A in AC3 (18.5kW).
55mm width up to 95A in AC3 (45kW).
75mm width up to 150A in AC3 (75kW).

CONTACTORS WITH IDENTICAL WIDTH TO CIRCUIT BREAKERS

Dimensions in line with molded case circuit-breakers of the same current allows compact starters and facilitates the connection of power terminals.
105mm width up to 230A in AC3 (110kW).
140mm width up to 400A in AC3 (200kW).

4-TERMINAL COIL

For BF09...BF400 contactors, connecting cables can be coupled to the coil both on the line and load ends of the contactor.



ELECTRONIC COIL

Contactors from 40 to 400A AC3 can be equipped with AC/DC electronic coil with wide operating range.
Example: single 100 to 250V AC/DC coil.
They also offer low consumption in service and stability even in the presence of abnormal voltages.

BUILT-IN SURGE SUPPRESSOR

BF series contactors up to 150A AC3 with voltages in DC or AC/DC already have a built-in surge suppressor.

LOW-CONSUMPTION COILS

The BF...L contactors feature a 2.4W low consumption coil.
This characteristic widely allows their direct control by PLC outputs.

COILS WITH WIDE OPERATING RANGE

BF...D contactors are equipped with a wide operating range coil and are particularly useful in applications subject to considerable voltage variations, such as in electric traction railway equipment.

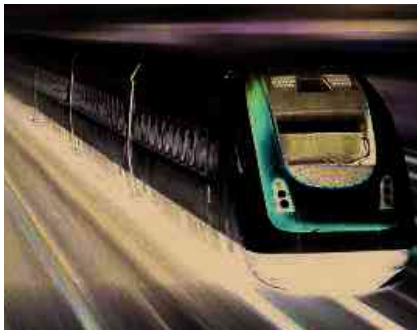
SUITABLE FOR AC-3e MOTOR CONTROL

All contactors comply with utilization category AC-3e referring to high-efficiency motors.

SAFETY VERSIONS

The BF series contactors up to 38A in AC3 are available with factory mounted auxiliary contacts with “Mirror contact” and “Mechanical linked contact” functions for the construction of ISO13849-1 and EN62061 compliant machines.

RAILWAY APPLICATIONS



Thanks to the compliance with IEC 61373 (shock and vibration) and EN 45545 (fire behaviour), LOVATO Electric contactors are suitable for railway applications. Consult Technical support for detailed information; see contact details on inside front cover.

HOUSEHOLD AND COMMERCIAL APPLICATIONS



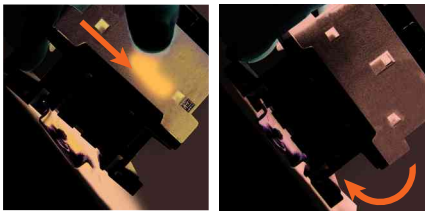
The plastic materials of the contactors comply with the EN 60335 standard typically applied in equipment for food industry and professional catering.
Consult Technical support for detailed information; see contact details on inside front cover.

PHOTOVOLTAIC APPLICATIONS



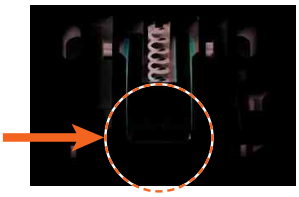
LOVATO Electric contactors are suitable for use in the various sections of the photovoltaic systems. In particular, there are specific contactors for use up to 1000VDC.

35MM DIN RAIL MOUNTING AND FIXING



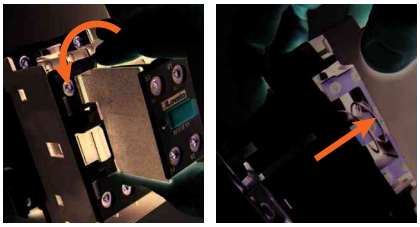
Contactor mounting on and removal from a 35mm DIN rail are tool-less operations and are done by simply applying pressure on the contactor.

RUBBER PAD INSERT TO PREVENT DIN RAIL SLIDING



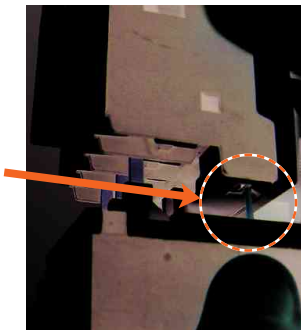
A rubber insert prevents the contactors from sliding on the 35mm DIN rail even when out of tolerance or mounted vertically.

SNAP-ON INSTALLATION



On the contactors, it's quick and easy to fit and remove auxiliary contacts and accessories, without using tools; the same applies to replacing the coil in the AC BF09...BF38 contactors.

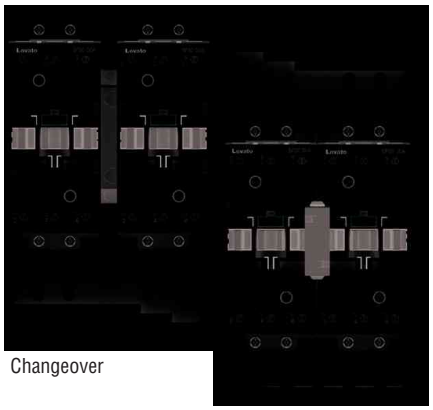
EFFORTLESS THERMAL OVERLOAD RELAY LINK RF38, RF82 AND RF110 TYPES



During the connection of the thermal overload relay to the contactor, its auxiliary contact is simultaneously linked to the contactor coil terminal rigid connector.
The complete overload relay fixing is obtained with one single operation and without other connections.

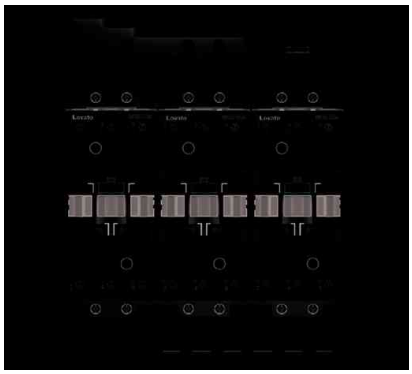
RIGID CONNECTION KITS FOR FAST WIRING WITHOUT MISTAKES

The assembly and wiring of electromechanical starters is extremely fast and reliable.
Versatile electrical and mechanical connecting systems provide easy and foolproof assembly of compact starters and changeovers.



Changeover

Reversing starter



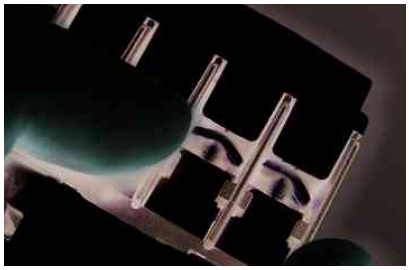
Star-delta starter

BREAKER-CONTACTOR CONNECTIONS

The rigid connections between breaker and contactor allow complete compact starters to be created easily, quickly and with less space used in the panel.
It is fitted on a single DIN rail.



IP20 CONNECTION SECURITY



For BF09...BF38 contactors, the easy access and space for the terminals is combined with IP20 protection, preventing accidental contact with live parts.

IP20 ACCESSORY FOR CONTACTORS FROM 40A TO 150A AC3

IP20 protection can be obtained by adding a simple accessory.

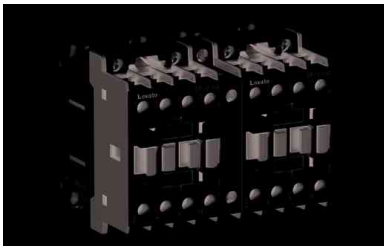


SIDE ADD-ON FOURTH POLE

For the 45A to 165A AC1 ratings, a side-mount fourth power pole can be snapped on the three-pole contactor. This solution permits the optimisation of inventory.



MECHANICAL INTERLOCK



Various versions of mechanical interlock are available.
One type can be integrated in the contactors from 9 to 38A AC3 without increasing the overall dimensions.
They may have built-in contacts to also make the electrical interlock. The mounting position can be on the side or on the front of the contactors.

TERMINAL ADAPTABILITY

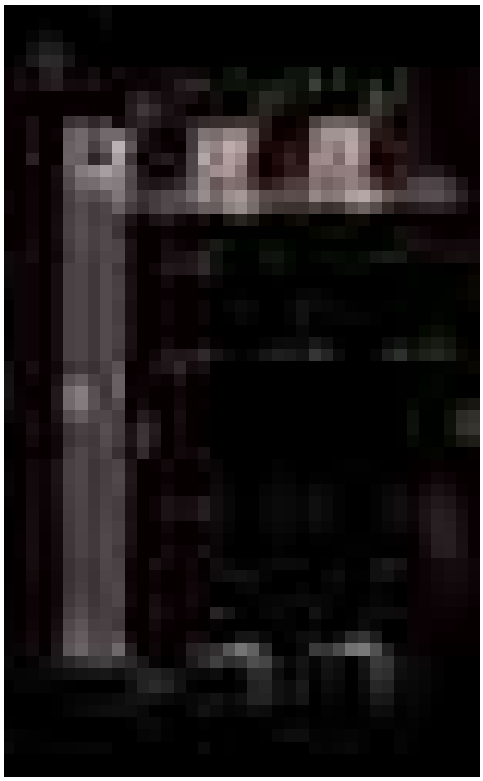
Terminals are suitable for every type of cable: flexible, rigid, according to AWG standards and interlocked with any type of cable terminal.
For BF09...BF38 contactors, a single type of screwdriver tightens the screws for the power contacts, auxiliary contacts and coil.

DOUBLE LUG TERMINALS

40 to 150A AC3 contactors are equipped with double lug terminals for easy, functional access for power cables.
It is extremely simple to create star-delta starters, reversing switches, changeovers and arrange parallel supply for several contactors.



INNOVATION IS CONTINUING....



AC/DC COIL WITH ELECTRONIC CONTROL

- Wide operating range: for example one single coil to cover 100...250VAC/DC range
- Low consumption during in-rush and in service
- No chattering in the event of irregular voltage
- Built-in surge suppressor filter.

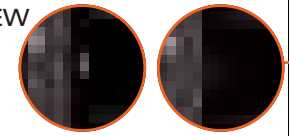
COMPACT DIMENSIONS

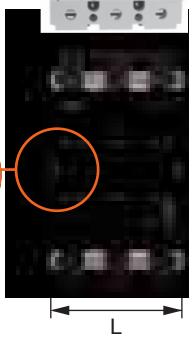
- Three-pole contactors: 105mm width for currents up to 230A AC3 - 350A AC1 and 140mm for current up to 400A AC3 - 600A AC1
- Four-pole contactors: 140mm width for currents up to 350A AC1 and 185mm width for current up to 600A AC1
- Width identical with molded-case circuit breakers (MCCB) of equal current.



CONTACT STATUS FRONT VIEW

A front mechanical indicator allows to easily identify the status of the contacts.





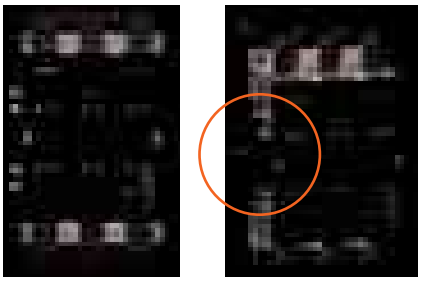


HIGH POWER TERMINALS FOR EASY AND SAFE WIRING

High power terminals to ensure a safe isolation distance from the panel in case of wiring with double terminals or bars for parallel or changeover.

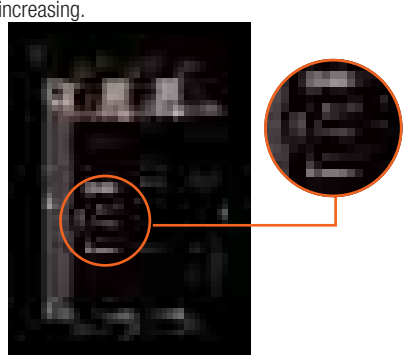
SIDE-MOUNTING AUXILIARY CONTACTS

Useful in the event that the panel depth may be critical. Up to 8 auxiliary contacts can be mounted.



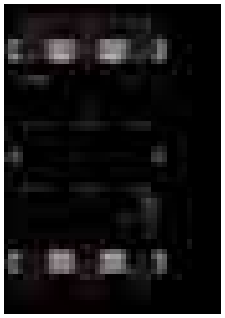
FRONT-MOUNT AUXILIARY CONTACTS

Up to 6 NO or NC auxiliary contacts (up to 8 contacts on 4 pole version), with screw terminals, can be mounted without side dimensions increasing.



4-TERMINAL COIL

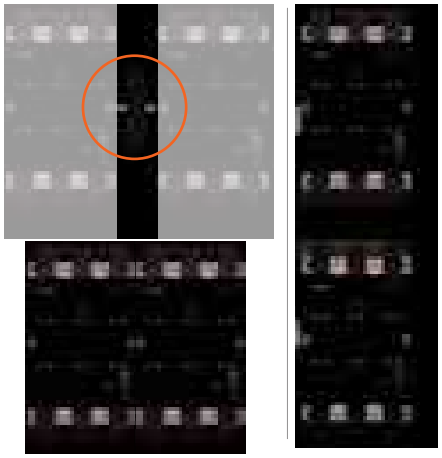
You can connect the connection cables to the coil either from the top or the bottom of the contactors.



The coil terminals are easy to reach with the screwdriver as they are interspersed with the power terminals.

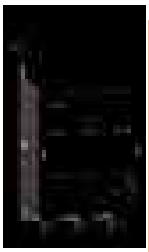
HORIZONTAL AND VERTICAL INTERLOCK

Horizontal interlock with concealed mounting does not increase the dimensions.



POWER TERMINAL PROTECTIONS PHASE BARRIERS.

They guarantee the separation and protection of the power terminals and adjacent phases separation.



TERMINAL ENLARGEMENT

Extend the terminal pitch to allow easy wiring of standard flange lugs for large cable cross-sections.

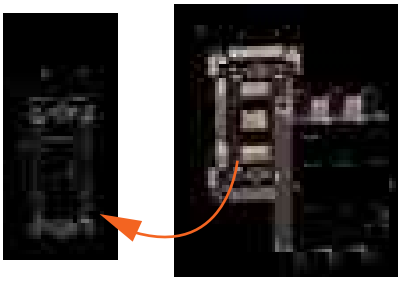


CAPTIVE NUT

Accessory that allows even easier wiring of the terminals using a single wrench.



EASY COIL AND POWER CONTACTS REPLACEMENT



BG series mini-contactors



- AC and DC versions of same size
- Quick connect - snap on accessory mounting
- Distinct contact status indication
- Up to four auxiliary contacts can be mounted
- Mechanical interlock only 5mm depth
- Three-pole mini-contactors, 6 to 12A IEC AC3 duty / 3 to 7.5HP 480V - 3 to 10HP 600V UL/CSA
- Four-pole mini-contactors, 20A IEC AC1 duty
- Versions with 2NO+2NC main power poles
- Highly conductive auxiliary contacts with four contact points
- Coils with AC or DC supply
- Low-consumption DC versions
- Screw, Faston and rear PCB solder pin termination.

	3 poles			4 poles		
	Ie (AC3)	AC	DC	Ith (AC1)	AC	DC
BG06	6A	●	●	—	—	—
BG09	9A	●	●	20A	●	●
BGF09	9A	●	●	20A	●	●
BGP09	9A	●	●	20A	●	●
BG12	12A	●	●	—	—	—

BF series contactors







- Quick connect - snap on accessory mounting
- Distinct contact status indication
- Up to 12 auxiliary contacts can be mounted
- Mechanical interlock without overall dimensions increasing
- Three-pole contactors, 9 to 400A IEC AC3 duty / 5 to 150HP 480V - 7.5 to 200HP 600V UL/CSA
- Four-pole contactors, 25 to 600A in AC1 duty
- Three-pole safety contactors, 9 to 38A duty / 30HP 480V/600V UL/CSA
- Power factor correction contactors, 7.5 to 100kvar at 400V IEC / 9 to 110kvar at 480V UL/CSA
- Types with 2NO+2NC or 4NC main power poles
- Types for photovoltaic applications
- Highly conductive auxiliary contacts
- Coils with AC or DC supply
- Wide-range coils with electronic control for contactors from 40 to 400A AC3
- Low-consumption versions for control relays and 9-38A contactors in IEC AC3 duty.
- Screw terminals.

		3 poles with coil type:			
	Ie (AC3)	AC	DC	DC❶	AC/DC❷
BF09	9A	●	●	●	—
BF12	12A	●	●	●	—
BF18	18A	●	●	●	—
BF25	25A	●	●	●	—
BF26	26A	●	●	●	—
BF32	32A	●	●	●	—
BF38	38A	●	●	●	—
BF40	40A	●	—	—	●
BF50	50A	●	—	—	●
BF65	65A	●	—	—	●
BF80	80A	●	—	—	●
BF94	95A	●	—	—	●
BF95	95A	●	—	—	●
BF115	115A	●	—	—	●
BF150	150A	●	—	—	●
BF160	160A	—	—	—	●
BF195	195A	—	—	—	●
BF230	230A	—	—	—	●
BF265	265A	—	—	—	●
BF330	330A	—	—	—	●
BF400	400A	—	—	—	●

		4 poles with coil type:			
	Ith (AC1)	AC	DC	DC❶	AC/DC❷
BF09	25A	●	●	●	—
BF12	28A	●	—	—	—
BF18	32A	●	●	●	—
BF26	45A	●	●	●	—
BF38	56A	●	●	●	—
BF40	70A	●	—	—	—
BF50	90A	●	—	—	—
BF65	100A	●	—	—	●
BF80	115A	●	—	—	●
BF95	140A	●	—	—	●
BF115	160A	●	—	—	●
BF150	165A	●	—	—	●
BF160	250A	—	—	—	●
BF195	275A	—	—	—	●
BF230	350A	—	—	—	●
BF265	450A	—	—	—	●
BF330	500A	—	—	—	●
BF400	600A	—	—	—	●

❶ Low-consumption version.
❷ Wide-range coil with electronic control.

B series contactors



- Coil operates indifferently on AC or DC supply voltage
- Coil with low in-rush and holding
- Coil removable without disconnecting power wiring
- Red indicator when contactor is energised
- Safety feature prevents contactor to be energised without arc chute in place and locked
- Convertible auxiliary contact block (2NO + 1NC or 1NO + 2NC), maximum of 4 blocks per contactor for a total of 12 contacts
- Contactor terminals with bolt, washer and nut
- Simple horizontal or vertical interlock
- Three-pole contactors, 520A to 630A IEC AC3 duty
- Four-pole contactors, 700A to 1600A IEC AC1 duty
- 100 to 500HP 600V UL/CSA
- Coils with AC/DC supply
- Screw termination.

	3 poles			4 poles		
	Ie (AC3)	AC	AC/DC	Ith (AC1)	AC	AC/DC
B500	520A	—	●	700A	—	●
B630	630A	—	●	800A	—	●
B6301000	❶	—	●	1000A	—	●
B1250	❶	●	—	1250A	●	—
B1600	❶	●	—	1600A	●	—

❶ For AC1 / general use duty only.


BG06A...BG12A


BF09A...BF25A


BF26A...BF38A


BF40A...BF94A


BF95A...BF150A


BF160E...BF230E



BF265E...BF400E

Order code / AC coil	General use: IEC operating current Ith (AC1) ≤40°C [A]	≤55°C [A]	≤70°C [A]	Three-phase motor control in AC-3/AC-3e duty: Ie (AC3) ≤440V at ≤55°C [A]	Maximum IEC power at ≤55°C (AC-3/AC-3e) 230V [kW]	400V [kW]	415V [kW]	440V [kW]	500V [kW]	690V [kW]	1000V [kW]	UL/CSA details: Maximum UL/CSA horsepower ratings Single phase 120V [HP]	240V [HP]	Three phase 200V [HP]	240V [HP]	480V [HP]	600V [HP]
11BG0601A❶	16	14	12	6	1.5	2.2	2.4	2.5	3	3	—	1/3	1	1 1/2	2	3	3
11BG0610A❶																	
11BG0901A❶	20	18	15	9	2.2	4	4.3	4.5	5	5	—	1/2	1 1/2	2	3	5	5
11BG0910A❶																	
11BGF0901A❶	20	18	15	9	2.2	4	4.3	4.5	5	5	—	1/2	1 1/2	2	3	5	5
11BGF0910A❶																	
11BGP0901A❶	20	18	15	9	2.2	4	4.3	4.5	5	—	—	1/2	1 1/2	2	3	5❼	—
11BGP0910A❶																	
11BG1201A❶❷	20	18	15	12	3.2	5.7	6.2	5.5	5	5	—	1/2	1 1/2	3	3	7 1/2	10
11BG1210A❶❷																	
BF0901A❶❷	25	20	18	9	2.2	4.2	4.5	4.8	5.5	7.5	—	3/4	2	3	3	5	7 1/2
BF0910A❶❷																	
BF1201A❶❷	28	23	20	12	3.2	5.7	6.2	6.2	7.5	10	—	1	2	5	5	7 1/2	10
BF1210A❶❷																	
BF1801A❶❷	32	26	23	18	4	7.5	9	9	10	10	—	1	3	5	5	10	15
BF1810A❶❷																	
BF2501A❶	32	26	23	25	7	12.5	13.4	13.4	15	11	—	2	3	7 1/2	7 1/2	15	15
BF2510A❶																	
BF2600A❶❷	45	36	32	26	7.3	13	14	14	15.6	18.5	—	2	5	7 1/2	7 1/2	15	20
BF3200A❶❷	56	45	40	32	8.8	16	17	17	20	22	—	3	7 1/2	10	10	20	25
BF3800A❶	56(60❿)	45(48❿)	40(42❿)	38	11	18.5	18.5	18.5	20	22	—	3	7 1/2	10	15	30	30
BF4000A❶	70	60	50	40	11	18.5	22	22	22	30	22	3	7 1/2	10	15	30	40
BF5000A❶❷	90	75	65	50	15	22	30	30	30	37	30	5	10	15	20	40	40
BF6500A❶❷	100	80	70	65	18.5	30	37	37	37	45	30	—	—	20	25	50	60
BF8000A❶❷	115	95	80	80	22	45	45	45	55	55	37	—	—	25	30	60	75
BF9400A❶	115	95	80	95	30	55	55	55	55	55	37	—	—	25	30	60	75
BF9500A❶	140	115	100	95	30	55	55	55	75	90	45	—	—	30	30	60	75
BF11500A❶	160	130	115	115	37	55	55	55	75	110	55	—	—	40	40	75	100
BF15000A❶	165	135	118	150	45	75	75	75	90	110	55	—	—	50	50	100	125
BF16000E❽	250	210	180	160	45	75	90	90	110	132	75	—	—	50	60	125	150
BF19500E❽	275	230	200	195	55	90	110	110	132	160	110	—	—	60	75	150	150
BF23000E❽	350	290	250	230	55	110	110	132	132	160	132	—	—	75	75	150	200
BF26500E❽	450	375	325	265	75	132	132	160	160	200	160	—	—	75	100	200	250
new **BF33000E❽**	500	415	360	330	90	160	160	160	200	250	200	—	—	100	125	250	300
BF40000E❽	600	500	435	400	110	200	200	200	250	315	220	—	—	125	150	350	400
11B50000❷❸	700	550	500	520	156	290	306	328	367	416	312	—	—	150❶	200❶	400❶	450❶
11B63000❷❸	800	640	540	630	198	355	368	368	368	440	368	—	—	200❶	250❶	500❶	500❶
11B6301000000❷❺	1000	850	700	—	For AC1/Resistive duty only. see page 2-10.							—	—	—	—	—	—
11B125024❺❻	1250	1050	880	—	For AC1/Resistive duty only. see page 2-10.							No UL	—	—	—	—	—
11B160024❺❻	1600	1360	1120	—	For AC1/Resistive duty only. see page 2-10.							No UL	—	—	—	—	—

❶ Complete order code with coil voltage digit or with voltage digit followed by 60 (if 60Hz).
Standard voltages are as follows:
– AC 50/60Hz 024 / 048 / 110 / 230 / 400V
– AC 60Hz 024 60 / 048 60 / 120 60 / 220 60 / 230 60 / 460 60 / 575 60 (V).
Example: 11BG0610A230 for mini-contactor BG06, three-poles, with one NO contact and 230VAC 50/60Hz coil.
11BG0610A460 60 for mini-contactor BG06 with one NO contact and 460VAC 60Hz coil.

❷ The coil of the contactor can be powered indifferently in AC or DC. Complete the order code only with the digit of the coil voltage. Standard voltages are:
– AC/DC 24 / 48 / 60 / 110-125 (indicate 110) / 220-240 (indicate 220) / 380-415 (indicate 380) / 440-480V (indicate 440).
Example: 11B50000110 for contactor B500, three-poles, without auxiliary contacts and with 110-125VAC/DC coil.
Other voltages available on request.

❸ If predisposed for mechanical latch (G495), the order code becomes 11B...SL00 ❷.
If already fitted with mechanical latch (G495), the order code becomes 11B...L00 ❷ ❹.

❹ Indicate rated voltage of the mechanical latch, preceded by the letter C if in DC. Available voltages are:
– AC 50/60Hz 48 / 110-125 indicate 110 / 220-240 indicate 220 / 380-415V indicate 380
– DC 48 / 110-125 indicate 110 / 220-240V indicate 220.
Example: 11B500L00110220 for contactor B500 without auxiliary contacts, with 110-125VAC/DC coil and mechanical latch powered at 220-240VAC.

❺ G495 mechanical latch cannot be mounted.

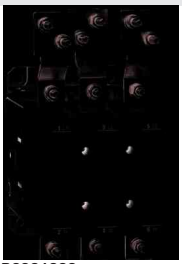
❻ Complete the order code with the digit of the coil voltage. For 110-125VAC (50/60Hz) indicate 110 or 220-240VAC (50/60Hz) indicate 220.
Example: 11B125024110 for contactor B1250, three-poles, with 2NO+4NC auxiliary contacts and 110-125VAC 50/60Hz coil.

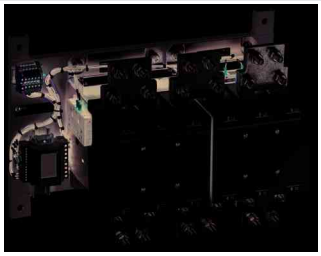
❼ Maximum voltage is limited at 300V for UL. For certified type up to 600V, consult Technical support for information; see contact details on inside front cover.

❽ For voltages 024 / 230 / 400VAC 50-60Hz: 10 pieces/package.
For all other voltages: 1 piece/package.

❾ Highly conductive auxiliary contact.


B500-B630


B6301000


B1250-B1600

		UL/CSA Short-circuit protection fuse, 600V⓬								
	UL/CSA General (purpose) use	High fault		Standard fault		Type of terminal	Incorpor. auxiliary contacts		Qty per pkg	Wt
		Short circuit current	Fuse	Short circuit current	Fuse					
	[A]	[kA]	[A]	[kA]	[A]		NO	NC	n°	[kg]
	16	100	30 (J)	5	30	Clamp-screw	—	1⓳	10	0.180
							1⓳	—	10	0.180
	20	100	30 (J)	5	30	Clamp-screw	—	1⓳	10	0.180
							1⓳	—	10	0.180
	20	100	30 (J)	5	30	Faston	—	1⓳	10	0.180
							1⓳	—	10	0.180
	20	100	30 (J)	5	30	Rear PCB solder pin	—	1⓳	10	0.197
							1⓳	—	10	0.197
	20	100	30 (J)	5	30	Clamp-screw	—	1⓳	10	0.180
							1⓳	—	10	0.180
	25	100	30 (J)	5	60	Clamp-screw	—	1⓳	1	0.367
							1⓳	—	❽	0.367
	28	100	30 (J)	5	70	Clamp-screw	—	1⓳	1	0.367
							1⓳	—	❽	0.367
	32	100	60 (J)	5	80	Clamp-screw	—	1⓳	1	0.367
							1⓳	—	❽	0.367
⓯	32	100	60 (J)	5	100	Clamp-screw	—	1⓳	1	0.367
							1⓳	—	❽	0.367
	45	100	100 (J)	5	100	Clamp-screw	—	—	1	0.437
	55	100	100 (J)	5	125	Clamp-screw	—	—	1	0.437
	55	100	100 (J)	5	150	Clamp-screw	—	—	1	0.437
	70	100	150 (J)	5	150 (RK5)	Double lug-clamp	—	—	1	1.020
	90	100	150 (J)	5	150 (RK5)	Double lug-clamp	—	—	1	1.020
	100	100	200 (J)	10	200 (RK5)	Double lug-clamp	—	—	1	1.020
	115	100	200 (J)	10	200 (RK5)	Double lug-clamp	—	—	1	1.020
	115	100	200 (J)	10	200 (RK5)	Double lug-clamp	—	—	1	1.020
	140	100	200 (J)	10	250 (RK5)	Double lug-clamp	—	—	1	2.020
	160	100	200 (J)	10	250 (RK5)	Double lug-clamp	—	—	1	2.020
	165	100	200 (J)	10	250 (RK5)	Double lug-clamp	—	—	1	2.020
	250	100	400 (J)	10	400 (RK5)	Screw-nut	—	—	1	3.000
	275	100	400 (J)	10	400 (RK5)	Screw-nut	—	—	1	3.000
	350	100	400 (J)	10	400 (RK5)	Screw-nut	—	—	1	3.000
	450	100	600 (J)	18	600 (RK5)	Screw-nut	—	—	1	4.600
	500	100	600 (J)	18	600 (RK5)	Screw-nut	—	—	1	4.600
	600	100	600 (J)	18	600 (RK5)	Screw-nut	—	—	1	4.600
	700	—	—	18⓫	1200 (L)	Screw-nut	—	—	1	18.000
	800	—	—	18⓫	1500 (L)	Screw-nut	—	—	1	18.620
	1000	—	—	18⓫	1500 (L)	Screw-nut	—	—	1	21.400
	No UL	—	—	—	—	Screw-nut	2	4	1	48.000
	No UL	—	—	—	—	Screw-nut	2	4	1	50.000

⓪ For use at this other current value, a 16mm² cable, headed with a fork terminal, must be used.
⓫ No UL/CSA ratings; data given for indication and reference purposes only.
⓬ Definite-purpose (DP) contactors are available. Consult Technical support for information; see contact details on inside front cover.
⓭ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
Complete the order code only with the digit of the coil voltage.
Standard voltages are:
– AC/DC 024 = 24...60VAC/20...60VDC; 110 = 60...130VAC/DC; 230 = 100...250VAC/DC;
400 = 250...500VAC/DC.
⓮ The values in brackets indicate the class of the fuse to be used.
Where there is no value in brackets, any type of fuse can be used.
For protection with motor protection circuit breaker (type F combination motor controller) see chapter 1.

Certifications and compliance
Certifications obtained:

Type	cULus	UL	CSA	EAC	CCC	RINA
BG06A	●			●	●	
BG09A	●			●	●	
BG12A	●			●	●	
BGF09A	●			●	●	
BGP...A❼	●			●	●	
BF09A	●		●	●	●	●
BF12A	●		●⓯	●	●	●
BF18A	●		●	●	●	●
BF25A	●		●⓯	●	●	●
BF26A	●		●	●	●	●
BF32A	●		●	●	●	●
BF38A	●		●⓯	●	●	●
BF40A	●			●	●	●
BF50A	●			●	●	●
BF65A	●⓯			●	●	●
BF80A	●			●	●	●
BF94A	●					
BF95A	●⓯					●
BF115A	●⓯					●
BF150A	●⓯					●
BF160	●			●	●	
BF195	●			●	●	
BF230	●			●	●	
BF265	●			⓰	⓰	
BF330	●			⓰	⓰	
BF400	●			⓰	⓰	
B500	●			●		
B630	●			●		
B6301000	●			●		
B1250				●		
B1600				●		

● Certified products.

UL - UL Listed, for USA and Canada (cULus - File E93602) for BG... and BF09...BF400 types indicated, as Motor Controllers – Contactors, except for BGP09... types which are UL Recognized, for USA and Canada (c UL us File E93602 – Component - Products having this type of marking are intended for use as components of complete workshop-assembled equipment).
BGP is UL rated up to 300V; for type with rating up to 600V, consult Technical support for information – see contact details on inside front cover.
UL Listed for USA and Canada (cULus - File E172189) for B500... B6301000 and B500SL... B630SL types as Industrial Control Switches.

CSA - BF09...BF95 contactors are also CSA certified, for Canada only (File 54332).
In addition, BF12..., BF25... and BF38... types are CSA certified as "Elevator Equipment" (File 54332, class 2411); BF65..., BF95..., BF115... and BF150... are UL certified as "Elevator Equipment (File E 93602). See technical characteristics on page 2-72.

⓯ This contactor has also achieved elevator equipment certification.
⓰ Pending.

Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL508, CSA C22.2 n° 14; UL 60947-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.
Plastic materials are compliant with standards IEC/EN/BS 60335; for all BF09...BF38 versions only, add suffix V260 to the standard product order code.
Example: BF0910A230V260 for BF09, three-poles, with one NO contact and 230V 50/60Hz coil with compliant plastic materials.
Note: The contactors that have incorporated NC auxiliary contacts comply with annex F of the IEC/EN/BS 60947-4-1 standard "auxiliary contact linked with power contact" also known as mirror contacts.


BG06D...BG12D
BG09L


BF09D...BF25D
BF09L...BF25L


BF26D-BF38D
BF26L-BF38L


BF40E...BF94E


BF95E...BF150E


BF160E...BF230E



BF265E...BF400E

Order code DC coil	DC coil Low consumption	General use: IEC operating current Ith (AC1) ≤40°C [A]	≤55°C [A]	≤70°C [A]	Three-phase motor control in AC-3/AC-3e duty: Ie (AC3) ≤440V at ≤55°C [A]	Maximum IEC power at ≤55°C (AC-3/AC-3e) 230V [kW]	400V [kW]	415V [kW]	440V [kW]	500V [kW]	690V [kW]	1000V [kW]	UL/CSA details: Maximum UL/CSA horsepower ratings Single phase 120V [HP]	240V [HP]	Three phase 200V [HP]	240V [HP]	480V [HP]	600V [HP]
11BG0601D❶	—	16	14	12	6	1.5	2.2	2.4	2.5	3	3	—	1/3	1	1 1/2	2	3	3
11BG0610D❶	—																	
11BG0901D❶	**11BG0901L❷**	20	18	15	9	2.2	4	4.3	4.5	5	5	—	1/2	1 1/2	2	3	5	5
11BG0910D❶	**11BG0910L❷**																	
11BGF0901D❶	**11BGF0901L❷**	20	18	15	9	2.2	4	4.3	4.5	5	5	—	1/2	1 1/2	2	3	5	5
11BGF0910D❶	**11BGF0910L❷**																	
11BGP0901D❶	—	20	18	15	9	2.2	4	4.3	4.5	5	—	—	1/2	1 1/2	2	3	5❽	—
11BGP0910D❶	—																	
11BG1201D❶⓬	—	20	18	15	12	3.2	5.7	6.2	5.5	5	5	—	1/2	1 1/2	3	3	7 1/2	10
11BG1210D❶⓬	—																	
BF0901D❶⓬	**BF0901L❷⓬**	25	20	18	9	2.2	4.2	4.5	4.8	5.5	7.5	—	3/4	2	3	3	5	7 1/2
BF0910D❶⓬	**BF0910L❷⓬**																	
BF1201D❶⓬	**BF1201L❷⓬**	28	23	20	12	3.2	5.7	6.2	6.2	7.5	10	—	1	2	5	5	7 1/2	10
BF1210D❶⓬	**BF1210L❷⓬**																	
BF1801D❶⓬	**BF1801L❷⓬**	32	26	23	18	4	7.5	9	9	10	10	—	1	3	5	5	10	15
BF1810D❶⓬	**BF1810L❷⓬**																	
BF2501D❶	**BF2501L❷**	32	26	23	25	7	12.5	13.4	13.4	15	11	—	2	3	7 1/2	7 1/2	15	15
BF2510D❶	**BF2510L❷**																	
BF2600D❶⓬	**BF2600L❷⓬**	45	36	32	26	7.3	13	14	14	15.6	18.5	—	2	5	7 1/2	7 1/2	15	20
BF3200D❶⓬	**BF3200L❷⓬**	56	45	40	32	8.8	18	17	17	20	22	—	3	7 1/2	10	10	20	25
BF3800D❶	**BF3800L❷**	56 (60⓫)	45 (48⓫)	40 (42⓫)	38	11	18.5	18.5	18.5	20	22	—	3	7 1/2	10	15	30	30
BF4000E❸	—	70	60	50	40	11	18.5	22	22	22	30	22	3	7 1/2	10	15	30	30
BF5000E❸⓬	—	90	75	65	50	15	22	30	30	30	37	30	5	10	15	20	40	40
BF6500E❸⓬	—	100	80	70	65	18.5	30	37	37	37	45	30	—	—	20	25	50	60
BF8000E❸⓬	—	115	95	80	80	22	45	45	45	55	55	37	—	—	25	30	60	75
BF9400E❸	—	115	95	80	95	30	55	55	55	55	55	37	—	—	25	30	60	75
BF9500E❸	—	140	115	100	95	30	55	55	55	75	90	45	—	—	30	30	60	75
BF11500E❸	—	160	130	115	115	37	55	55	55	75	110	55	—	—	40	40	75	100
BF15000E❸	—	165	135	118	150	45	75	75	75	90	110	55	—	—	50	50	100	125
BF16000E❸	—	250	210	180	160	45	75	90	90	110	132	75	—	—	50	60	125	150
BF19500E❸	—	275	230	200	195	55	90	110	110	132	160	110	—	—	60	75	150	150
BF23000E❸	—	350	290	250	230	55	110	110	132	132	160	132	—	—	75	75	150	200
BF26500E❸	—	450	375	325	265	75	132	132	160	160	200	160	—	—	75	100	200	250
new **BF33000E❸**	—	500	415	360	330	90	160	160	160	200	250	200	—	—	100	125	250	300
BF40000E❸	—	600	500	435	420	110	200	200	200	250	315	220	—	—	125	150	350	400
11B50000❹❺	—	700	550	500	520	156	290	306	328	367	416	312	—	—	150❶	200❶	400❶	450❶
11B63000❹❺	—	800	640	540	630	198	335	368	368	368	440	368	—	—	200❶	250❶	500❶	500❶
11B630100000❹❼	—	1000	850	700	—	For AC1/Resistive duty only, see page 2-10.							—	—	—	—	—	—

❶ Complete order code with coil voltage digit.
For BG09...D 24VDC version complete with built-in surge suppressor, add suffix **V120** to the standard order code.
The BF09-BF38D types already have a standard supplied built-in TVS (Transient Voltage Suppressor).
Standard voltages are as follows:
– DC 012 / 024 / 048 / 060 / 110 / 125 / 220V.
Example: 11BG0610D012 for mini-contactor BG06, three-poles, with one NO contact and 12VDC coil.
11BG0910D024 V120 for mini-contactor BG09, three-poles, with one NO contact and 24VDC coil, complete with built-in TVS (diode) suppressor.

❷ Low-consumption version.
No add-on auxiliary contacts or mechanical interlock can be mounted on BG... type contactors.
Complete order code with coil voltage digit.
The BF09-BF38L types already have a standard supplied built-in TVS (Transient Voltage Suppressor).
Standard voltages are as follows:
– DC 024 / 048V.
Example: 11BG0901L024 for mini-contactor BG09, three-poles, with one NC contact and 24VDC low-consumption coil.

❸ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
The order code must be completed with the coil voltage digit.
The standard voltages are as follows:
– AC/DC 024 = 20...48V; 110 = 60...110V; 230 = 100...250V.

❹ The coil of the contactor can be powered indifferently in AC or DC. Complete the order code only with the digit of the coil voltage.
Standard voltages are:
– AC/DC 24 / 48 / 60 / 110-125 (indicate 110) / 220-240 (indicate 220) / 380-415 (indicate 380) / 440-480V (indicate 440).
Example: 11B50000110 for contactor B500, three-poles, without auxiliary contacts and with 110-125VAC/DC coil.
Other voltages available on request.

❺ If predisposed for mechanical latch (G495), the order code becomes 11B...SL00 ❹.
If already fitted with mechanical latch (G495), the order code becomes 11B...L00 ❹ ❻.

❻ Indicate rated voltage of the mechanical latch, preceded by the letter C if in DC.
Standard voltages are:
– AC 50/60Hz 48 / 110-125 indicate 110 / 220-240 indicate 220 / 380-415V indicate 380
– DC 48 / 110-125 indicate 110 / 220-240V indicate 220.
Example: 11B500L00110C48 for contactor B500, three-poles, without auxiliary contacts, with 110-125VAC/DC coil and mechanical latch powered at 48VDC.

Contactors

Three-pole contactors with DC and AC/DC control circuit



B500-B630



B6301000

	UL/CSA Short-circuit protection fuse, 600V⓬								
	UL/CSA General (purpose) use	High fault		Standard fault		Type of terminal	Incorporated auxiliary contacts		Qty per pkg	Wt
		Short circuit current	Fuse	Short circuit current	Fuse					
	[A]	[kA]	[A]	[kA]	[A]		NO	NC	n°	[kg]
	16	100	30 (J)	5	30	Clamp-screw	—	1⓽	10	0.214
							1⓽	—	10	0.214
	20	100	30 (J)	5	30	Clamp-screw	—	1⓽	10	0.214
							1⓽	—	10	0.214
	20	100	30 (J)	5	30	Faston	—	1⓽	10	0.210
							1⓽	—	10	0.210
	20	100	30 (J)	5	30	Rear PCB solder pin	—	1⓽	10	0.240
							1⓽	—	10	0.240
	20	100	30 (J)	5	30	Clamp-screw	—	1⓽	10	0.214
							1⓽	—	10	0.214
	25	100	30 (J)	5	60	Clamp-screw	—	1⓽	1	0.494
							1	—	1	0.494
	28	100	30 (J)	5	70	Clamp-screw	—	1⓽	1	0.494
							1	—	1	0.494
	32	100	60 (J)	5	80	Clamp-screw	—	1⓽	1	0.494
							1	—	1	0.494
	32	100	60 (J)	5	100	Clamp-screw	—	1⓽	1	0.494
							1	—	1	0.494
	45	100	100 (J)	5	100	Clamp-screw	—	—	1	0.559
	55	100	100 (J)	5	125	Clamp-screw	—	—	1	0.559
	55	100	100 (J)	5	150	Clamp-screw	—	—	1	0.559
	70	100	150 (J)	5	150 (RK5)	Double lug-clamp	—	—	1	1.050
	90	100	150 (J)	5	150 (RK5)	Double lug-clamp	—	—	1	1.050
	100	100	200 (J)	10	200 (RK5)	Double lug-clamp	—	—	1	1.050
	115	100	200 (J)	10	200 (RK5)	Double lug-clamp	—	—	1	1.050
	115	100	200 (J)	10	200 (RK5)	Double lug-clamp	—	—	1	1.050
	140	100	200 (J)	10	250 (RK5)	Double lug-clamp	—	—	1	2.060
	160	100	200 (J)	10	250 (RK5)	Double lug-clamp	—	—	1	2.060
	165	100	200 (J)	10	250 (RK5)	Double lug-clamp	—	—	1	2.060
	250	100	400 (J)	10	400 (RK5)	Screw-nut	—	—	1	3.000
	275	100	400 (J)	10	400 (RK5)	Screw-nut	—	—	1	3.000
	350	100	400 (J)	10	400 (RK5)	Screw-nut	—	—	1	3.000
	450	100	600 (J)	18	600 (RK5)	Screw-nut	—	—	1	4.600
	500	100	600 (J)	18	600 (RK5)	Screw-nut	—	—	1	4.600
	600	100	600 (J)	18	600 (RK5)	Screw-nut	—	—	1	4.600
	700⓫	—	—	18⓫	1200 (L)	Screw-nut	—	—	1	18.060
	800⓫	—	—	18⓫	1500 (L)	Screw-nut	—	—	1	18.620
	1000	—	—	18⓫	1500 (L)	Screw-nut	—	—	1	21.400

⓱ G495 mechanical latch cannot be mounted.
⓲ Maximum voltage is limited at 300V for UL. For certified type up to 600V, consult Technical support for information; see contact details on inside front cover.
⓳ Highly conductive auxiliary contact.
⓴ For use at this other current value, a 16mm² cable, headed with a fork terminal, must be used.
⓫ No UL/CSA ratings; data given for indication and reference purposes only.
⓬ Definite-purpose (DP) contactors are available. Consult Technical support for information; see contact details on inside front cover.
⓭ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
Complete the order code only with the digit of the coil voltage.
Standard voltages are:
– AC/DC 024 = 24...60VAC/20...60VDC; 110 = 60...130VAC/DC; 230 = 100...250VAC/DC; 400 = 250...500VAC/DC.
⓮ The values in brackets indicate the class of the fuse to be used.
Where there is no value in brackets, any type of fuse can be used.
For protection with motor protection circuit breaker (type F combination motor controller) see chapter 1.

Certifications and compliance

Certifications obtained:

Type	cULus	UL	CSA	EAC	CCC	RINA
BG06D	●			●	●	
BG09D	●			●	●	
BG12D	●			●	●	
BGF09D	●			●	●	
BGP09D⓲	●	●	●			
BF09D - BF09L	●		●	●	●	●
BF12D - BF12L	●		●⓯	●	●	●
BF18D - BF18L	●		●	●	●	●
BF25D - BF25L	●		●⓯	●	●	●
BF26D - BF26L	●		●	●	●	●
BF32D - BF32L	●		●	●	●	●
BF38D - BF38L	●		●⓯	●	●	●
BF40E	●			●	●	
BF50E	●			●	●	
BF65E	●⓯			●	●	
BF80E	●			●	●	
BF94E	●					
BF95E	●⓯					
BF115E	●⓯					
BF150E	●⓯					
BF160E	●			●	●	
BF195E	●			●	●	
BF230E	●			●	●	
BF265E	●			⓰	⓰	
BF330E	●			⓰	⓰	
BF400E	●			⓰	⓰	
B500	●			●		
B630	●			●	●	
B6301000	●			●		

● Certified products.

UL - UL Listed, for USA and Canada (cULus File E93602) for BG... and BF09...BF400 types indicated, as Motor Controllers – Contactors, except for BGP09... types which are UL Recognized, for USA and Canada (cULus File E93602 – Component). Products having this type of marking are intended for use as components of complete workshop-assembled equipment.
BGP is UL rated up to 300V; for type with rating up to 600V, consult Technical support for information – see contact details on inside front cover.
UL Listed for USA and Canada (cULus - File E172189) for B500... B630 1000 and B500 SL... B630 SL types as Industrial Control Switches.

CSA - BF09...BF38 contactors are also CSA certified, for Canada only (File 54332).
In addition, BF12..., BF25... and BF38... types are CSA certified as "Elevator Equipment" (File 54332, class 2411); BF65..., BF95..., BF115... and BF150... are UL certified as "Elevator Equipment (File E 93602). See technical characteristics on page 2-72.

⓯ This contactor has also achieved elevator equipment certification.
⓰ Pending.

Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL508, CSA C22.2 n° 14; UL 60947-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.
Plastic materials are compliant with standards IEC/EN/BS 60335; for all BF09...BF38 versions only, add suffix V260 to the standard product order code.
Example: BF09 10 D024 V260 for BF09, three-poles, with one NO contact and 24VDC coil with compliant plastic materials.
Note: The contactors that have incorporated NC auxiliary contacts comply with annex F of the IEC/EN/BS 60947-4-1 standard "auxiliary contact linked with power contact" also known as mirror contacts.

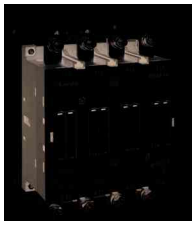

BG09T4A


BF09AT4A…BF18T4A


BF26T4A…BF38T4A


BF40T4A…BF80T4A


BF95T4A…BF150T4A


BF160T4E…BF230T4E


BF265T4…BF400T4

IEC/EN/BS 60947-4-1 characteristics												UL/CSA details
Order code AC coil	IEC operating current Ith (AC1) ≤40°C	≤55°C	≤70°C	Ie (AC3) ≤440V at ≤55°C	Maximum IEC power at ≤40°C (AC1) 230V	400V	415V	440V	500V	690V	1000V	UL/CSA General (purpose) use
	[A]	[A]	[A]	[A]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[A]
11BG09T4A❶⑩	20	18	15	9	8	14	14	15	16	22	—	20
11BGF09T4A❶	20	18	15	9	8	14	14	15	16	22	—	20
11BGP09T4A❶	20	18	15	9	8	14	14	15	16	—	—	20❼
BF09T4A❶⑩	25	20	18	9	9.5	16	17	18	21	27	—	25
BF12T4A❶⑩	28	23	20	12	10	18	19	20	23	32	—	28
BF18T4A❶⑩	32	26	23	18	12	21	22	23	26	36	—	32
BF26T4A❶❽⑩	45	36	32	26	17	30	31	33	37	51	—	45
BF38T4A❶❽	56 (60❾)	45 (48❾)	40 (42❾)	38	21	36	38	40	45	62	—	55
BF40T4A❶	70	60	50	40	26	46	48	51	58	79	115	70
BF50T4A❶⑩	90	75	65	50	34	59	61	65	74	102	148	90
BF65T4A❶⑩	100	80	70	65	38	65	68	72	82	114	165	100
BF80T4A❶⑩	115	95	80	80	43	76	79	83	95	120	185	115
BF95T4A❶	140	115	100	95	53	92	96	101	115	159	230	140
BF115T4A❶	160	130	115	115	61	105	109	116	132	182	263	160
BF150T4A❶	165	135	118	150	62	110	113	119	136	187	271	165
BF160T4E❷	250	210	180	160	95	165	171	181	206	284	411	250
BF195T4E❷	275	230	200	195	104	181	188	199	226	312	452	275
BF230T4E❷	350	290	250	230	132	230	239	253	288	397	576	350
BF265T4E❷	450	375	325	265	170	296	307	326	370	511	740	450
new **BF330T4E❷**	500	415	360	330	189	329	341	362	411	568	823	500
BF400T4E❷	600	500	435	400	227	395	410	434	494	681	987	600
11B500400❷❸	700	550	500	520	252	438	478	500	575	755	1100	700
11B630400❷❸	800	640	540	630	288	500	545	580	655	860	1250	800
11B6301000400❷❺	1000	850	700	—	350	600	630	725	750	1000	1600	1000
11B1250424❺❻	1250	1050	880	—	480	830	900	905	1100	1450	2000	No UL/CSA
11B1600424❺❻	1600	1360	1120	—	550	950	1000	1160	1200	1650	2500	No UL/CSA

❶ Complete order code with coil voltage digit or voltage digit followed by 60 if 60Hz.
Standard voltages are as follows:
– AC 50/60Hz 024 / 048 / 110 / 230 / 400V
– AC 60Hz 024 60 / 048 60 / 120 60 / 220 60 / 230 60 / 460 60 / 575 60 (V).
Example: 11BG09T4A230 for mini-contactor BG09, four-poles, with 230VAC 50/60Hz coil.
11BG09T4A460 60 for mini-contactor BG09, four-poles, with 460VAC 60Hz coil.

❷ The coil of the contactor can be powered indifferently in AC or DC. Complete the order code only with the digit of the coil voltage. Standard voltages are:
– AC/DC 24 / 48 / 60 / 110-125 (indicate 110) / 220-240 (indicate 220) / 380-415 (indicate 380) / 440-480V (indicate 440).
Example: 11B500400110 for contactor B500, four-poles, without auxiliary contacts and with 110-125VAC/DC coil.
Other voltages available on request.

❸ If predisposed for mechanical latch (G495), the order code becomes 11B...4SL00 ❷.
If already fitted with mechanical latch (G495), the order code becomes 11B...4L00 ❷ ❹.

❹ Indicate rated voltage of the mechanical latch, preceded by the letter C if in DC.
Standard voltages are:
– AC 50/60Hz 48 / 110-125 indicate 110 / 220-240 indicate 220 / 380-415V indicate 380
– DC 48 / 110-125 indicate 110 / 220-240V indicate 220.
Example: 11B5004L00110C220 for contactor B500, four-poles, without auxiliary contacts, with 110-125VAC/DC coil and mechanical latch powered at 220-240VDC.

❺ G495 mechanical latch cannot be mounted.

❻ Complete the order code with the digit of the coil voltage. For 110-125VAC 50/60Hz indicate 110 or 220-240VAC 50/60Hz indicate 220.
Example: 11B1250424110 for contactor B1250, four-poles, with 2NO+4NC auxiliary contacts and 110-125VAC/DC 50/60Hz coil.

❼ Maximum voltage is limited at 300V for UL. For certified type up to 600V. Consult Technical support for information; see contact details on inside front cover.

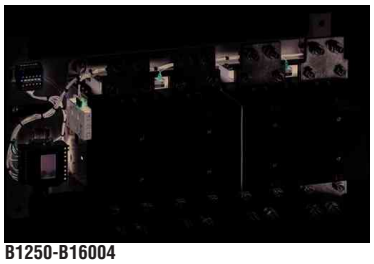
❽ Whenever the BF26T4 or BF38T4 types need to be mechanically interlocked with either the BFX5000 or BFX5001, the add-on fourth pole of one of the contactors needs to be removed from the right side and fitted on the left side.

❾ For use at this other current value, a 16mm² cable, headed with a fork terminal, must be used.

❿ Definite-purpose (DP) contactors are available. Consult Technical support for information; see contact details on inside front cover.


B5004-B6304


B63010004


B1250-B16004

	UL/CSA Short-circuit protection fuse, 600V⓲								
	High fault		Standard fault		Type of terminal	Incorporated auxiliary contacts		Qty per pkg	Weight
	Short circuit current	Fuse	Short circuit current	Fuse					
	[kA]	[A]	[kA]	[A]		NO	NC	n°	[kg]
	100	30 (J)	5	30	Clamp-screw	—	—	10	0.180
	100	30 (J)	5	30	Faston	—	—	10	0.180
	100	30 (J)	5	30	Rear PCB solder pin	—	—	10	0.197
	100	30 (J)	5	60	Clamp-screw	—	—	1	0.367
	100	30 (J)	5	70	Clamp-screw	—	—	1	0.367
	100	60 (J)	5	80	Clamp-screw	—	—	1	0.367
	100	100 (J)	5	100	Clamp-screw	—	—	1	0.508
	100	100 (J)	5	150	Clamp-screw	—	—	1	0.508
	100	150 (J)	5	150 (RK5)	Double lug-clamp	—	—	1	1.240
	100	150 (J)	5	150 (RK5)	Double lug-clamp	—	—	1	1.240
	100	200 (J)	10	200 (RK5)	Double lug-clamp	—	—	1	1.240
	100	200 (J)	10	200 (RK5)	Double lug-clamp	—	—	1	1.240
	100	200 (J)	10	250 (RK5)	Double lug-clamp	—	—	1	2.420
	100	200 (J)	10	250 (RK5)	Double lug-clamp	—	—	1	2.420
	100	200 (J)	10	250 (RK5)	Double lug-clamp	—	—	1	2.420
	100	400 (J)	10	400 (RK5)	Screw-nut	—	—	1	4.000
	100	400 (J)	10	400 (RK5)	Screw-nut	—	—	1	4.000
	100	400 (J)	10	400 (RK5)	Screw-nut	—	—	1	4.000
	100	600 (J)	18	600 (RK5)	Screw-nut	—	—	1	6.135
	100	600 (J)	18	600 (RK5)	Screw-nut	—	—	1	6.135
	100	600 (J)	18	600 (RK5)	Screw-nut	—	—	1	6.135
	—	—	18⓫	1200 (L)	Screw-nut	—	—	1	20.910
	—	—	18⓫	1500 (L)	Screw-nut	—	—	1	21.880
	—	—	18⓫	1500 (L)	Screw-nut	—	—	1	25.620
	—	—	—	—	Screw-nut	2	4	1	57.500
	—	—	—	—	Screw-nut	2	4	1	58.400

⓫ IEC/EN/BS 60947-1 designation: Pillar terminal.
⓬ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
Complete the order code only with the digit of the coil voltage.
Standard voltages are:
– AC/DC 024 = 24...60VAC/20...60VDC; 110 = 60...130VAC/DC; 230 = 100...250VAC/DC;
400 = 250...500VAC/DC.
⓭ The values in brackets indicate the class of the fuse to be used.
Where there is no value in brackets, any type of fuse can be used.
For protection with motor protection circuit breaker (type F combination motor controller) see chapter 1.

IEC utilisation current with poles in parallel
If the poles of the contactors are arranged in parallel, the operating current is the one indicated in the table multiplied by the **K** factor given below, which account for the unequal distribution of the current in the various poles.
To limit distribution inequality, it is advisable to use paralleling links (see pages 2-20, 2-25, 2-30 and 2-32).

2 POLES in parallel: **K** = 1.6
3 POLES in parallel: **K** = 2.2
4 POLES in parallel: **K** = 2.8

Certifications and compliance
Certifications obtained:

Type	c UL us	UL	CSA	EAC	CCC	RINA
BG09T4A	●			●	●	
BGF09T4A	●			●	●	
BGP09T4A⓱	c UL us			●	●	
BF09T4A	●		●	●	●	●
BF12T4A	●		●⓮	●	●	●
BF18T4A	●		●	●	●	●
BF26T4A	●		●⓮	●	●	●
BF38T4A	●		●⓮	●	●	●
BF40T4A	●			●	●	●
BF50T4A	●			●	●	●
BF65T4A	●⓯			●	●	●
BF80T4A	●			●	●	●
BF95T4A	●⓯					●
BF115T4A	●⓯					●
BF150T4A	●⓯					●
BF160T4E	●			●	●	
BF195T4E	●			●	●	
BF230T4E	●			●	●	
BF265T4E	●			⓯	⓯	
BF330T4E	●			⓯	⓯	
BF400T4E	●			⓯	⓯	
B5004	●			●		
B6304	●			●	●	
B63010004	●			●		
B12504				●		
B16004				●		

● Certified products.

UL - UL Listed, for USA and Canada (cULus File E93602) for BG and BF09...BF400 types indicated, as Motor Controllers – Contactors, except for BGP09... types which are UL Recognized, for USA and Canada (c UL us File E93602 – Component). Products having this type of marking are intended for use as components of complete workshop-assembled equipment.
BGP is UL rated up to 300V; for type with rating up to 600V, consult Technical support for information – see contact details on inside front cover.
UL Listed for USA and Canada (cULus - File E172189) for B5004... B63010004 and B5004SL... B6304SL types as Industrial Control Switches.

CSA - BF09...BF38 contactors are also CSA certified, for Canada only (File 54332).
In addition, BF12..., BF25... and BF38... types are CSA certified as "Elevator Equipment" (File 54332, class 2411); BF65..., BF95..., BF115... and BF150... are UL certified as "Elevator Equipment (File E 93602). See technical characteristics on page 2-72.

⓮ This contactor has also achieved elevator equipment certification.
⓯ Pending.

Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL508, CSA C22.2 n° 14; UL 60947-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.
Plastic materials are compliant with standards IEC/EN/BS 60335; for all BF09...BF38 versions only, add suffix V260 to the standard product order code.
Example: BF09T4A230V260 for BF09, four-poles, 230V 50/60Hz coil with compliant plastic materials.

Contactors

Four-pole contactors with DC and AC/DC control circuit


BG09T4D


BF09T4D-BF18T4D
BF09T4L-BF18T4L


BF26T4D-BF38T4D
BF26T4L-BF38T4L


BF65T4E
BF80T4E


BF95T4E...BF150T4E


BF160T4E...BF230T4E



BF265T4E...BF400T4E

IEC/EN/BS 60947-4-1 characteristics													UL/CSA details
Order code DC coil	DC coil Low consumption	IEC operating current Ith (AC1) ≤40°C	≤55°C	≤70°C	Ie (AC3) ≤440V at ≤55°C	Maximum IEC power at ≤40°C (AC1) 230V	400V	415V	440V	500V	690V	1000V	UL/CSA General (purpose) use
		[A]	[A]	[A]	[A]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[A]
11BG09T4D❶	—	20	18	15	9	8	14	14	15	16	22	—	20
11BGF09T4D❶	—	20	18	15	9	8	14	14	15	16	22	—	20
11BGP09T4D❶	—	20	18	15	9	8	14	14	15	16	—	—	20❽
BF09T4D❶	**BF09T4L❷**	25	20	18	9	9.5	16	17	18	21	27	—	25
BF18T4D❶	**BF18T4L❷**	32	26	23	18	12	21	22	23	26	36	—	32
BF26T4D❶	**BF26T4L❷**	45	36	32	26	17	30	31	33	37	51	—	45
BF38T4D❶	**BF38T4L❷**	56 (60❾)	45 (48❾)	40 (42❾)	38	21	26	38	40	45	62	—	55
BF65T4E❸	—	100	80	70	65	38	65	68	72	82	114	165	100
BF80T4E❸	—	115	95	80	80	43	76	79	83	95	120	185	115
BF95T4E❸	—	140	115	100	95	53	92	96	101	115	159	230	140
BF150T4E❸	—	165	135	118	150	62	110	113	119	136	187	271	165
BF160T4E❹	—	250	210	180	160	95	165	171	181	206	284	411	250
BF195T4E❹	—	275	230	200	195	104	181	188	199	226	312	452	275
BF230T4E❹	—	350	290	250	230	132	230	239	253	288	397	576	350
BF265T4E❹	—	450	375	325	265	170	296	307	326	370	511	740	450
new **BF330T4E❹**	—	500	415	360	330	189	329	341	362	411	568	823	330
BF400T4E❹	—	600	500	435	400	227	395	410	434	494	681	987	400
11B500400❹❺	—	700	550	500	520	252	438	478	500	575	755	1100	700
11B630400❹❺	—	800	640	540	630	288	500	545	580	655	860	1250	800
11B63010004004❼	—	1000	850	700	—	350	600	630	725	750	1000	1600	1000

❶ Complete order code with coil voltage digit.
The BF09-BF38D types already have a standard supplied built-in TVS (Transient Voltage Suppressor).
Standard voltages are as follows:
– DC 012 / 024 / 048 / 060 / 110 / 125 / 220VDC.
Example: 11BG09T4D012 for mini-contactor BG09, four-poles, with 12VDC coil.

❷ Low consumption version. Complete the order code with coil voltage digit.
The BF09-BF38L types already have a standard supplied built-in TVS (Transient Voltage Suppressor).
Standard voltages are as follows:
– DC 024 / 048V
Example: BF09T4L024 for contactor BF09, four-poles, with 24VDC low-consumption coil.

❸ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
Complete the order code only with the digit of the coil voltage.
Standard voltages are:
– AC/DC 024 = 20...48V; 110 = 60...110V; 230 = 100...250V.

❹ The coil of the contactor can be powered indifferently in AC or DC. Complete the order code only with the digit of the coil voltage.
Standard voltages are:
– AC/DC 24 / 48 / 60 / 110-125 indicate 110 / 220-240 indicate 220 / 380-415 indicate 380 / 440-480V indicate 440.
Example: 11B500400110 for contactor B500, four-poles, without auxiliary contacts and with 110-125VAC/DC coil.
Other voltages available on request.

❺ If predisposed for mechanical latch (G495), the order code becomes 11B...4SL00 ❹.
If already fitted with mechanical latch (G495), the order code becomes 11B...4L00 ❹ ❻.

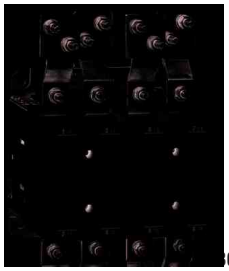
❻ Indicate rated voltage of the mechanical latch, preceded by the letter C if in DC.
Standard voltages are:
– AC 50/60Hz 48 / 110-125 indicate 110 / 220-240 indicate 220 / 380-415V indicate 380
– DC 48 / 110-125 indicate 110 / 220-240V indicate 220.
Example: 11B500L00110C48 for contactor B500, four-poles, without auxiliary contacts, with 110-125VAC/DC coil and mechanical latch powered at 48VDC.

❼ G495 mechanical latch cannot be mounted.

❽ Maximum voltage is limited at 300V for UL. For certified type up to 600V consult Technical support for information; see contact details on inside front cover.

❾ For use at this other current value, a 16mm² cable, headed with a fork terminal, must be used.


B5004-B6304


B63010004

	UL/CSA Short-circuit protection fuse, 600V⓬								
	High fault		Standard fault		Type of terminal	Incorporated auxiliary contacts		Qty per pkg	Weight
	Short circuit current	Fuse	Short circuit current	Fuse					
	[kA]	[A]	[kA]	[A]		NO	NC	n°	[kg]
	100	30 (J)	5	30	Clamp-screw	—	—	10	0.220
	100	30 (J)	5	30	Faston	—	—	10	0.220
	100	30 (J)	5	30	Rear PCB solder pin	—	—	10	0.242
	100	30 (J)	5	60	Clamp-screw	—	—	1	0.498
	100	60 (J)	5	80	Clamp-screw	—	—	1	0.498
	100	100 (J)	5	100	Clamp-screw	—	—	1	0.665
	100	100 (J)	5	150	Clamp-screw	—	—	1	0.665
	100	200 (J)	10	200 (RK5)	Double lug-clamp	—	—	1	1.280
	100	200 (J)	10	200 (RK5)	Double lug-clamp	—	—	1	1.280
	100	200 (J)	10	250 (RK5)	Double lug-clamp	—	—	1	2.460
	100	200 (J)	10	250 (RK5)	Double lug-clamp	—	—	1	2.460
	100	400 (J)	10	400 (RK5)	Screw-nut	—	—	1	4.000
	100	400 (J)	10	400 (RK5)	Screw-nut	—	—	1	4.000
	100	400 (J)	10	400 (RK5)	Screw-nut	—	—	1	4.000
	100	600 (J)	18	600 (RK5)	Screw-nut	—	—	1	8.100
	100	600 (J)	18	600 (RK5)	Screw-nut	—	—	1	8.100
	100	600 (J)	18	600 (RK5)	Screw-nut	—	—	1	8.100
	—	—	18⓾	1200 (L)	Screw-nut	—	—	1	20.910
	—	—	18⓾	1500 (L)	Screw-nut	—	—	1	21.880
	—	—	18⓾	1500 (L)	Screw-nut	—	—	1	25.600

⓾ No UL/CSA ratings; data given for indication and reference purposes only.
⓫ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
Complete the order code only with the digit of the coil voltage.
Standard voltages are:
– AC/DC 024 = 24...60VAC/20...60VDC; 110 = 60...130VAC/DC; 230 = 100...250VAC/DC; 400 = 250...500VAC/DC.
⓬ The values in brackets indicate the class of the fuse to be used.
Where there is no value in brackets, any type of fuse can be used.
For protection with motor protection circuit breaker (type F combination motor controller) see chapter 1.

IEC utilisation current with poles in parallel
If the poles of the contactors are arranged in parallel, the operating current is the one indicated in the table multiplied by the **K** factor given below, which account for the unequal distribution of the current in the various poles.
To limit distribution inequality, it is advisable to use paralleling links (see pages 2-20, 2-25, 2-30 and 2-32).

2 POLES in parallel: **K** = 1.6
3 POLES in parallel: **K** = 2.2
4 POLES in parallel: **K** = 2.8

Certifications and compliance
Certifications obtained:

Type	cULus	UL	CSA	EAC	CCC	RINA
BG09T4D	●			●	●	
BGF09T4D	●			●	●	
BGP09T4D⓱	cULus			●	●	
BF09T4D - BF09T4L	●		●	●	●	●
BF18T4D - BF18T4L	●		●	●	●	●
BF26T4D - BF26T4L	●		●⓯	●	●	●
BF38T4D - BF38T4L	●		●⓯	●	●	●
BF65T4E	●⓯			●	●	
BF80T4E	●			●	●	
BF95T4E	●⓯					
BF150T4E	●⓯					
BF160T4E	●			●	●	
BF195T4E	●			●	●	
BF230T4E	●			●	●	
BF265T4E	●			⓮	⓮	
BF330T4E	●			⓮	⓮	
BF400T4E	●			⓮	⓮	
B5004	●			●		
B6304	●			●	●	
B63010004	●			●		

● Certified products.

UL - UL Listed, for USA and Canada (cULus File E93602) for BG and BF09...BF400 types indicated, as Motor Controllers – Contactors, except for BGP09... types which are UL Recognized, for USA and Canada (cULus File E93602 – Component). Products having this type of marking are intended for use as components of complete workshop-assembled equipment.
BGP is UL rated up to 300V; for type with rating up to 600V, consult Technical support for information – see contact details on inside front cover.
UL Listed for USA and Canada (cULus - File E172185) for B5004... B63010004 and B5004SL... B6304SL types as Industrial Control Switches.

CSA - BF09...BF38 contactors are also CSA certified, for Canada only (File 54332).
In addition, BF12..., BF25... and BF38... types are CSA certified as "Elevator Equipment" (File 54332, class 2411); BF65..., BF95... and BF150... are UL certified as "Elevator Equipment (File E 93602).
See technical characteristics on page 2-72.

⓯ This contactor has also achieved elevator equipment certification.
⓮ Pending.

Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL508, CSA C22.2 n° 14; UL 60947-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.
Plastic materials are compliant with standards IEC/EN/BS 60335; for all BF09...BF38 versions only, add suffix V260 to the standard product order code.
Example: BF09T4D024V260 for BF09, four-poles, 24VDC coil with compliant plastic materials.

SAFETY FIRST!



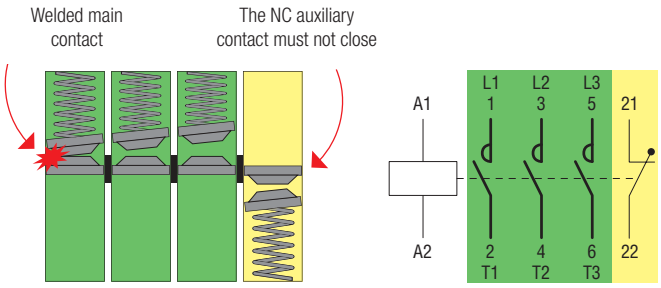
BFS... CONTACTORS

Designed for applications requiring a high degree of safety.
In particular, they meet the requirements of ISO 13849-1 (Safety of machinery - Safety-related parts of control systems) and IEC/EN 62061 (Safety of machinery - Functional safety of safety-related control systems). The BFS... contactors cover motor control currents from 9A to 38A AC-3 400V.



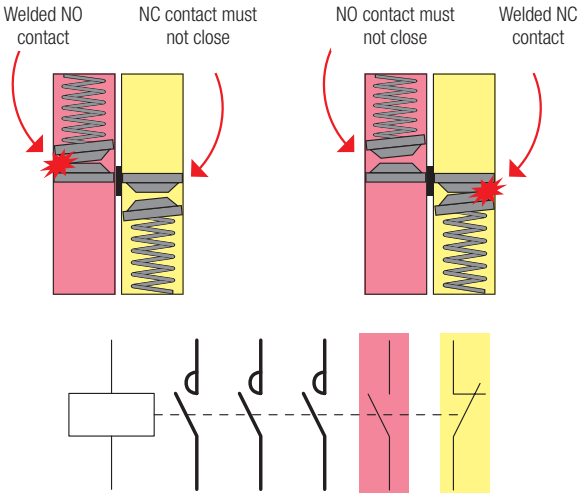
"MIRROR CONTACT" FUNCTION (IEC/EN 60947-4-1)

The NC auxiliary contact cannot be in the closed position at the same time as the NO main contact even in a fault condition (main contact welding).
A typical application of Mirror Contacts is to have highly reliable monitoring of the contactor status in the machine control circuit.

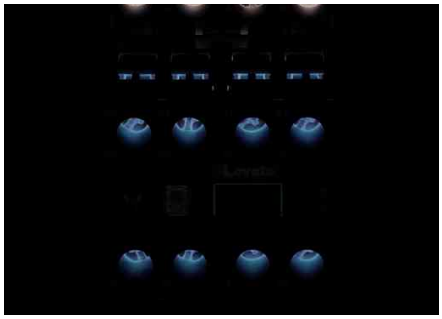


"MECHANICALLY LINKED CONTACTS" FUNCTION (IEC/EN 60947-5-1)

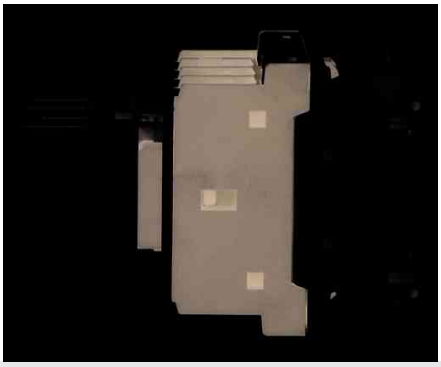
The NO and NC auxiliary contacts cannot be in closed position at the same time even in a fault condition (welding of NO or NC contacts).



AUXILIARY CONTACT BLOCK WITH YELLOW COVER TO HIGHLIGHT DEVICES FORMING PART OF THE SAFETY CIRCUIT



AUXILIARY CONTACT BLOCK NOT REMOVABLE FROM CONTACTOR TO PREVENT TAMPERING



MANUAL OPERATION OR OPERATION WITH TOOLS PREVENTED BY GUARDS

CONTACTOR STATUS, OPEN/CLOSED, VISIBLE FROM THE FRONT



Safety contactors BF series



BFS3222A...

new



BFS0932D024

new

Order code	IEC/EN details			UL/CSA details					
	Ith (AC1) ≤40°C	Ie (AC-3/AC-3e) ≤440V ≤55°C	Power (AC-3/AC-3e) 400V ≤55°C	Motor control		Incorporated auxiliary contacts		Qty per pkg	Wt
				480V 3ph	General (purpose) use				
	[A]	[A]	kW	[HP]	[A]	NO	NC	n°	kg
AC COIL. Terminals: clamp-screw.									
BFS0923A❶	25	9	4.2	5	25	2	3	1	0.388
BFS1223A❶	28	12	5.7	7 ½	28	2	3	1	0.388
BFS2523A❶	32	25	12.5	15	32	2	3	1	0.388
BFS3222A❶	56	32	16	20	56	2	2	1	0.485
BFS3822A❶	56	38	18.5	30	56	2	2	1	0.485
DC COIL. 24V. Terminals: clamp-screw.									
BFS0923D024	25	9	4.2	5	25	2	3	1	0.542
BFS1223D024	28	12	5.7	7 ½	28	2	3	1	0.542
BFS2523D024	32	25	12.5	15	32	2	3	1	0.542
BFS3222D024	56	32	16	20	56	2	2	1	0.607
BFS3822D024	56	38	18.5	30	56	2	2	1	0.607

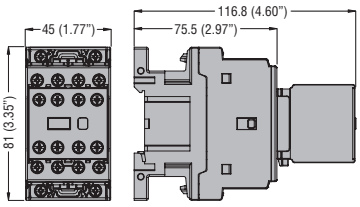
❶ Complete order code with coil voltage digit.
Standard voltages are as follows:
– AC 50-60Hz 024 - 048 - 110 - 230V.

Operational characteristics
All application and technical characteristics of the BFS... contactors are identical to those of the standard BF... contactors shown from page 2-58 onwards.

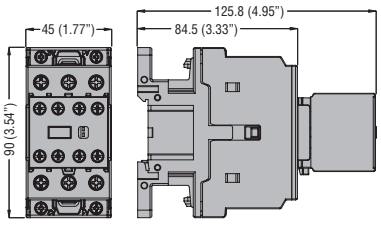
Certification and compliance
Certifications obtained: cULus; UL Listed, for USA and Canada (cULus - File E93602), as Motor Controllers - Contactors.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, IEC/EN/BS 60947-5-1, UL 60947-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.

Dimensions [mm (in)]

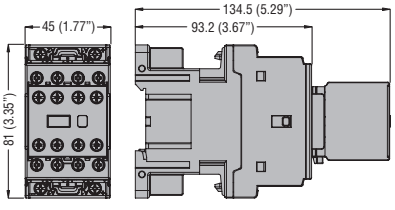
BFS0923A... - BFS1223A... - BFS2523A...



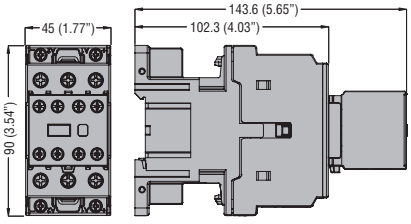
BFS3222A... - BFS3822A...



BFS0923D... - BFS1223D... - BFS2523D...

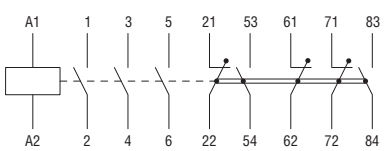


BFS3222D... - BFS3822D...

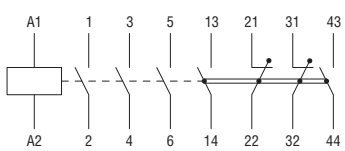


Wiring diagrams

BFS09...BFS25...



BFS32... BFS38...



Mini-contactor four power poles, 2 NO and 2 NC BG series



11BG09T2...

Order code	IEC rated conventional free air thermal current Ith ≤40°C	≤55°C	≤60°C	Qty per pkg	Wt
	[A]	[A]	[A]	n°	[kg]
AC COIL. Terminals: clamp screw.					
11BG09T2A❶	20	18	15	1	0.170
DC COIL. Terminals: clamp screw.					
11BG09T2D❷	20	18	15	1	0.175

Note: on 11BG09T2D, maximum 2 auxiliary contacts may be mounted.

Operational characteristics

Type	UL/CSA General use	Protection fuse IEC gG	Protection fuse UL K5	Conductor section	
	[A]	[A]	[A]	[mm²]	[AWG]
BG09...T2	20	20	30	0.75-2.5	18-12

Certifications and compliance
Certifications obtained: CCC, EAC; UL Listed, for USA and Canada (cULus - File E93602), as Motor Controllers - Contactors.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.

Contactors four power poles,2 NO and 2 NC BF series



BF09T2...

Order code	IEC rated conventional free air thermal current Ith ≤40°C	≤55°C	≤60°C	Qty per pkg	Wt
	[A]	[A]	[A]	n°	[kg]
AC COIL. Terminals: clamp screw.					
BF09T2A❶	25	20	18	1	0.340
BF18T2A❶	32	26	23	1	0.340
BF26T2A❶	45	36	32	1	0.420
BF38T2A❶	56 (60❺)	45 (48❺)	40 (42❺)	1	0.420
BF80T2A❶	115	95	75	1	1.075
DC COIL. Terminals: clamp screw.					
BF18T2D❷❻	32	26	23	1	0.470
BF26T2D❷❻	45	36	32	1	0.540
BF38T2D❷❻	56 (60❺)	45 (48❺)	40 (42❺)	1	0.540
BF80T2E❹❼	115	95	75	1	1.125
DC COIL. Low consumption (2.4W). Terminals: clamp screw.					
BF18T2L❸❻	32	26	23	1	0.470
BF26T2L❸❻	45	36	32	1	0.540
BF38T2L❸❻	56 (60❺)	45 (48❺)	40 (42❺)	1	0.540

Operational characteristics

Type	UL/CSA General use	Protection fuse IEC gG	Protection fuse UL RK5	Conductor section	
	[A]	[A]	[A]	[mm²]	[AWG]
BF09T2	25	32	60	1-6	16-10
BF18T2	32	40	80	1-6	16-10
BF26T2	45	50	100	1.5-10	14-6
BF38T2	55	80	150	2.5-16	14-6
BF80T2	115	115	250	6-50	18-2

Certifications and compliance
Certifications obtained: EAC, CCC, RINA; UL Listed for USA and Canada (cULus - File E93602) and CSA certified for Canada (File 54332), as Motor Controllers - Contactors.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.
Plastic materials are compliant with standards IEC/EN/BS 60335; for all BF09...BF38 versions only, add suffix V260 to the standard product order code.
Example: BF09T2A230 V260 for BF09, 2NO+2NC main poles, 230V 50/60Hz coil with compliant plastic materials).

Contactors four power poles, 4 NC BF series



BF18T0...

Order code	IEC rated conventional free air thermal current Ith ≤40°C	≤55°C	≤60°C	Qty per pkg	Wt
	[A]	[A]	[A]	n°	[kg]
AC COIL. Terminals: clamp screw.					
BF18T0A❶	32	26	23	1	0.340
BF26T0A❶	45	36	32	1	0.420
DC COIL. Terminals: clamp screw.					
BF18T0D❷❻	32	26	23	1	0.470
BF26T0D❷❻	45	36	32	1	0.540
DC COIL. Low consumption (2.4W). Terminals: clamp screw.					
BF18T0L❸❻	32	26	23	1	0,470

Operational characteristics

Type	UL/CSA General use	Protection fuse IEC gG	Protection fuse UL RK5	Conductor section	
	[A]	[A]	[A]	[mm²]	[AWG]
BF18T0	32	40	80	1-6	16-10
BF26T0	45	50	150	1.5-10	14-6

Certifications and compliance
Certifications obtained: EAC, CCC, RINA; UL Listed for USA and Canada (cULus - File E93602) and CSA certified for Canada (File 54332), as Motor Controllers - Contactors.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.
Plastic materials are compliant with standards IEC/EN/BS 60335; for BF18 and BF26 versions only, add suffix V260 to the standard product order code.
Example: BF18T0A230V260 for BF18, four-NC main poles, 230VAC 50/60Hz coil with compliant plastic materials).

NOTE: The BF18-BF26T0D and BF18T0L types have a standard supplied built-in TVS (Transient Voltage Suppressor).

❶ Complete with coil voltage digit if 50/60Hz or with voltage digit followed by 60 if 60Hz. N.B.: For BF80T2, 50/60Hz coils are suitable for 50Hz only.
Standard voltages are:
– AC 50/60Hz 024 / 048 /110 / 230 / 400V
– AC 60Hz 024 60 / 048 60 / 120 60 / 220 60 / 230 60 / 460 60 / 575 60 (V).

Example:
– 11BG09T2A230 for mini-contactor BG09T2, 2 poles NO and 2 poles NC, with 230VAC 50/60Hz coil.
– 11BG09T2A46060 for mini-contactor BG09T2, 2 poles NO and 2 poles NC, with 460VAC 60Hz coil.

❷ Complete the order code with coil voltage digit.
Standard voltages are:
– DC 012 / 024 / 048 / 060 / 110 / 125 / 220V.
The BF18-BF26-BF38 T2D types already have a standard supplied built-in TVS (Transient Voltage Suppressor).
Example:
– 11 BG09T2D012 for mini-contactor BG09T2, 2 poles NO and 2 poles NC, with 12VDC coil.

❸ Low consumption version with built-in TVS. Complete the order code with coil voltage digit.
Standard voltages are:
– DC 024 / 048V.
Example:
– BF18T2L024 for contactor BF18T2, 2 poles NO and 2 poles NC, with 24VDC low-consumption coil, supplied with TVS.

❹ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
Complete the order code with coil voltage digit.
Standard voltages are:
– AC/DC 024 = 20...48V; 110 = 60...110V; 230 = 100...250V.

❺ For use at this other current value, a 16mm² cable, headed with a fork terminal, must be used.

❻ Maximum combinations of add-on blocks are given on page 2-23.

❼ For BF80T2E... contactors, coil supply voltage must be AC or smoothed DC. For pulsating DC please consult our Technical support.

3 pole contactors to connect in series for photovoltaic applications BF series



BFD6500A - BFD8000A

Order code	Operational current at 600V in DC1 ≤55°C with 3 poles in series 600V	1000V	Qty per pkg	Wt
	[A]	[A]	n°	[kg]
AC COIL. Terminals: double lug clamp.				
BFD6500A❶	75	35	1	1.020
BFD8000A❶	80	60	1	1.020

4 pole contactors to connect in series for photovoltaic applications BF series



BFD80T4...

Order code	Operational current at 600V in DC1 ≤55°C with 4 poles in series 600V	1000V	Qty per pkg	Wt
	[A]	[A]	n°	[kg]
AC COIL. Terminals: double lug-clamp.				
BFD80T4A❶	100	80	1	1.100
AC/DC COIL. Terminals: double lug-clamp.				
BFD80T4E❷	100	80	1	1.100
BFD150T4E❷	165	100	1	2.550

❶ Complete with coil voltage digit if 50/60Hz or with voltage digit followed by 60 if 60Hz. Standard voltages are:
– AC 50/60Hz 024 / 048 /110 / 230 / 400V
– AC 60Hz 024 60 / 048 60 / 120 60 / 220 60 / 230 60 / 460 60 / 575 60 (V).

❷ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
Complete the order code with coil voltage digit.
Standard voltages are:
– AC/DC 024 = 20...48V; 110 = 60...110V; 230 = 100...250V.

General characteristics
The contactors are specifically made with magnetic elements in the arc extinction chambers to obtain high DC load operational capabilities. They are used to disconnect and isolate the load between the photovoltaic panel and the AC/DC inverter.
For add-on contact blocks, accessories and spare parts, consider indications of the corresponding standard contactors without the D letter in the code.

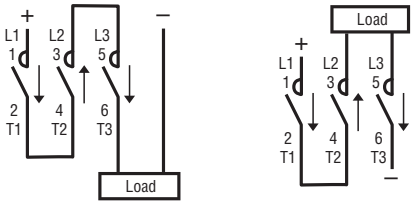
Italian Fire Department Directives
These directives provide for a disconnecting device for all current-carrying elements, that can be operated by remote control switch, placed in an easily reached and marked position, in order to safely isolate each part of the installation within the fire system compartment including the photovoltaic (PV) generator.
As an alternative, the PV generator must be installed, either externally of the fire system compartment or internally but in a dedicated compartment with adequate fire-resistant features. For such function, specifically designed contactors for on-load use in IEC DC1 duty up to 1000VDC are available.

Operational characteristics
Use in IEC DC1 duty

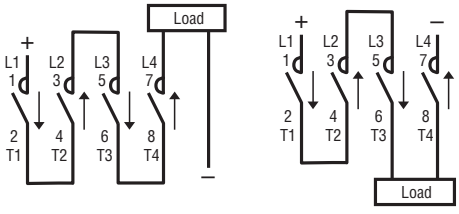
Type	Poles in series	IEC operational voltage Ue 400V	600V	800V	1000V
		IEC max current Ie in DC1 with L/R ≤1ms with 4 poles in series			
		[A]	[A]	[A]	[A]
BFD6500A...	3	100	75	45	35
BFD8000A...	3	100	80	65	60
BFD80T4A...	4	115	100	90	80
BFD80T4E...	4	115	100	90	80
BFD150T4E...	4	165	165	125	100

Certification and compliance
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.

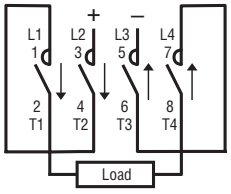
Wiring diagrams
Three-pole contactor BFD6500..., BFD8000...



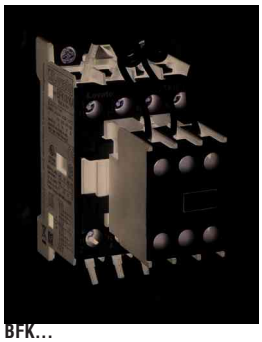
Four-pole contactors BFD80T4...



Four-pole contactors BFD150T4E....



BFK contactors (including limiting resistors)



BFK...

Order code	Maximum IEC operational power at ≤50°C (AC-6b)❶ 240V	400V	440V 480V	690V	I ❷	Qty per pkg	Wt
	[kvar]	[kvar]	[kvar]	[kvar]	NO	n°	[kg]
AC COIL.							
BFK0910A❸	4.5	7.5	9	10	1	10	0.413
BFK1210A❸	7	12.5	14	16	1	10	0.413
BFK1810A❸	9	15	17	20	1	10	0.413
BFK2600A❸	11	20	22	25	–	10	0.472
BFK3200A❸	14	25	27.5	30	–	10	0.472
BFK3800A❸	17	30	33	36	–	10	0.472
BFK5000A❸	22	40	41	46	–	5	1.080
BFK6500A❸	26	45	50	56	–	5	1.080
BFK8000A❸	30	50	56	65	–	5	1.080
BFK9400A❸❹	34	60	75	80	–	5	1.080
BFK9500A❸	34	60	75	80	–	5	2.095
BFK11500A❸	45	75	85	135	–	5	2.095
BFK15000A❸	50	100	115	150	–	5	2.095

❶ To use the contactor in the delta, consult our Technical support, see contact details on inside front cover..
❷ NO auxiliary contacts available.
❸ The order code must be completed either with the coil voltage digit if 50/60Hz or with the coil voltage digit followed by the number 60 if 60Hz. Standard voltages are:
-- AC 50-60Hz 024 / 048 / 110 / 230 / 400VAC
-- AC 60Hz 024 60 / 048 60 / 120 60 / 220 60 / 230 60 / 460 60 / 575 60 (V).
Example: BFK0910A230 for contactor BFK09 with one NO contact and 230VAC 50/60Hz coil.
BFK0910A46060 for contactor BFK09 with one NO contact and 460VAC 60Hz coil.
❹ **NOTE: the maximum thermal current Ith of the BFK94 contactor is 115A.**

UL/CSA details
Maximum UL/CSA kvar ratings

	240V	480V	600V
	[kvar]	[kvar]	[kvar]
BFK0910A	4.5	9	10
BFK1210A	7	14	16
BFK1810A	9	17	20
BFK2600A	11	22	27.5
BFK3200A	14	27.5	32
BFK3800A	17	33	36
BFK5000A	22	41	46
BFK6500A	26	50	56
BFK8000A	30	60	75
BFK9500A	40	80	100
BFK11500A	45	90	120
BFK15000A	50	100	125

Operational characteristics

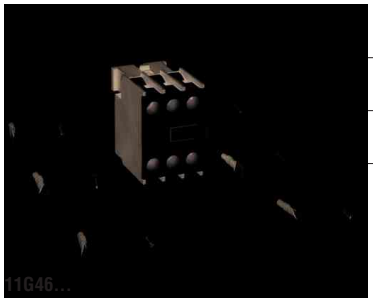
Type	IEC rated operational current ≤440V	IEC - UL/CSA protection fuse gG-SC
	[A]	[A]
BFK09	12	16
BFK12	18	25
BFK18	23	40
BFK26	30	40
BFK32	36	63
BFK38	43	63
BFK50	58	80
BFK65	65	100
BFK80	75	125
BFK94	90	125
BFK95	90	125
BFK115	115	160
BFK150	144	160

Ambient operating temperature: ≤50°C. For ambient temperatures higher than 50°C and up to 70°C, the maximum operating power values indicated in the table must be reduced by a percentage equal to the difference between the operating ambient temperature and 50°C.
E.g.: using a BFK2600 contactor at the ambient temperature of 60°C, the maximum operating power
(at 400V) of the contactor will be equal to 20kvar – 10% = 18kvar.
Operating cycle: ≤120 cycles/h
Electrical life: ≥400,000 cycles.

Add-on auxiliary contacts
The following contact blocks, can be fitted on the BFK contactors: BFX12..., 11G418..., 11G481..., 11G482... and 11G218.

Certifications and compliance
Certification obtained (BFK9400A excluded):UL Listed for USA and Canada (cULus - File E93602), as Motor Controllers - Magnetic Capacitive Switches; CCC, EAC.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL508, CSA C22.2 n° 14.
Plastic materials are compliant with standards IEC/EN/BS 60335; for BFK versions only, add suffix V260 to the standard product order code.

Kit to assemble BFK contactors



11G46...

Order code	For contactor	Qty per pkg	Wt
		n°	[kg]
11G460	BF0910A - BF1210A - BF1810A - BF2600A - BF3200A - BF3800A	1	0.072
BFX10K3	BF5000A - BF6500A - BF8000A - BF9400A	1	0.078
BFX10K4	BF9500A - BF11500A - BF15000A	1	0.080

General characteristics
To optimise contactor stock management, a kit is available to transform normal three-pole contactors into BFK types for power factor correction. The table to the left indicates which kits to purchase depending on the standard contactor in stock.

Control relays BG00 type



11BG00...



11BGF00...

Order code	Configuration and n°of contacts❺		Quantity per pkg.	Wt
	NO	NC	n°	[kg]
AC COIL. Terminals: clamp screw.				
11BG0040A❶	4	0	1	0.170
11BG0031A❶	3	1	1	0.170
11BG0022A❶	2	2	1	0.170
Terminals: Faston.				
11BGF0040A❶	4	0	1	0.160
11BGF0031A❶	3	1	1	0.160
11BGF0022A❶	2	2	1	0.160
DC COIL. Terminals: clamp screw.				
11BG0040D❷	4	0	1	0.175
11BG0031D❷	3	1	1	0.175
11BG0022D❷❻	2	2	1	0.175
Terminals: Faston.				
11BGF0040D❷	4	0	1	0.165
11BGF0031D❷	3	1	1	0.165
11BGF0022D❷	2	2	1	0.165
DC COIL. Low-consumption (2.3W). Terminals: clamp screw❼.				
11BG0040L❸	4	0	1	0.175
11BG0031L❸	3	1	1	0.175
11BG0022L❸	2	2	1	0.175
Terminals: Faston.				
11BGF0040L❸	4	0	1	0.165
11BGF0031L❸	3	1	1	0.165
11BGF0022L❸	2	2	1	0.165

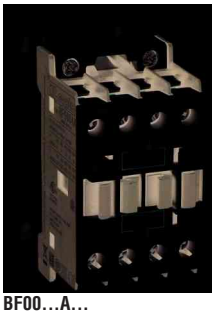
Operational characteristics
- IEC rated insulation voltage Ui: 690V
- IEC rated conventional free air thermal current Ith: 10A
- UL/CSA and IEC/EN/BS 60947-5-1 designation:
  - BG types: A600-Q600
  - BF types: A600-P600
- Low-consumption version of BG types cannot accept additional contacts.

NOTE: no coil change or replacement is possible.

Certifications and compliance
Certification obtained: CCC, EAC, UL Listed for USA and Canada (cULus - File E93602), as Motor Controllers - Auxiliary contactors for all; RINA for BF00 types.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-5-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.
Plastic materials are compliant with standards IEC/EN/BS 60335; for BF00 version only, add suffix V260 to the standard product order code.
Example: BF0040A230V260 for BF00 control relay having 4 NO auxiliary contacts and 230VAC 50/60Hz coil with compliant plastic materials.

NOTE: the BF00...D and BF00...L types have a standard supplied built-in TVS (Transient Voltage Suppressor).

Control relays BF00 type



BF00...A...



BF00...D...
BF00...L...

Order code	Configuration and n°of contacts❺		Quantity per pkg.	Wt
	NO	NC	n°	[kg]
AC COIL. Terminals: clamp screw.				
BF0040A❶	4	0	1	0.340
BF0031A❶	3	1	1	0.340
BF0022A❶	2	2	1	0.340
BF0004A❶	0	4	1	0.340
DC COIL. Terminals: clamp screw.				
BF0040D❷❹	4	0	1	0.470
BF0031D❷❹	3	1	1	0.470
BF0022D❷❹	2	2	1	0.470
BF0004D❷❹	0	4	1	0.470
DC COIL. Low consumption (2.4W). Terminals: clamp screw.				
BF0040L❸❹	4	0	1	0.470
BF0031L❸❹	3	1	1	0.470
BF0022L❸❹	2	2	1	0.470
BF0004L❸❹	0	4	1	0.470

❶ The order code must be completed either with the coil voltage digit if 50/60Hz or with the coil voltage digit followed by the number 60 if 60Hz. Standard voltages are:
– AC 50760Hz 024 / 048 / 110 - 230 / 400V
– AC 60Hz 024 60 / 048 60 /- 120 60 / 220 60 / 230 60 / 460 60 / 575 60 (V).
Example: 11BG0040A230 (auxiliary mini-contactor 4 NO auxiliary contacts supplied at 230VAC 50/60Hz).
BF0040A46060 (auxiliary contactor with 4 NO auxiliary contacts supplied at 460VAC 60Hz).

❷ Complete the order code with coil voltage digit. Standard voltages are:
– DC 012 / 024 / 048 / 060 / 110 / 125 / 220V.
Example: BF0040D012 (auxiliary contactor with 4 NO auxiliary contacts supplied at 12VDC).

❸ Low-consumption version. Complete the order code with coil voltage digit. Standard voltages are:
– DC 024 / 048V.
Example: 11BG0040L024 (low-consumption auxiliary mini-contactor with 4 NO auxiliary contacts supplied at 24VDC).

❹ Maximum combinations of add-on blocks are given on page 2-23.

❺ All contacts are highly conductive.

❻ On 11BG00222D, maximum 2 auxiliary contacts may be mounted.

❼ Auxiliary contact blocks and mechanical interlock cannot be mounted.



11BGX10... (20-11-02)
11BGX1111



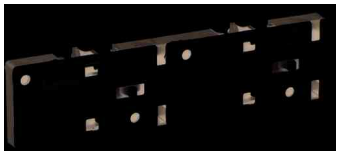
11BGX10... (40-31-22-13-04)
11BGX1122



11BGXF...



11BGX77... - 11BGX78225 - 11BGX79...



11BGX5000



11SMX9021
11SMX9022

Order code	Characteristics	Max qty per contactor	Qty per pkg	Wt
		n°	n°	[kg]
Auxiliary contacts. Screw terminals.				
11BGX1002❶	2NC	1	10	0.021
11BGX1011❶	1NO + 1NC	1	10	0.021
11BGX1020❶	2NO	1	10	0.021
11BGX1004❷	4NC	1	10	0.028
11BGX1013❷	1NO + 3NC	1	10	0.028
11BGX1022❶	2NO + 2NC	1	10	0.028
11BGX1031❶	3NO + 1NC	1	10	0.028
11BGX1040❶	4NO	1	10	0.028
Auxiliary contacts for reversing and changeover assemblies. Screw terminals.				
11BGX1111❸	1NO + 1NC	1	10	0.021
11BGX1122❸	2NO + 2NC	1	10	0.028
Auxiliary contacts. Faston terminals.				
11BGXF1002❶	2NC	1	10	0.021
11BGXF1011❶	1NO + 1NC	1	10	0.021
11BGXF1020❶	2NO	1	10	0.021
11BGXF1004❷	4NC	1	10	0.028
11BGXF1013❷	1NO + 3NC	1	10	0.028
11BGXF1022❶	2NO + 2NC	1	10	0.028
11BGXF1031❶	3NO + 1NC	1	10	0.028
11BGXF1040❶	4NO	1	10	0.028
Mechanical interlock.				
11BGX5000❶	For BG...A and BG...D	1	10	0.008
Quick connect surge suppressors.				
11BGX77048	≤48VAC/DC (Varistor)		10	0.007
11BGX77125	48...125VAC/DC (Varistor)		10	0.007
11BGX77240	125...240VAC/DC (Varistor)		10	0.007
11BGX78225	≤225VDC (Diode)		10	0.007
11BGX79048	≤48VAC (Resistor-Capacitor)		10	0.007
11BGX79125	48...125VAC (Resistor-Capacitor)		10	0.007
11BGX79240	125...240VAC (Resistor-Capacitor)		10	0.007
11BGX79415	240...415VAC (Resistor-Capacitor)		10	0.007
Modular shroud.				
11BGX8000❹	IP40 front protection		20	0.006
Paralleling links.				
11G323❺	For 2 poles		10	0.009
11G324			10	0.009
11G325❺	For 4 poles		10	0.014
11G326			10	0.014
Rigid connecting kits.				
11SMX9021❻	Rigid connections for star-delta starter with BG... mini-contactors		10	0.040
11SMX9022❻	Rigid connections for reversing switches with BG... mini-contactors		1	0.026

❶ Cannot be used with BG...L types.
❷ Cannot be used with BG...D and BG...L types.
❸ Suitable for left-hand mini-contactor only of BGT and BGTP reversing and BGC changeover assemblies.
❹ The shroud can be used with BG... types with screw termination only and with no auxiliary contacts, surge suppressor or mechanical interlock mounted. It raises the front degree of protection of the mini-contactor when these are used in consumer switchboards.
❺ Cannot be used with BGX8000 shroud.
❻ Contactors with one NC auxiliary contact, 01 type, are usually used. The SM1 breaker can be directly fitted with rigid connector; type connection SM1X3040P for SM1P... breaker and connection SM1X3040R for SM1R... breaker. The relay cannot be directly mounted on the contactor. Use the RF38 type and the RFX3804 independent mounting base.

Operational characteristics

Type			BGX10... BGX11...	BGXF10...
IEC rated conventional free air thermal current Ith		A	10	10
IEC rated insulation voltage Ui		V	690	690
Minimum switching capacity			5V 10mA	
Terminals	Screw		M3	Faston 1x6.3mm 2x2.8mm
	Width	mm	6.9	6.9
Tightening torque		Nm	0.8...1	—
		lb.in	7...9	—
Conductor section maximum (with 1 or 2 cables)				
	flexible without lug	mm^2	2.5	2.5
	flexible with lug	mm^2	2.5	2.5
	AWG	n°	14	14
UL/CSA and IEC/EN/BS 60947-5-1 designation		AC	A600	A600
		DC	Q600	Q600
Mechanical life (million)		cycles	20	20

SM1 breaker - mini-contactor connecting kit
See page 1-9.

Certifications and compliance
Certifications obtained:

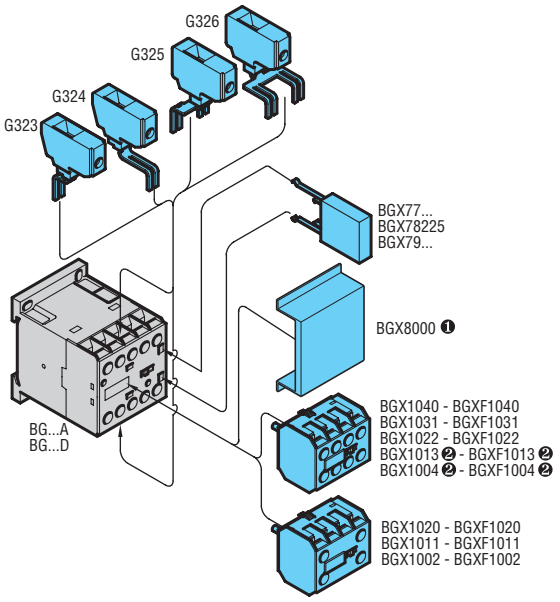
Type	UL	cULus	EAC	CCC
BGX10...	—	●	●	●
BGX11...	—	●	●	●
BGXF10...	—	●	●	—
BGX5000	—	●	●	—
BGX7...	—	●	●	—
BGX8000	—	—	●	—
G32...	—	—	●	—
SMX90...	ᴿᵁ	—	—	—

● Certified products.

ᴿᵁ - UL Recognized for USA only (File E197069) as Panel and Switchboard Accessories - Component. Products having this type of marking are intended for use as components of complete workshop-assembled equipment.
cULus - UL Listed for USA and Canada (cULus - File E93601) as Auxiliary Devices - Component.

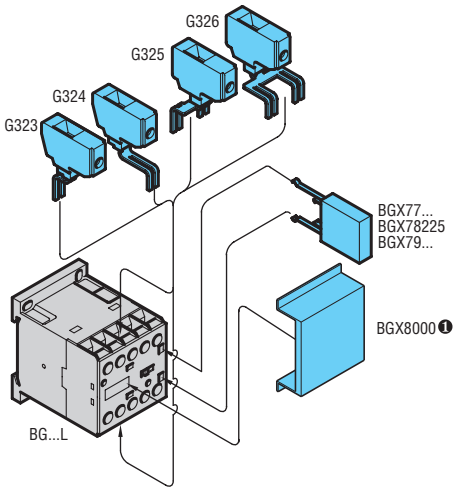
Compliant with standards: UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1; IEC/EN/BS 60947-1; IEC/EN/BS 60947-5-1 for auxiliary contacts.
The add-on auxiliary contact blocks 11BGX... and 11BGXF... comply with annex F of the IEC/EN/BS 60947-4-1 standard “auxiliary contact linked with power contact” also known as mirror contact. They also comply with annex L of the IEC/EN/BS 60947-5-1 standard “mechanically linked contact elements”.

Combinations: mounting position on BG...A and BG...D mini-contactors

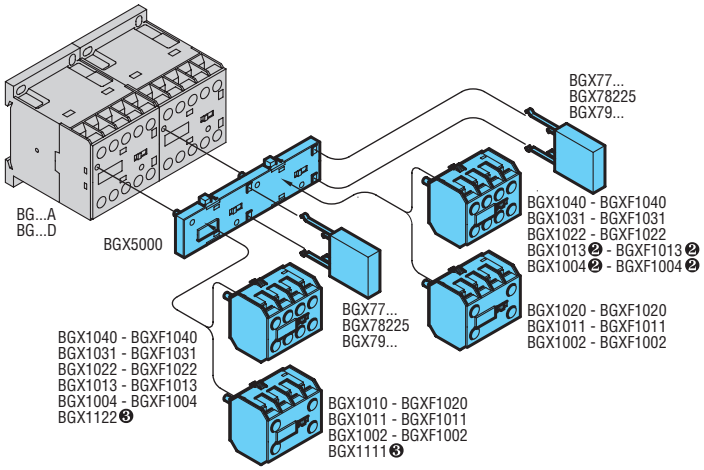


❶ Not suitable for mini-contactors BG... with auxiliaries contacts BGX10..., surge suppressor BGX7... and interlock BGX5000.
❷ Not suitable for BG...D types.

Combinations: mounting position on BG...L mini-contactors

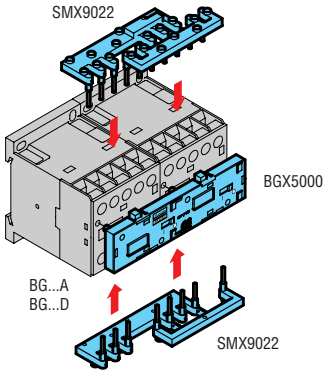


Combinations for reversing and changeover contactors assembled with BG...A and BG...D types

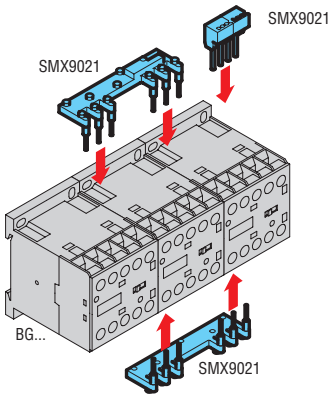


❷ Not suitable for BG...D types.
❸ For left-hand mini-contactor of BGT, BGTP and BGC contactor assemblies only.
See page 4-5.

Connections for reversing contactor assembly



Connections for star-delta assembly




BFX10...


11G484...


BFX10...


11G418...


11G218


11G481...
11G482


11G428...


BFX12...


11G485...
11G486...
11G487

Order code	Characteristics	Max qty per cont.	Qty per pkg.	Wt
		n°	n°	[kg]
Auxiliary contacts with front center mounting ❷. Screw terminals.				
BFX1002❶	2NC	1	5	0.030
BFX1011❶	1NO + 1NC	1	5	0.030
BFX1020❶	2NO	1	5	0.030
11G48403❶	3NC	1	5	0.039
11G48412❶	1NO + 2NC	1	5	0.039
11G48421❶	2NO + 1NC	1	5	0.039
11G48430❶	3NO	1	5	0.039
BFX1004	4NC	1	5	0.048
BFX1013	1NO + 3NC	1	5	0.048
BFX1022	2NO + 2NC	1	5	0.048
BFX1031	3NO + 1NC	1	5	0.048
BFX1040	4NO	1	5	0.048
BFX101111	1NO+1NC and 1EM❸+1LB❹	1	5	0.048
Auxiliary contacts with front lateral mounting. Screw terminals❺.				
11G41801	1NC	2	10	0.014
11G41801D	1LB❸	2	10	0.014
11G41810	1NO	2	10	0.014
11G41810A	1EM❹	2	10	0.014
Auxiliary contacts with front lateral mounting. Faston terminals❼.				
11G218	1NO or 1NC reversible	2	10	0.011
11G48102	2NC	2	10	0.013
11G48111	1NO + 1NC	2	10	0.013
11G48120	2NO	2	10	0.013
11G482❷❺	Changeover contact	2	10	0.013
Adapter for auxiliary contact side mounting.				
11G280	for G218	2	10	0.008
11G419	for G418	2	10	0.010
11G483	for G481 and G482	2	10	0.010
Auxiliary contacts with low side mounting. Screw terminals.				
BFX1202❷	2NC	2	5	0.044
BFX1211❷	1NO+1NC	2	5	0.044
BFX1220❷	2NO	2	5	0.044
11G42801	1NC	2	10	0.024
11G42801D	1LB❸	2	10	0.024
11G42810	1NO	2	10	0.024
11G42810A	1EM❹	2	10	0.024
Delayed auxiliary contacts 1NO + 1NC (pneumatic operation) on energisation for front center mounting ❶❽. Screw terminals.				
11G4853	3s	1	1	0.040
11G4856	6s	1	1	0.040
11G48515	15s	1	5	0.040
11G48530	30s	1	5	0.040
11G48560	60s	1	5	0.040
11G485120	120s	1	1	0.040
Delayed auxiliary contacts 1NO + 1NC (pneumatic operation) on de-energisation for front center mounting ❶❽. Screw terminals.				
11G4863	3s	1	1	0.040
11G4866	6s	1	1	0.040
11G48615	15s	1	5	0.040
11G48630	30s	1	5	0.040
11G48660	60s	1	5	0.040
11G486120	120s	1	1	0.040
11G487	70ms	1	1	0.040

❶ The contacts can also be fitted on B type contactors using the adapter G358.See pages 2-32 and 2-33.
❷ Highly conductive contacts.
❸ Normally closed late-break contact.
❹ Normally open early-make contact.
❺ Gold-plated contacts inside tight casing for use in pollutant environments.
The Ith value refers to 125VAC and 30VDC.
Minimum applicable load: 5VDC 1mA.IEC IP20 protection is warranted to equipment wired with insulated Faston terminals.
❻ IEC IP20 protection is warranted to equipment wired with minimum 0.75mm² conductor section.
Designation in DC is Q600 for G418 and G419 types.
❼ IEC IP20 protection is warranted to equipment wired with insulated Faston terminals.
❽ IEC IP20 protection is warranted to equipment wired with minimum 1mm² conductor section.
Mechanical life is 3 million cycles.
❾ 1.5mm² for insulated bootlace ferrules.

Operational characteristics for add-on auxiliary contacts

Type			G418❻ G428❻ G485❽ G486❽ G487❽	G484 BFX10 BFX12	G218❼ G481❼	G482❺
IEC conventional free air thermal current Ith		A	10	10	10	0.1❺
IEC rated insulation voltage Ui		V	690	690	690	690
Minimum switching capacity			5V 10mA			5V 1mA
Terminals	Screw		M3.5	M3	—	—
	Width	mm	7	7	—	—
	Faston		—	—	1x6,35 2x2.8	1x6,35 2x2.8
Tightening torque		Nm	0.8...1	0.8...1	—	—
		lb.in	7...9	7...9	—	—
Conductor section maximum with (1 or 2 cables						
	flexible w/o lug	mm²	2.5	2.5❾	—	—
	flexible c/w lug	mm²	2.5	2.5	2.5	2.5
	AWG	n°	14	14	14	14
Terminal protection per IEC/EN/BS 60529			IP20	IP20	IP20❼	IP20❺
UL/CSA and IEC/EN/BS 60947-5-1 designation		AC	A600	A600	A600	—
		DC	P600❻	Q600	P600	—
Mechanical life (million)		cycles	10❽	10	10	10

SM1 breaker - contactor connecting kit
See page 1-9.

Maximum assembly combination of add-on blocks
See pages 2-23 and 2-26...27.

Certifications and compliance
Certifications obtained:

Type	UL	cULus	CSA	EAC	CCC
BFX10...	—	●	—	●	●
BFX12...	—	●	—	●	—
G218	ᴿᵁ	—	●	●	—
G418..., G428...	ᴿᵁ	—	●	●	—
G481...	ᴿᵁ	—	●	●	—
G482	ᴿᵁ	—	●	●	—
G484...	ᴿᵁ	—	●	●	—
G485...	ᴿᵁ	—	●	●	—
G486...	ᴿᵁ	—	●	●	—
G487...	ᴿᵁ	—	●	●	—

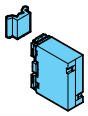
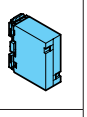
● Certified products.

ᴿᵁ - UL Recognized for USA only (File E93601) as Auxiliary Devices - Component.
Products having this type of marking are intended for use as components of complete workshop-assembled equipment.
cULus - UL Listed for USA and Canada (cULus - File E93601) as Auxiliary Devices.
CSA - CSA certified for Canada only (File 54332) as Auxiliary Devices for motor controllers.

Add-on auxiliary contacts are compliant with the following standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-5-1, UL 60947-1, UL 60947-5-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-5-1.
The add-on auxiliary contact blocks BFX10... (BFX101111 excluded) and BFX12... comply with annex F of the IEC/EN/BS 60947-4-1 standard “auxiliary contact linked with power contact” also known as mirror contact. They also comply with annex L of the IEC/EN/BS 60947-5-1 standard “mechanically linked contact elements”.
For the BF40...BF150 contactors, compliance with annex L of the IEC/EN/BS 60947-5-1 standard applies only to the versions with electronically controlled AC/DC coil.

BF00A, BF09A...BF150A, BF40E...BF150E

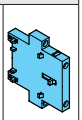
Maximum assembly combination for alternating-current contactors BF00A, BF09A...BF150A.
Maximum assembly combination for alternating/direct-current contactors BF40E...BF150E.

			Front centre mount					Front lateral mount				Side mount	
													
			BFX1002	BFX1004	G485...	G222...❹		BFX5002	BFX5303	G418...		G428...	BFX1202
			BFX1011	BFX1013	G486...	G272...❹		BFX5003 ❶	BFX5403 ❾	G218 G481...		G419+ G418...	BFX1211
			BFX1020	BFX1022	G487	BFX641... ❹				G482		G280+ G218	BFX120
				BFX1031								G483+ G481...	BFX5000 ❸❽
				BFX1040								G483+ G482	BFX5001 ❸❽
			n° of blocks 1 type only			n° of blocks		n° of blocks 1 type only		n° of blocks		n° of blocks	n° of blocks
Contactors	Control relay	BF00A	1	1	1	1 ❺	OR +	1	—	1 or 2 ❶	OR	1 or 2 ❶	1 ❸
	Three-poles	BF09A...BF25A	1	1	1	1 ❺		1	—	1 or 2 ❶		1 or 2 ❶	1 ❸
		BF26A...BF38A	1	1	1	1 ❺		1	—	1 or 2 ❶		1 or 2 ❶	1 ❸
		BF40A...-BF150A	1	1	1	1 ❺		—	1 ❿	1 or 2 ❶		2	1 ❸
		BF40E...-BF150E	1	1	1	1 ❺		—	1 ❿	1 or 2 ❶		2	1 ❸
	Four-poles	BF09A...BF25A	1	1	1	1 ❺		1	—	1 or 2		1 or 2 ❶	1 ❸
		BF26A...BF38A	1	1	1	1 ❺		1 ❸	—	1 ❶		1 or 2 ❶	1 ❸
		BF40A...-BF150A	1	1	1	1 ❺		—	1 ❿	1 or 2		2	1 ❸
		BF40E...-BF150E	1	1	1	1 ❺		—	1 ❿	1 or 2		2	2

❶ Cannot be fitted with BFX10... with 4 contacts and G222.
❷ To fit the mechanical interlock, the add-on fourth pole needs to be mounted on the left side of the one of the contactors.
❸ One only side-mount block can be fitted on each contactor whenever the BFX500... interlock is mounted.
❹ One BFX10... or delayed G48... contact block can be mounted on the G222, G272 or BFX641 mechanical latch.
❺ G222 mechanical latch.
❻ G272 mechanical latch for BF40...BF80; BFX641 for BF95...BF150.
❽ For BF40...BF94 code BFX5300 or BFX5301; for BF95...BF150 code BFX5400 or BFX5401.
❾ BFX5303 for BF40...BF94; BFX5403 for BF95...BF150.
❿ BFX5303 cannot be mounted if a contact block BFX10... with 4 contacts (BFX1004, BFX1013, BFX1022, BFX1031, BFX1040) is installed.

BF00D, BF09D...BF38D, BF00L, BF09L...BF38L

Maximum assembly combination for direct-current contactors BF00D, BF09D...BF38D.
Maximum assembly combination for direct-current contactors BF00L, BF09L...BF38L with low consumption.

			Front centre mount													Front lateral mount		Side mount	
																	
			BFX10...			BFX10...						G485...		G222... ❹		1 type only BFX50...			BFX12... ❸
			...02	...11	...20	...04	...13	...22	...31	40		G486.. G487				...02	...03 ❶	...00	...01
			n° of blocks 1 type only											n° of blocks		n° of blocks 1 type only			
Contactors	Control relay	BF00D	1			1		1				1	OR	1	+	1	1	1	1
		BF00L	1			—		1				—		1		1	1	—	—
	Three-poles	BF09D-BF25D	1			1		1				1		1		1	1	1	1
		BF26D-BF38D	1			1		1				1		1		1	1	1	1
		BF09L-BF25L	1			—		1				—		1		1	1	—	—
		BF26L-BF38L	1			—		1				—		1		1	1	—	—
	Four-poles	BF09D-BF25D	1			1		1				1		1		1	1	1	1
		BF26D-BF38D	—	1		—		—				—		1		1❼	1❼	1	1
		BF09L-BF25L	1			—		1				—		1		1	1	—	—
		BF26L-BF38L	—	1	—	—		—				—		—		1❼	1❼	—	—

❶ Mounting of BFX5003 interlock is not possible when BFX10... block with 4 contacts and G222 latch are mounted.
❸ One only side-mount block can be fitted on each contactor whenever the BFX500... interlock is mounted.
❹ One BFX10... or delayed G48... contact block can be mounted on the G222 or G272 mechanical latch.
❼ To fit the mechanical interlock, the add-on fourth pole needs to be mounted on the left side of the one of the contactors.
For other assembly combination, consult Technical support (E-mail: service@LovatoElectric.com).



BFX42
BFXD42



BFX5000 **BFX5001**
BFX5300 **BFX5301**
BFX5400 **BFX5401**



BFX5002 **BFX5003**
BFX5303
BFX5403



11G222...
11G272...
BFX641...



11G454
11G455
BFX642



BFX77...
BFX79...

Order code	Characteristics	Max qty per cont.	Qty	Wt
		n°	n°	[kg]
Fourth pole.				
BFX42	For BF26A, BF32A, BF38A	1	1	0.100
BFXD42	For BF26D, BF32D, BF38D, BF26L, BF32L, BF38L	1	1	0.108
BFX43	For BF40A... BF94A and BF40E...BF94E	1	1	0.150
BFX44	For BF95A...BF150A and BF95E...BF150E	1	1	0.500
Mechanical interlock.				
BFX5000❶	Side mount for BF00, BF09...BF38	1	5	0.039
BFX5001❶	Side mount with 2NC contacts for BF00, BF09...BF38	1	5	0.052
BFX5002	Front mount, low contacts for BF00, BF09...BF38	1	5	0.006
BFX5003	Front mount for BF00, BF09...BF38	1	5	0.023
BFX8910	Spacer for interlocking BF09...BF38 AC/DC with types in DC	1	10	0.017
BFX5300	Side mount for BF40...BF94 A/E	1	5	0.039
BFX5301	Side mount with 2NC contacts for BF40...BF94 A/E	1	5	0.052
BFX5303	Front mount for BF40...BF94 A/E	1	5	0.034
BFX5400	Side mount for BF95...BF150 A/E	1	5	0.039
BFX5401	Side mount with 2NC contacts for BF95...BF150 A/E	1	5	0.052
BFX5403	Front mount for BF95...BF150 A/E	1	5	0.034
Mechanical latch. Screw terminals.				
11G222❷	For BF00, BF09...BF38	1	1	0.070
11G272❷	For BF40...BF94	1	1	0.070
BFX641...❷	For BF95...BF150	1	1	0.070
Manual closing mechanism.				
11G454	For BF00, BF09...BF38	1	1	0.021
11G455	For BF40...BF94	1	1	0.021
BFX642	For BF95...BF150	1	1	0.021
Quick connect surge suppressors for BF00A, BF09A...BF150A contactors.				
BFX77048	≤48VAC/DC (Varistor)		5	0.012
BFX77125	48...125VAC/DC (Varistor)		5	0.012
BFX77240	125...240VAC/DC (Varistor)		5	0.012
BFX79048	≤48VAC (Resistor-Capacitor)		5	0.012
BFX79125	48...125VAC (Resistor-Capacitor)		5	0.012
BFX79240	125...240VAC (Resistor-Capacitor)		5	0.012
BFX79415	240...415VAC (Resistor-Capacitor)		5	0.012

NOTE: All contactors BF series, equipped with DC or AC/DC electronic coil, have built-in surge suppressor filter.

❶ Different sized contactors can be interlocked.
Example: BF09...BF25 with BF26...BF38.

❷ Replace with the digit of the voltage if 50 or 60Hz and with the letter C followed by the digit of the voltage if DC. Standard voltages are:
– AC 50/60Hz 24 (indicate 24) - 48 (indicate 48) - 110...125 (indicate 110) 220...240 (indicate 220) - 380...415V (indicate 380).
– DC 12 (indicate 12) - 24 (indicate 24) - 48 (indicate 48) 110...125 (indicate 110) - 220...240V (indicate 220).

Operational characteristics

Type		BFX42 BFXD42	BFX43	BFX44	BFX5001 BFX5301 BFX5401
IEC conventional free air thermal current Ith	A	56	115	165	10
IEC rated insulation voltage Ui	V	690	1000	1000	690
Minimum switching capacity		5V 10mA			
Terminals: Screw		M4	M6	M8	M3
Width	mm	12.5	9.6	14.5	7
Tightening torque	Nm	2.5...3	4...5	5.5...6.5	0.8...1
	lb.in	21.6...26.4	35.4...44.2	48...57	7...9
Conductor section maximum with 1 or 2 cables flexible w/o lug	mm^2	16	35	70	2,5
flexible c/w lug	mm^2	16	35	70	2,5
AWG	n°	6	2	2/0	14
Terminal protection for IEC/EN/BS 60529		IP20❸	IP20❸	IP20❸	IP20
UL/CSA and IEC/EN/BS 60947-5-1 designation	AC	—	—	—	A60
	DC	—	—	—	Q600
Mechanical life (million)	cycles	20	15	15	10

Type			G222...	G272...	BFX641
Rated control circuit voltage	AC (50/60Hz)	V	24...415	24...415	24...415
	DC	V	12...240	12...240	12...240
Power consumption with control:	AC	VA	40	40	40
	DC	W	70	70	70
Minimum energising:	drop-out	ms	10	10	10
	pick-up	ms	100	200	200
Tightening torque		Nm	0.8...1	0.8...1	0.8...1
		lb.in	7...9	7...9	7...9
Conductor section Maximum with 1 or 2 cables flexible w/o lug		mm^2	4	4	4
flexible c/w lug		mm^2	2.5	2.5	2.5
AWG		n°	14...12	14...12	14...12
Mechanical life (million)		cycles	0.1	0.1	0.01

❸ The condition is front IP20 protection.

Maximum assembly combination of add-on blocks
See pages 2-23, 2-26...27.

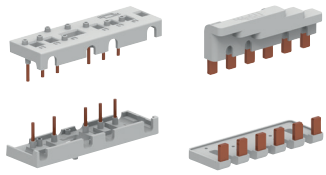
Certifications and compliance
Certifications obtained:

Type	UL	cULus	CSA	EAC
BFX42 - BFXD42 - BFXD43	—	●	—	●
BFX5...	—	●	—	●
BFX77... - BFX79...	—	●	—	●
G222... - G272... - BFX641	𝓤𝓛	—	●	●

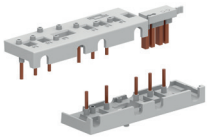
● Certified products.

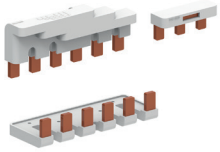
𝓤𝓛 - UL Recognized for USA only (File E93601) as Auxiliary Devices Component.
Products having this type of marking are intended for use as components of complete workshop-assembled equipment.
cULus - UL Listed for USA and Canada (cULus - File E93602) as Magnetic motor controllers.
CSA - CSA certified for Canada only (File 54332) as Auxiliary Devices for motor controllers.

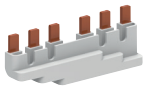
Compliant with standards: IEC/EN/BS 60947-1, UL 60947-1, CSA C22.2 n° 60947-1. IEC/EN/BS 60947-5-1, UL 60947-5-1, CSA C22.2 n° 60947-5-1 for auxiliary contacts IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-4-1 for four-poles.

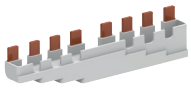

BFX310...
BFX3201

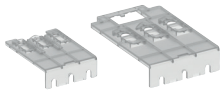
BFX3301
BFX3401


BFX3131
BFX3231


BFX3331
BFX3431


BFX3361
BFX3461


BFX3371
BFX3471


BFX833
BFX834


BFX3393


BFX3392
BFX3492


11BA135
11BA235


11BA435


11G231
11G232


BFX3399


BFX8901


BFX80


BFX8902

Order code	Characteristics	Qty per pkg	Wt
		n°	[kg]
Rigid connecting kits for three-pole reversing contactor assembly.			
BFX3101	For contactors BF09...BF25 side by side with BFX5002 or BFX5003 mechanical interlock	1	0.052
BFX3102	For contactors BF09...BF25 side by side with BFX5000 or BFX5001 mechanical interlock	1	0.054
BFX3201	For contactors BF26...BF38 side by side with BFX50... mechanical interlock	1	0.060
BFX3301	For contactors BF40...BF94 side by side with BFX5303 mechanical interlock	1	0.150
BFX3401	For contactors BF95...BF150 side by side with BFX5403 mechanical interlock	1	0.200
Rigid connecting kits for star-delta starters.			
BFX3131	For contactors BF09...BF25	1	0.058
BFX3231	For contactors BF26...BF38	1	0.064
BFX3232	For contactors BF26...BF38 (L/Δ) BF09...BF25 (Y)	1	0.064
BFX3332	For contactors BF40...BF94 (L/Δ) BF26...BF38 (Y)	1	0.200
BFX3331	For contactors BF40...BF94	1	0.220
BFX3432	For contactors BF95...BF150 (L/Δ) BF40...BF94 (Y)	1	0.250
BFX3431	For contactors BF95...BF150	1	0.270
Rigid connecting kits for changeovers.			
BFX3361	For three-pole contactors BF40...BF94 with BFX5300/BFX5301 mechanical interlock	1	0.150
BFX3461	For three-pole contactors BF95...BF150 with BFX5400/BFX5401 mechanical interlock	1	0.200
BFX3371	For four-pole contactors BF40...BF80 with BFX5300/BFX5301 mechanical interlock	1	0.200
BFX3471	For four-pole contactors BF95...BF150 with BFX5400/BFX5401 mechanical interlock	1	0.300
IP20 protection for power terminals. 2 pieces for each contactor are required.			
BFX833	For three-pole contactors BF40...BF94	10	0.020
BFX834	For three-pole contactors BF95...BF150	10	0.030
Non-insulated paralleling links.			
11BA135	2 poles for contactors BF09...BF25 types	10	0.001
11BA235	2 poles for contactors BF26...BF38 types	10	0.003
BFX3392	2 poles for contactors BF40...BF94 types	4	0.022
BFX3492	2 poles for contactors BF95...BF150 types	4	0.027
BFX3393	3 poles for contactors BF40...BF94 types	4	0.038
11BA435	3 poles for contactors BF95...BF150 types	10	0.030
Insulated paralleling link with terminal.			
BFX3399	3 poles (for contactors BF40...BF94) Conductor section connectable: 25...95mm² (95mm² without lug)	10	0.135
One-pole enlarged terminals.			
11G231	1x6mm² for contactors BF09...BF25 types	12	0.009
11G232	1x16mm² for contactors BF26...BF38 types	12	0.014
Sealing cover.			
BFX80	Sealing cover for contactors BF00 and BF09...BF38	10	0.001
Screw fixing adapters for contactors.			
BFX8901	Universal base to screw fix BF09...BF38 contactors	5	0.016
BFX8902	Screw fixing brackets for BF09...BF38 contactors	10	0.002
Marking element for BF00, BF09...BF150 contactors.			
BFX30	Blank label for writing	50	0.001

Operational characteristics

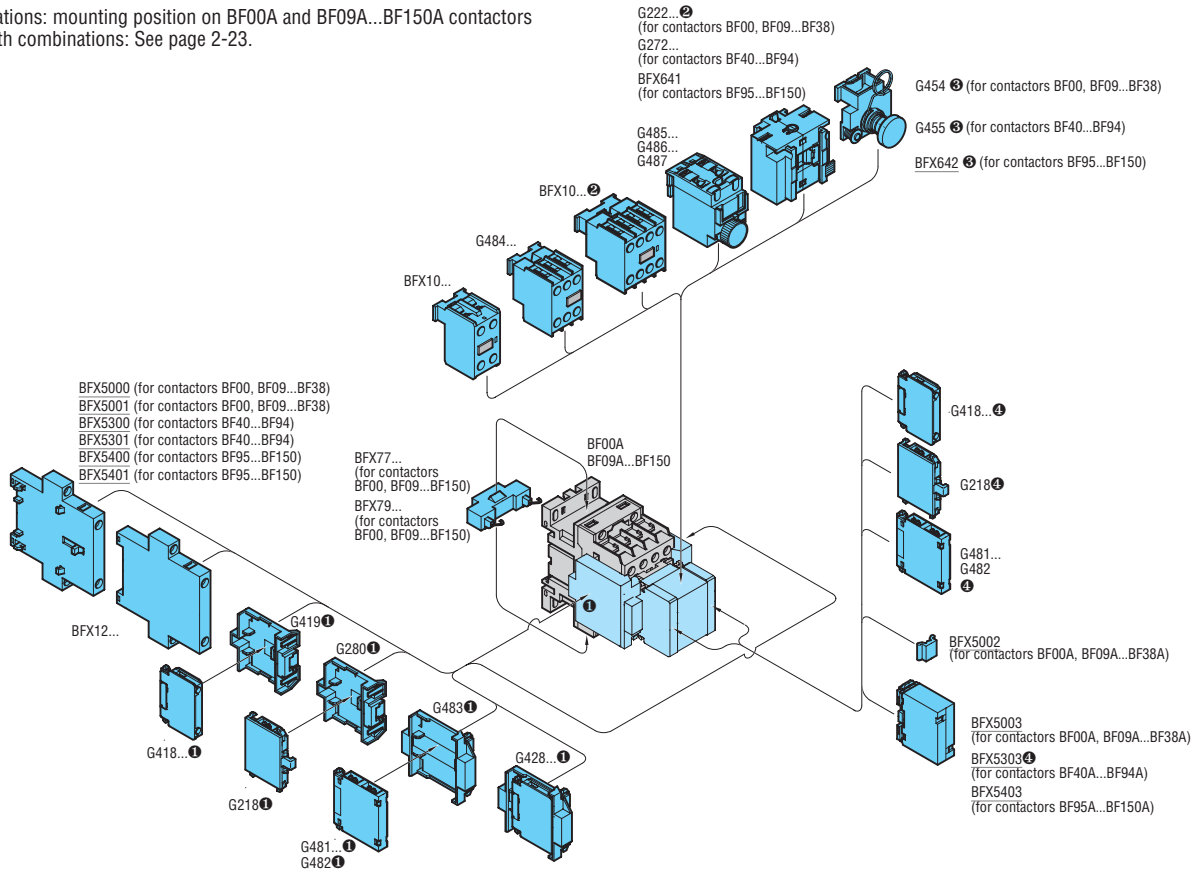
Type		BFX3399	11G231	11G232
Tightening torque	Nm	13Nm	1.5-1.8	2.5-3
	lb.in	115	13.2-18	7-9
Tool	Type	Allen key 6	PH1	PH2

Certifications and compliance
Certifications obtained: UL Listed for USA and Canada (cULus - File E93602), for all connecting kits for starters and changeovers BFX3... ; EAC.
Compliant with standards: IEC/EN/BS 60947-1, UL 60947-1, CSA C22.2 n° 60947-1.

Dimensions pages 2-48 and 49
Wiring diagrams page 2-56

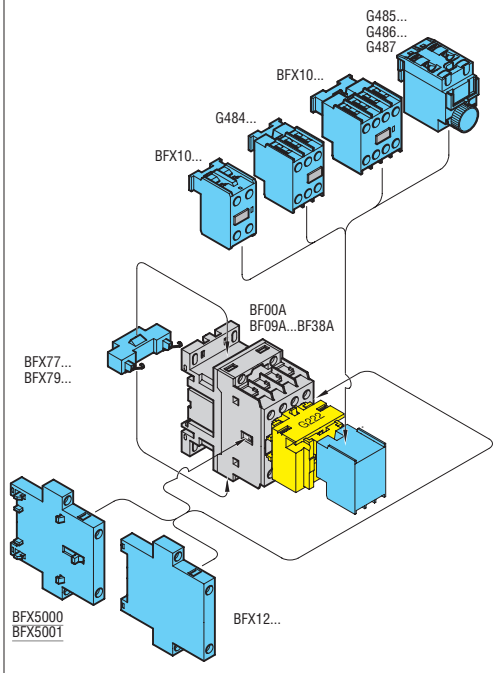
Add-on blocks for AC and AC/DC contactors

Combinations: mounting position on BF00A and BF09A...BF150A contactors
Table with combinations: See page 2-23.

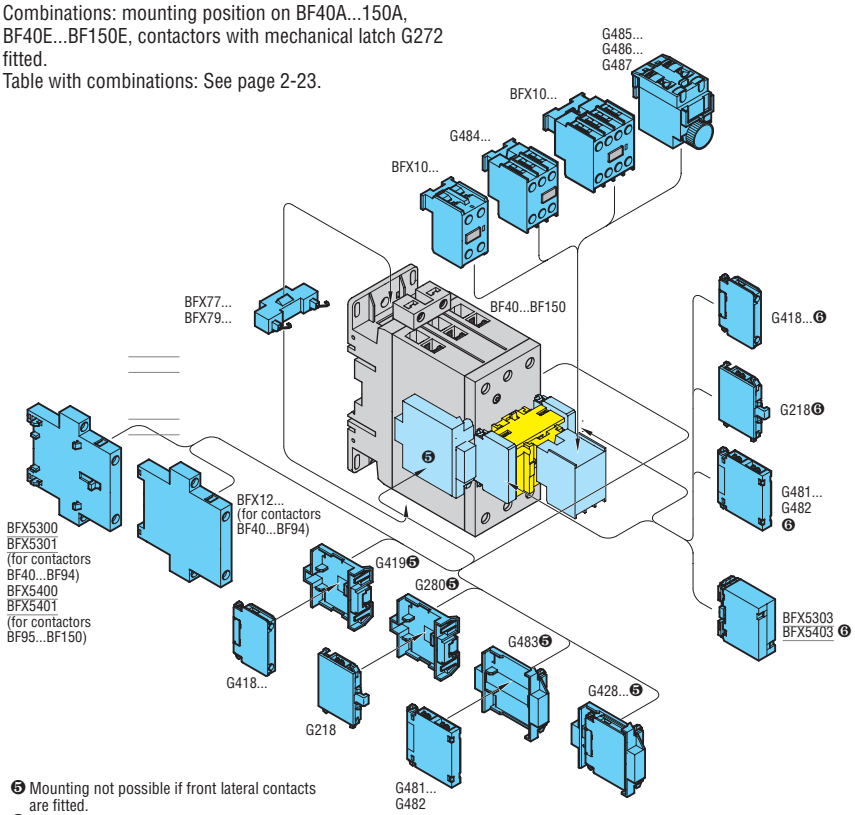


❶ Mounting is not possible if front lateral contacts or mechanical interlock BFX5000 or BFX5001 are mounted. BF00, BF09...38 cannot be fitted with BFX10 with 4 contacts or G222...
❷ Refer to the diagrams below for use of G222..., G272... and BFX641...; see also the table of combinations on page 2-23.
❸ No add-on block can be mounted on front when the manual closing mechanism G454 or G455 is fitted.
❹ This accessory, for contactors BF09...BF94, cannot be mounted if a contact block BFX10... with 4 contacts (BFX1004, BFX1013, BFX1022, BFX1031, BFX1040) is installed.

Combinations: mounting position on BF00A and BF09A-BF38A contactors with mechanical latch G222 fitted.
Table with combinations: See page 2-23.



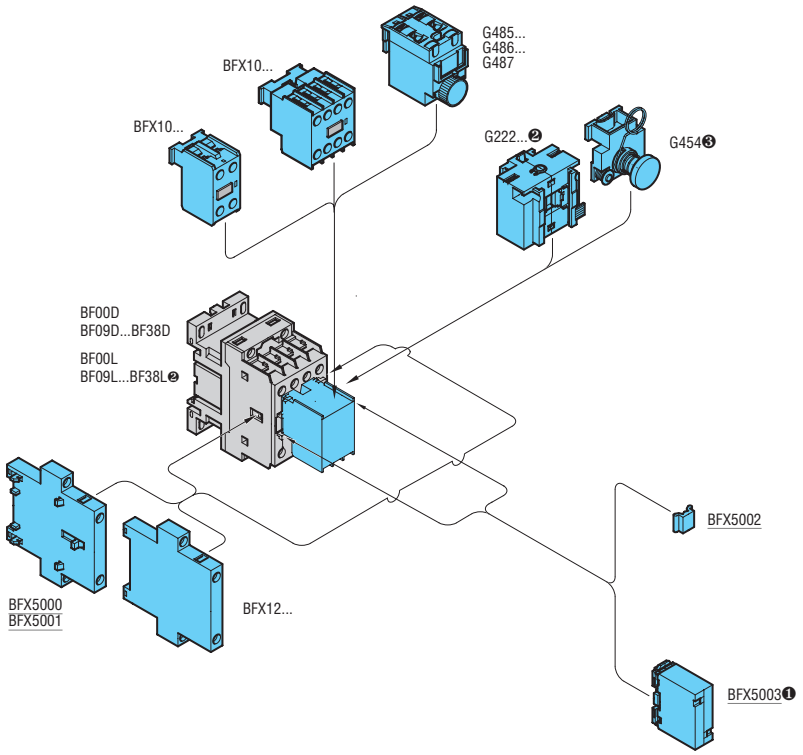
Combinations: mounting position on BF40A...150A, BF40E...BF150E, contactors with mechanical latch G272 fitted.
Table with combinations: See page 2-23.



❺ Mounting not possible if front lateral contacts are fitted.
❻ Mounting only for BF95...BF150.

Add-on blocks for DC and DC low consumption contactors

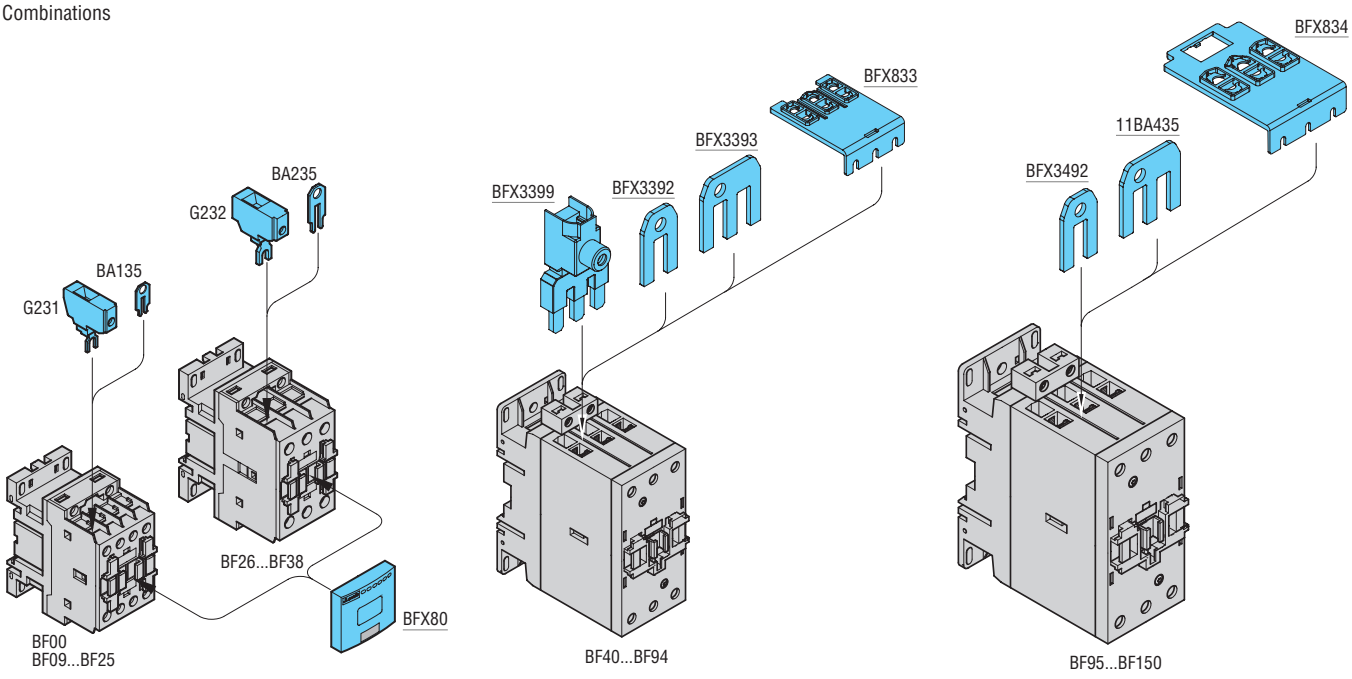
Combinations: mounting position on BF00 and BF09-BF38, D and L versions
Table with combinations: See page 2-23.



❶ Mounting not possible when the G222 mechanical latch is fitted.
❷ The G222 mechanical latch cannot be fitted on BF26L - BF38L four-pole types.
❸ No add-on block can be mounted on front when the G454 manual closing mechanism is fitted.

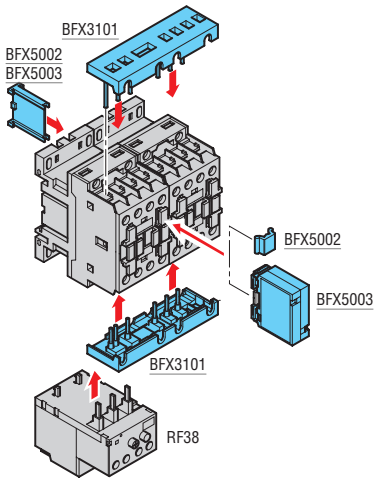
Accessories for AC, DC and DC low consumption contactors

Combinations

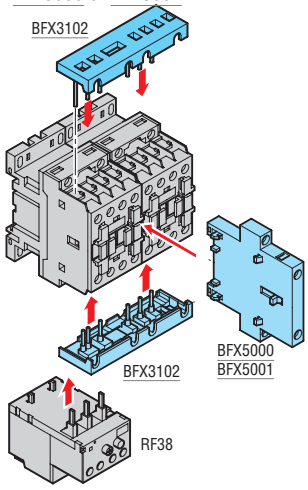


Accessories for AC, DC and DC low consumption contactors

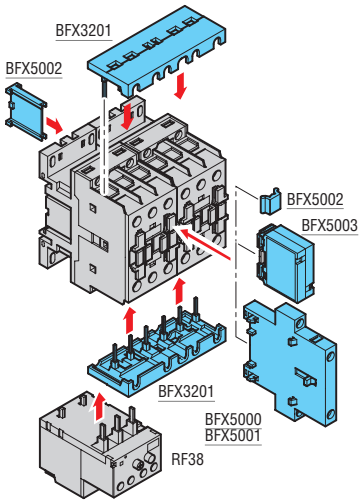
Rigid connecting kits for three-pole reversing contactor assembly. For BF09...BF25



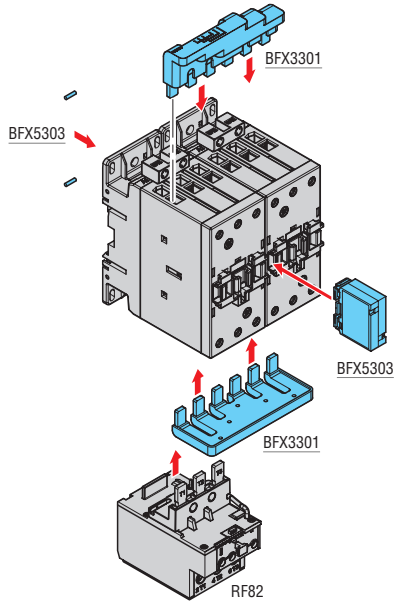
Rigid connecting kits for three-pole reversing contactor assembly. For BF09...BF25 and mechanical interlock BFX5000 or BFX5001



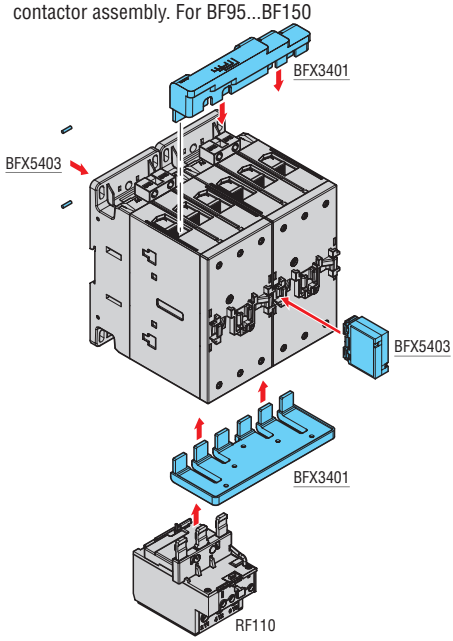
Rigid connecting kits for three-pole reversing contactor assembly. For BF26...BF38



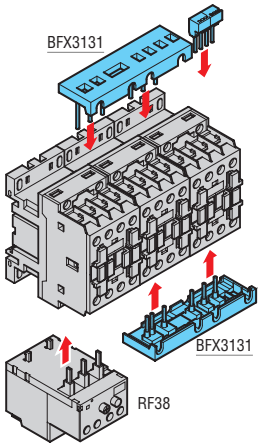
Rigid connecting kits for three-pole reversing contactor assembly. For BF40...BF94



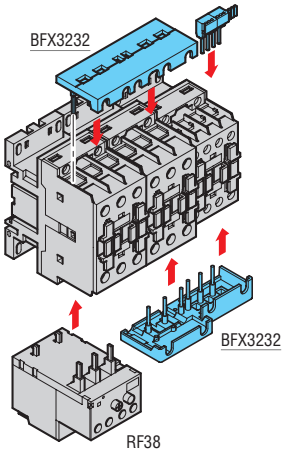
Rigid connecting kits for three-pole reversing contactor assembly. For BF95...BF150



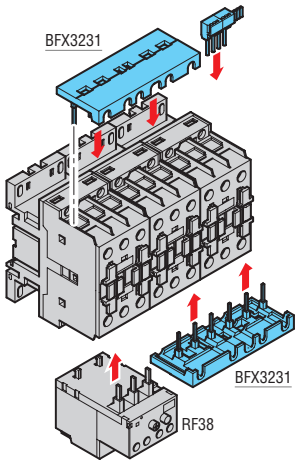
Rigid connecting kits for star-delta starters. For BF09...BF25 contactors



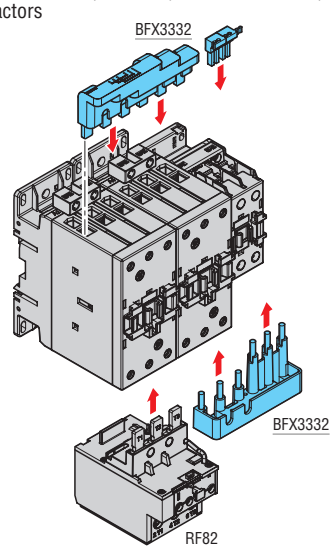
Rigid connecting kits for star-delta starters. For BF26...BF38 (line-delta) and BF09...BF25 (star) contactors



Rigid connecting kits for star-delta starters. For BF26...BF38 contactors

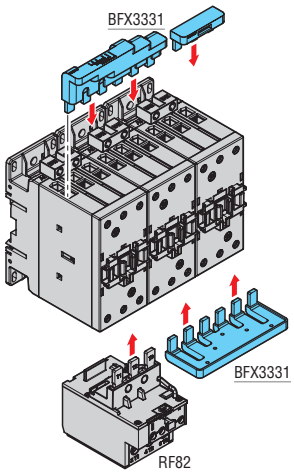


Rigid connecting kits for star-delta starters. For BF40...BF94 (line-delta) and BF26...BF38 (star) contactors

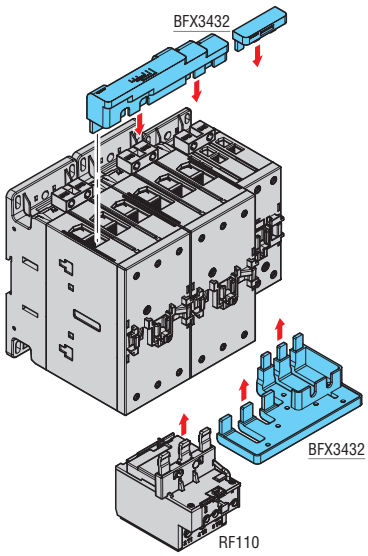


Dimensions
pages 2-48 and 49

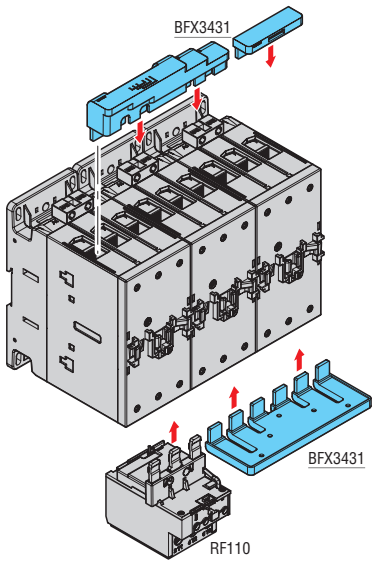
Rigid connecting kits for star-delta starters.
For BF40...BF94 contactors



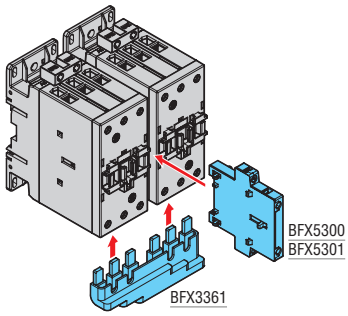
Rigid connecting kits for star-delta starters.
For BF95...BF150 (line-delta) and BF40...BF94 (star) contactors



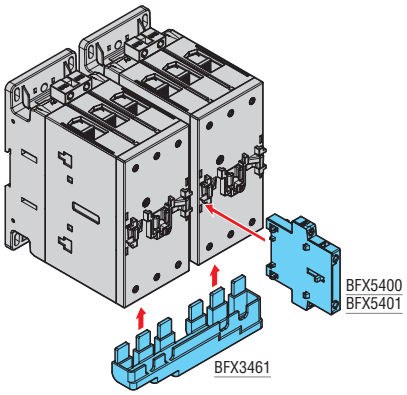
Rigid connecting kits for star-delta starters.
For BF95...BF150 contactors



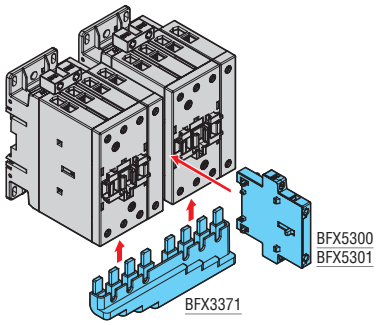
Rigid connecting kits for changeovers. For BF40...
BF94 three-pole contactors



Rigid connecting kits for changeovers.
For BF95...BF150 three-pole contactors



Rigid connecting kits for changeovers.
For BF40...BF94 four-pole contactors



Rigid connecting kits for changeovers.
For BF95...BF150 four-pole contactors

