




Motor protection and control



 **Lovato**
electric
100% electricity



MOTOR POWER AT 400V (AC3)

kW	0.37	0.75
HP	0.5	1
A	1.1	1.9

Motor protection circuit breaker with contactor

Motor protection circuit breaker	11 SM1B 20	11 SM1B 24
Thermal trip adjustment range [A]▲	1-1.6	1.6-2.5
Icu 400V (kA)	100	100
AC contactor	11 BG06 1A②	11 BG06 1A②
Rigid connector kit (circuit breaker - contactor)	11 SMX90 03	11 SMX90 03

Contactor with thermal relay

Backup fuse aM [A]	2	4
AC contactor ■	11 BG06 1A②	11 BG06 1A②
Thermal overload relay Ⓞ	11 RF9 1V5	11 RF9 2V3
Set of relay-contactor links	—	—
Relay adjustment range [A]❖	0.9-1.5	1.4-2.3

Assembled star-delta starter open frame

Backup fuse aM [A]	—	—
Assembled starter	—	—

Star-delta starter components (to be customer assembled)

Backup fuse aM [A]	—	—
AC line contactor ■	—	—
AC delta contactor ■	—	—
AC star contactor ■	—	—
Thermal overload relay Ⓞ	—	—
Set of relay-contactor links	—	—
Time relay	—	—
Add-on auxiliary contact block	L Δ Y	—
Rigid connection kit	—	—

Soft starters

Semiconductor fuse [A]	25	25
Soft-starter	51 ADXM 06BP	51 ADXM 06BP
By-pass contactor in AC ■ ⑦	incorporated	incorporated

- Replace with: 10 to obtain contactor with one normally open auxiliary contact (NO) or 01 to obtain contactor with one normally closed auxiliary contact (NC). All are highly conductive auxiliary contacts.
E.g.: 11 BG06 10 A②.
- Complete order code with the coil voltage digit or the coil voltage digit followed by 60 if 60Hz. Standard voltage are as follows:
- 50/60Hz 024 60 - 048 60 - 110 230 - 400VAC - 60Hz 024 60 - 048 60 - 120 60 - 220 60 - 230 60 - 460 60 - 575 60 (VAC).
E.g.: 11 BG06 10 A230
11 BG06 10 A460 60.
- RF9 and RF95 have manual resetting only. RF38, RF200 and RF420 have both manual and automatic resetting feature.

- 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 as follows:
24-48-60-110/125-220/240-380/415-440/480VAC/DC.
24V is not possible for B500-B630.
For coils: 110/125V indicate 110, 220/240V indicate 220, 380/415V indicate 380, 440/480V indicate 440.
E.g.: 11 B145 00 110 for contactor with 110/125VAC/DC coil.
- The thermal overload relay is not included and must be purchased separately. For the order code, refer to tables on the right, under the "RANGES AVAILABLE FOR THERMAL OVERLOAD



1.5	2,2	3	4	5.5	0.37	0.75	1.5	2.2	3
2	3	4	5.5	7.5	0.5	1	2	3	4
3.5	5	6.6	8.6	11.5	1.1	1.9	3.5	5	6.6

11 SM1B 28	11 SM1B 32	11 SM1B 36	11 SM1B 36	11 SM1B 40	11 SM1B 20	11 SM1B 24	11 SM1B 28	11 SM1B 32	11 SM1B 36
2.5-4	4-6.5	6.3-10	6.3-10	9-14	1-1.6	1.6-2.5	2.5-4	4-6.5	6.3-10
100	100	100	100	25	100	100	100	100	100
11 BG06 1A2	11 BG06 1A2	11 BG09 1A2	11 BG09 1A2	11 BG12 1A2	BF09 1A2	BF09 1A2	BF09 1A2	BF09 1A2	BF09 1A2
11 SMX90 03	11 SMX90 03	11 SMX90 03	11 SMX90 03	11 SMX90 03	SMX31 41	SMX31 41	SMX31 41	SMX31 41	SMX31 41

6	8	8	10	16	2	4	6	8	8
11 BG06 1A2	11 BG06 1A2	11 BG09 1A2	11 BG09 1A2	11 BG12 1A2	BF09 1A2	BF09 1A2	BF09 1A2	BF09 1A2	BF09 1A2
11 RF9 5	11 RF9 75	11 RF9 75	11 RF9 10	11 RF9 15	RF38 0160	RF38 0250	RF38 0400	RF38 0650	RF38 1000
-	-	-	-	-	-	-	-	-	-
3-5	4.5-7.5	4.5-7.5	6-10	9-15	1-1.6	1.6-2.5	2.5-4	4-6.5	6.3-10

-	-	-	-	-	-	-	-	6	8
-	-	-	-	-	-	-	-	BFA009 7025	BFA009 7025

-	-	-	-	-	-	-	-	6	8
-	-	-	-	-	-	-	-	BF09 10A2	BF09 10A2
-	-	-	-	-	-	-	-	BF09 01A2	BF09 01A2
-	-	-	-	-	-	-	-	BF09 10A2	BF09 10A2
-	-	-	-	-	-	-	-	RF38 0400	RF38 0400
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	TM ST	TM ST
-	-	-	-	-	-	-	-	N°1-BFX10 20	N°1-BFX10 20
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	N°1-BFX10 11	N°1-BFX10 11
-	-	-	-	-	-	-	-	BFX31 31	BFX31 31

25	25	40	40	40	40	40	40	40	40
51 ADXM 06BP	51 ADXM 06BP	51 ADXM 12BP	51 ADXM 12BP	51 ADXM 12BP	51 ADXM 12BP	51 ADXM 12BP	51 ADXM 12BP	51 ADXM 12BP	51 ADXM 12BP
incorporated	incorporated	incorporated	incorporated	incorporated	incorporated	incorporated	incorporated	incorporated	incorporated

RELAYS" title. The adjustment range of the overload relay must be selected based on and regulated at a value of 58% rated nameplate motor current (Ie).
 E.g. RF38 0650 (Ie = 10A so 58% Ie = 5.8A. Therefore, the overload relay to select must have 5.8A in the middle of its adjustment range which is 4-6.5A).

ⓐ Code TM ST for auxiliary supply 24-240VAC or code TM ST A440 for auxiliary supply 380-440VAC.

ⓑ ADXM...BP types are with built-in by-pass relay.

▲ RANGES AVAILABLE FOR MOTOR PROTECTION CIRCUIT BREAKERS

The recommended thermal trip range is indicated in the table above. The following are other available types.

Breaking capacity Icu at 400V = 50kA	
11 SM1A 40	9-14A
11 SM1A 44	13-18A
11 SM1A 48	17-23A
11 SM1A 52	20-25A
11 SM1A 56	24-32A

Breaking capacity Icu at 400V = 100kA (0.1-10A), 25kA (9-32A)

11 SM1B 00	0.1-0.16A
11 SM1B 04	0.16-0.25A
11 SM1B 08	0.25-0.4A
11 SM1B 12	0.4-0.63A
11 SM1B 16	0.63-1A
11 SM1B 20	1-1.6A
11 SM1B 24	1.6-2.5A
11 SM1B 28	2.5-4A
11 SM1B 32	4-6.5A
11 SM1B 36	6.3-10A
11 SM1B 40	9-14A
11 SM1B 44	13-18A
11 SM1B 48	17-23A
11 SM1B 52	20-25A
11 SM1B 56	24-32A

Breaking capacity Icu at 400V = 100kA (0.1-10A), 25kA (9-32A) for mounting in modular consumer switchboards

11 SM1C 00	0.1-0.16A
11 SM1C 04	0.16-0.25A
11 SM1C 08	0.25-0.4A
11 SM1C 12	0.4-0.63A
11 SM1C 16	0.63-1A
11 SM1C 20	1-1.6A
11 SM1C 24	1.6-2.5A
11 SM1C 28	2.5-4A
11 SM1C 32	4-6.5A
11 SM1C 36	6.3-10A
11 SM1C 40	9-14A
11 SM1C 44	13-18A
11 SM1C 48	17-23A
11 SM1C 52	20-25A
11 SM1C 56	24-32A

Breaking capacity Icu at 400V = 50kA

11 SM2A 68	28-40A
11 SM2A 72	36-45A
11 SM2A 76	40-50A

Breaking capacity Icu at 400V = 50kA

11 SM3A 84	45-63A
11 SM3A 88	57-75A
11 SM3A 92	70-90A
11 SM3A 96	80-100A



4	5.5	7.5	9	11	15	18.5	22	30
5.5	7.5	10	12	15	20	25	30	40
8.6	11.5	15.2	18	22	28.5	36	42	56

11 SM1B 36	11 SM1B 40	11 SM1B 44	11 SM1B 48	11 SM1B 48	11 SM1B 56	11 SM2A 68	11 SM2A 72	11 SM3A 84
6.3-10	9-14	13-18	17-23	17-23	24-32	28-40	36-45	45-63
100	25	25	25	25	25	50	50	50
BF09 1A2	BF12 1A2	BF18 1A2	BF18 1A2	BF25 1A2	BF32 00 A2	BF38 00 A2	11 BF50 002	11 BF65 002
SMX31 41	SMX31 41	SMX31 41	SMX31 41	SMX31 41	SMX32 41	SMX32 41	-	-

10	16	20	25	25	40	45	50	80
BF09 1A2	BF12 1A2	BF18 1A2	BF18 1A2	BF25 1A2	BF32 00 A2	BF38 00 A2	11 BF50 002	11 BF65 002
RF38 1000	RF38 1400	RF38 1800	RF38 2300	RF38 2300	RF38 3200	RF38 3800	11 RF95 3 50	11 RF95 3 65
-	-	-	-	-	-	-	-	-
6.3-10	9-14	13-18	17-23	17-23	24-32	32-38	35-50	46-65

10	16	20	25	25	32	40	45	63
BFA009 7025	BFA009 7025	BFA009 7025	BFA012 7025	BFA012 7025	BFA018 7025	BFA025 7025	BFA026 7025	BFA038 7025

10	16	20	25	25	32	40	45	63
BF09 10A2	BF09 10A2	BF09 10A2	BF12 10A2	BF12 10A2	BF18 10A2	BF25 10A2	BF26 00A2	BF38 00A2
BF09 01A2	BF09 01A2	BF09 01A2	BF12 01A2	BF12 01A2	BF18 01A2	BF25 01A2	BF26 00A2	BF38 00A2
BF09 10A2	BF09 10A2	BF09 10A2	BF09 10A2	BF09 10A2	BF12 10A2	BF18 10A2	BF18 10A2	BF25 10A2
RF38 0650	RF38 1000	RF38 1000	RF38 1400	RF38 1400	RF38 1800	RF38 2300	RF38 3200	RF38 3800
-	-	-	-	-	-	-	-	-
TM ST6	TM ST6	TM ST6	TM ST6	TM ST6	TM ST6	TM ST6	TM ST6	TM ST6
N°1-BFX10 20	N°1-BFX10 20	N°1-BFX10 20	N°1-BFX10 20	N°1-BFX10 20	N°1-BFX10 20	N°1-BFX10 20	N°1-BFX10 20	N°1-BFX10 20
-	-	-	-	-	-	-	N°1-BFX10 11	N°1-BFX10 11
N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11
BFX31 31	BFX31 31	BFX31 31	BFX31 31	BFX31 31	BFX31 31	BFX31 31	BFX32 32	BFX32 32

40	40	45	90	90	90	125	125	150
51 ADXM 12BP incorporated	51 ADXM 12BP incorporated	51 ADX 0017B incorporated	51 ADX 0030B incorporated	51 ADX 0030B incorporated	51 ADX 0030B incorporated	51 ADX 0045B incorporated	51 ADX 0045B incorporated	51 ADX 0060B incorporated

■ TYPES OF AC CONTACTORS	Type	Rate current [A] at 400V		Type	Rate current [A] at 400V		Type	Rate current [A] at 400V	
		A (AC1 ≤40°C)	A (AC3 ≤55°C)		A (AC1 ≤40°C)	A (AC3 ≤55°C)		A (AC1 ≤40°C)	A (AC3 ≤55°C)
The recommended type is indicated in the table above. Another type can also be selected considering the current values indicated in the following tables.	11 BG06 1A2	16	6	BF09 1A2	25	9	11 B115 004	160	110
	11 BG09 1A2	20	9	BF12 1A2	28	12	11 B145 004	250	150
	11 BG12 1A2	20	12	BF18 1A2	32	18	11 B180 004	275	185
				BF25 1A2	32	25	11 B250 004	350	265
				BF26 00A2	45	26	11 B310 004	450	320
				BF32 00A2	56	32	11 B400 004	550	420
				BF38 00A2	56	38	11 B500 004	700	520
				11 BF50 002	90	50	11 B630 004	800	630
				11 BF65 002	110	65			
				11 BF80 002	125	80			
				11 BF95 002	125	95			
				11 BF110 002	125	110			



37	45	55	59	75	90	110	132	160
50	60	75	80	100	125	150	180	220
68	83	98	105	135	158	193	232	282

11 SM3A 88	11 SM3A 92	11 SM3A 96	-	-	-	-	-	-
57-75	70-90	80-100	-	-	-	-	-	-
50	50	50	-	-	-	-	-	-
11 BF80 00②	11 BF95 00②	11 BF110 00②	11 BF110 00②	11 B145 00④	11 B180 00④	11 B250 00④	11 B250 00④	11 B310 00④
-	-	-	-	-	-	-	-	-

100	100	125	125	160	200	250	315	315
11 BF80 00②	11 BF95 00②	11 BF110 00②	11 BF110 00②	11 B145 00④	11 B180 00④	11 B250 00④	11 B250 00④	11 B310 00④
11 RF95 3 82	11 RF95 3 95	11 RF95 3 110	11 RF95 3 110	RF200 150	RF200 200	RF420 250	RF420 300	RF420 300
-	-	-	-	11 G372	11 G372	11 G376	11 G376	11 G376
60-82	70-95	90-110	90-110	90-150	120-200	150-250	180-300	180-300

80	100	125	125	160	200	250	315	315
21 DYF50 E50②	21 DYF50 E50②	21 DYF65 E65②	21 DYF65 E65②	21 DYF80 E82②	21 NFY115 100④	21 NFY115 125④	21 NFY145 150④	21 NFY180 200④

80	100	125	125	160	200	250	315	315
11 BF50 00②	11 BF50 00②	11 BF65 00②	11 BF65 00②	11 BF80 00②	11 B115 00④	11 B115 00④	11 B145 00④	11 B180 00④
11 BF50 00②	11 BF50 00②	11 BF65 00②	11 BF65 00②	11 BF80 00②	11 B115 00④	11 B115 00④	11 B145 00④	11 B180 00④
BF32 00A②	BF32 00A②	BF32 00A②	BF32 00A②	11 BF50 00②	11 BF65 00②	11 BF65 00②	11 BF80 00②	11 B115 00④
11 RF95 3 50	11 RF95 3 50	11 RF95 3 65	11 RF95 3 65	11 RF95 3 82	RF200 100	RF200 125	RF200 150	RF200 200
-	-	-	-	-	11 G372	11 G372	11 G372	11 G372
TM ST⑥	TM ST⑥	TM ST⑥	TM ST⑥	TM ST⑥	TM ST⑥	TM ST⑥	TM ST⑥	TM ST⑥
N°1-BFX10 20	N°1-BFX10 20	N°1-BFX10 20	N°1-BFX10 20	N°1-BFX10 20	N°1 - 11 G350	N°1 - 11 G350	N°1 - 11 G350	N°1 - 11 G350
N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1 - 11 G354	N°1 - 11 G354	N°1 - 11 G354	N°1 - 11 G354
N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1-BFX10 11	N°1 - 11 G354
-	-	-	-	-	-	-	-	-

175	200	250	275	325	500	600	600	700
51 ADX 0075B	51 ADX 0085B	51 ADX 0110B	51 ADX 0125B	51 ADX 0142B	51 ADX 0190B	51 ADX 0245B	51 ADX 0245B	51 ADX 0310
incorporated	incorporated	incorporated	incorporated	incorporated	incorporated	incorporated	incorporated	11 B250 00 220

❖ RANGES AVAILABLE FOR THERMAL OVERLOAD RELAYS

The recommended range is indicated in the table above. The following are other available types.

For mini-contactors BG06, BG09, BG12

11 RF9 015	0.09-0.15A
11 RF9 023	0.14-0.23A
11 RF9 033	0.2-0.33A
11 RF9 05	0.3-0.5A
11 RF9 075	0.45-0.75A
11 RF9 1	0.6-1A
11 RF9 1V5	0.9-1.5A
11 RF9 2V3	1.4-2.3A
11 RF9 33	2-3.3A
11 RF9 5	3-5A
11 RF9 75	4.5-7.5A
11 RF9 10	6-10A
11 RF9 15	9-15A

For contactors BF09A - BF12A - BF18A - BF25A - BF26A - BF32A - BF38A

RF38 0016	0.1-0.16A
RF38 0025	0.16-0.25A
RF38 0040	0.25-0.4A
RF38 0063	0.4-0.63A
RF38 0100	0.63-1A
RF38 0160	1-1.6A
RF38 0250	1.6-2.5A
RF38 0400	2.5-4A
RF38 0650	4-6.5A
RF38 1000	6.3-10A
RF38 1400	9-14A
RF38 1800	13-18A
RF38 2300	17-23A
RF38 2500	20-25A
RF38 3200	24-32A
RF38 3800	32-38A

For contactors BF50 - BF65 - BF80 - BF95 - BF110

11 RF95 3 33	20-33A
11 RF95 3 42	28-42A
11 RF95 3 50	35-50A
11 RF95 3 65	46-65A
11 RF95 3 82	60-82A
11 RF95 3 95	70-95A
11 RF95 3 110	90-110A

For contactors B115 - B145 - B180 - B250 - B310 - B400

RF200 100	60-100A
RF200 125	75-125A
RF200 150	90-150A
RF200 200	120-200A
RF420 250	150-250A
RF420 300	180-300A
RF420 420	250-420A

NOTE: Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com) for overload relays to be used with B500-B630 contactors.

200	250	315	355	450	630
270	340	430	445	600	840
349	430	545	610	810	—
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
11 B400 00④	11 B500 00④	11 B630 00④	11 B630 00④	—	—
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
400	—	—	—	—	—
11 B400 00④	11 B500 00④	11 B630 00④	11 B630 00④	—	—
RF420 420	—	—	—	—	—
11 G376	—	—	—	—	—
250-420	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
400	500	630	630	—	—
21 NFY250 250④	21 NFY250 300④	21 NFY400 420④	21 NFY400 420④	—	—
—	—	—	—	—	—
—	—	—	—	—	—
400	500	630	630	—	—
11 B250 00④	11 B250 00④	11 B400 00④	11 B400 00④	—	—
11 B250 00④	11 B250 00④	11 B400 00④	11 B400 00④	—	—
11 B145 00④	11 B145 00④	11 B250 00④	11 B250 00④	—	—
RF420 250	RF420 300	RF420 420	RF420 420	—	—
11 G376	11 G376	11 G376	11 G376	—	—
TM ST⑥	TM ST⑥	TM ST⑥	TM ST⑥	—	—
N°1 - 11 G350	N°1 - 11 G350	N°1 - 11 G350	N°1 - 11 G350	—	—
N°1 - 11 G354	N°1 - 11 G354	N°1 - 11 G354	N°1 - 11 G354	—	—
N°1 - 11 G354	N°1 - 11 G354	N°1 - 11 G354	N°1 - 11 G354	—	—
—	—	—	—	—	—
—	—	—	—	—	—
800	1000	1200	1200	1400	1600
51 ADX 0365	51 ADX 0470	51 ADX 0568	51 ADX 0640	51 ADX 0820	51 ADX 1200
11 B310 00 220	11 B400 00 220	11 B500 00 220	11 B500 00 220	11 B630 1000 00 220	11 B1250 00 220

Motor protection circuit breakers

Add-on blocks and accessories for SM1 types

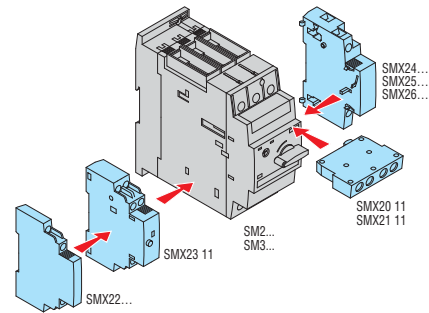
Order code	Characteristics	Qty per pkg n°	Wt [kg]
Add-on auxiliary contacts.			
11 SMX11 20 ①	Front mount 2NO	10	0.010
11 SMX11 11 ①	Front mount 1NO+1NC	10	0.010
11 SMX12 11	Side mount 1NO+1NC	10	0.045
11 SMX12 20	Side mount 2NO	10	0.045
11 SMX12 02	Side mount 2NC	10	0.045
11 SMX13 11	Side mount indicator contacts 1NO+1NC	10	0.045
Undervoltage trip releases.			
11 SMX14 BC	110VAC 50/60Hz	10	0.100
11 SMX14 CL	230VAC 50/60Hz	10	0.100
11 SMX14 EA	400VAC 50/60Hz	10	0.100
11 SMX15 CL	230VAC 50/60Hz with early-make contacts	5	0.100
11 SMX15 EA	400VAC 50/60Hz with early-make contacts	5	0.100
Shunt trip releases.			
11 SMX16 AF	24VAC 50/60Hz	5	0.100
11 SMX16 BC	110VAC 50/60Hz	5	0.100
11 SMX16 CL	230VAC 50/60Hz	5	0.100
11 SMX16 EA	400VAC 50/60Hz	5	0.100
Padlockable attachment for operating lever.			
11 SMX18 10	3 padlocks max Ø 5mm	10	0.021
Adjuster sealing kit.			
11 SMX18 12	For all types	10	0.003
Padlockable door interlock handle.			
11 SMX18 14	Red/yellow colour. IP65. 3 padlocks max	1	0.720
11 SMX18 15	Black colour. IP65. 3 padlocks max	1	0.710
Terminal block for busbar supply.			
11 SMX90 30	For all types	10	0.033
Safety cover.			
11 SMX90 31	For unused busbar terminals	10	0.005
Three-phase connection busbars 45mm spacing.			
11 SMX90 32	For 2 breakers without side-mount contacts	10	0.027
11 SMX90 33	For 3 breakers without side-mount contacts	10	0.048
11 SMX90 34	For 4 breakers without side-mount contacts	10	0.068
11 SMX90 35	For 5 breakers without side-mount contacts	10	0.090
Three-phase connection busbars 54mm spacing.			
11 SMX90 42	For 2 breakers complete with side-mount contacts	10	0.034
11 SMX90 43	For 3 breakers complete with side-mount contacts	10	0.054
11 SMX90 44	For 4 breakers complete with side-mount contacts	10	0.078
11 SMX90 45	For 5 breakers complete with side-mount contacts	10	0.103
Rigid breaker-contactor connections.			
11 SMX90 03	For SM1 breaker with BG mini-contactor	10	0.020
SMX31 41	For SM1 breaker with BF09A, BF12A, BF18A or BF25A contactor. Complete with cover	10	0.042
SMX32 41	For SM1 breaker with BF26A, BF32A or BF38A contactor. Complete with cover	10	0.053

① Not suitable for fixing on SM1C types.

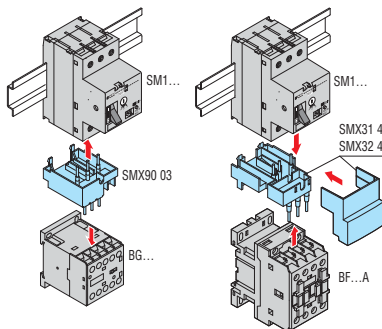
Add-on blocks and accessories for SM2A and SM3A types

Order code	Characteristics	Qty per pkg n°	Wt [kg]
Add-on auxiliary contacts.			
11 SMX20 11	Front mount 1 changeover contact	10	0.016
11 SMX21 11	Front mount 1NO+1NC	10	0.018
11 SMX22 11	Side mount 1NO+1NC	1	0.046
11 SMX22 20	Side mount 2NO	1	0.046
11 SMX22 02	Side mount 2NC	1	0.046
11 SMX23 11	Side mount indicator contacts (1NO+1NC) for thermal trip and (1NO+1NC) for magnetic trip	1	0.092
Undervoltage trip releases.			
11 SMX24 BC	110VAC 50/60Hz	1	0.135
11 SMX24 CL	230VAC 50/60Hz	1	0.135
11 SMX24 EA	400VAC 50/60Hz	1	0.135
11 SMX25 CL	230VAC (50/60Hz) with early-make contacts	1	0.135
11 SMX25 EA	400VAC (50/60Hz) with early-make contacts	1	0.135
Shunt trip releases.			
11 SMX26 AF	24VAC 50/60Hz	1	0.135
11 SMX26 BC	110VAC 50/60Hz	1	0.135
11 SMX26 CL	230VAC 50/60Hz	1	0.135
11 SMX26 EA	400VAC 50/60Hz	1	0.135
Padlockable door interlock rotary actuator.			
11 SMX28 05	Black colour IP65. 3 padlocks max	1	0.100
11 SMX28 10	Red/yellow colour IP65. 3 padlocks max	1	0.100

Add-on blocks for SM2A - SM3A type breakers

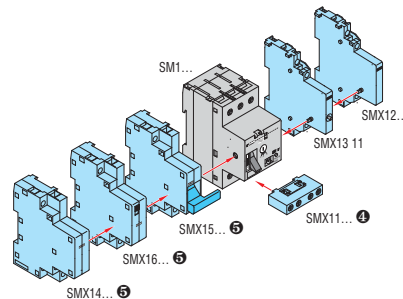


Rigid connecting kits for SM1 breaker and contactors



② For BF09A-BF25A contactors.
③ For BF26A-BF38A contactors.

Add-on blocks for SM1 type breakers



④ Not suitable for use with SM1C type.
⑤ Only one add-on block can be fixed on the left side of the breaker.

Contactors

Add-on blocks and accessories for BG series mini-contactors

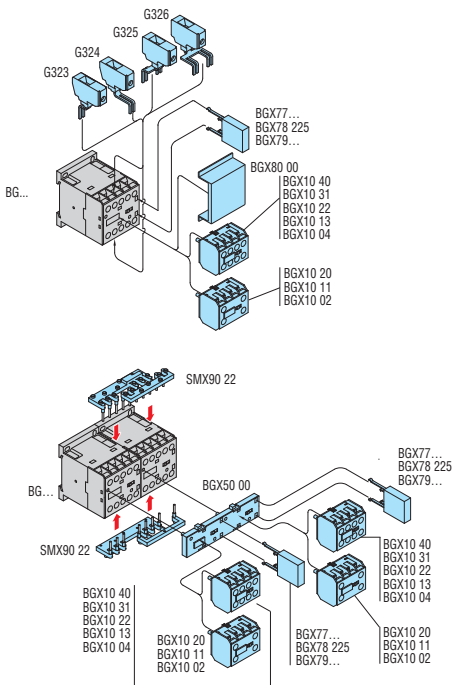
Order code	Characteristics	Max qty per contactor n°	Qty per pkg n°	Wt [kg]
Auxiliary contacts with front centre mounting. Screw terminals.				
11 BGX10 02	2NC	1	10	0.021
11 BGX10 11	1NO + 1NC	1	10	0.021
11 BGX10 20	2NO	1	10	0.021
11 BGX10 04	4NC	1	10	0.028
11 BGX10 13	1NO + 3NC	1	10	0.028
11 BGX10 22	2NO + 2NC	1	10	0.028
11 BGX10 31	3NO + 1NC	1	10	0.028
11 BGX10 40	4NO	1	10	0.028
Auxiliary contacts with front centre mounting. Faston terminals.				
11 BGXF10 02	2NC	1	10	0.021
11 BGXF10 11	1NO + 1NC	1	10	0.021
11 BGXF10 20	2NO	1	10	0.021
11 BGXF10 04	4NC	1	10	0.028
11 BGXF10 13	1NO + 3NC	1	10	0.028
11 BGXF10 22	2NO + 2NC	1	10	0.028
11 BGXF10 31	3NO + 1NC	1	10	0.028
11 BGXF10 40	4NO	1	10	0.028
Mechanical interlock.				
11 BGX50 00	For all BG types	1	10	0.008
Quick connect surge suppressors.				
11 BGX77 048	≤48VAC/DC (Varistor)		10	0.007
11 BGX77 125	48-125VAC/DC (Varistor)		10	0.007
11 BGX77 240	125-240VAC/DC (Varistor)		10	0.007
11 BGX78 225	≤225VDC (Diode)		10	0.007
11 BGX79 048	≤48VAC (Resistor-Capacitor)		10	0.007
11 BGX79 125	48-125VAC (Resistor-Capacitor)		10	0.007
11 BGX79 240	125-240VAC (Resistor-Capacitor)		10	0.007
11 BGX79 415	240-415VAC (Resistor-Capacitor)		10	0.007
Modular shroud.				
11 BGX80 00	Raises protection IP40 w/consumer boards		20	0.006
Paralleling links. Clamp-screw terminals.				
11 G323	For 2 poles		10	0.009
11 G324			10	0.009
11 G325	For 4 poles		10	0.014
11 G326			10	0.014
Rigid connecting kits.				
11 SMX90 21	For star-delta starter composed by 3-contactor combination of BG types (line-star-delta)		10	0.040
11 SMX90 22	For reversing contactor assembly composed by BG mini-contactors		1	0.026

① 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.

② Cannot be used with BGX80 00 shroud.

③ Contactors with one NC auxiliary contact, 01 type, are usually used. The relay cannot be directly mounted on the contactor. Use the RF38 type and the RFX38 04 independent mounting base.

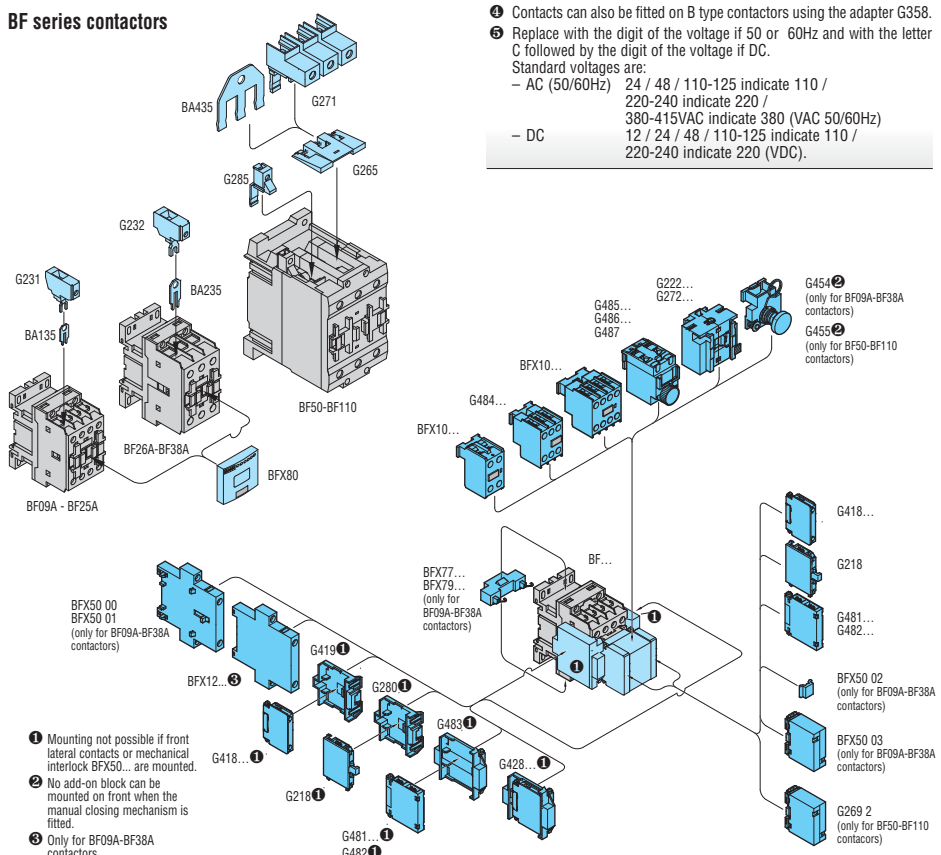
BG series mini-contactors



Add-on blocks and accessories for BF series contactors

Order code	Characteristics	Max qty per contactor n°	Qty per pkg n°	Wt [kg]
Auxiliary contacts with front centre mounting. Screw terminals.				
BFX10 02	2NC	1	5	0.030
BFX10 11	1NO + 1NC	1	5	0.030
BFX10 20	2NO	1	5	0.030
11 G484 03	3NC	1	5	0.039
11 G484 12	1NO + 2NC	1	5	0.039
11 G484 21	2NO + 1NC	1	5	0.039
11 G484 30	3NO	1	5	0.039
BFX10 04	4NC	1	5	0.048
BFX10 13	1NO + 3NC	1	5	0.048
BFX10 22	2NO + 2NC	1	5	0.048
BFX10 31	3NO + 1NC	1	5	0.048
BFX10 40	4NO	1	5	0.048
Auxiliary contacts for front lateral mounting. Screw terminals.				
11 G418 10	1NO	2	10	0.014
11 G418 10A	1EM	2	10	0.014
11 G418 01	1NC	2	10	0.014
11 G418 01D	1LB	2	10	0.014
Auxiliary contacts for front lateral mounting. Faston terminals.				
11 G218	1NO or 1NC reversible	2	10	0.011
11 G481 20	2NO	2	10	0.013
11 G481 11	1NO + 1NC	2	10	0.013
11 G481 02	2NC	2	10	0.013
11 G482	Changeover contact	2	10	0.013
Adapter for auxiliary contact side mounting.				
11 G280	for G218	2	10	0.008
11 G419	for G418	2	10	0.010
11 G483	for G481 and G482	2	10	0.010
Auxiliary contacts for side mounting. Screw terminals.				
11 G428 10	1NO	2	10	0.024
11 G428 10A	1EM	2	10	0.024
11 G428 01	1NC	2	10	0.024
11 G428 01D	1LB	2	10	0.024
For BF09A-BF38A.				
BFX12 02	2 NC for BF09A-BF38A contactors	2	5	0.040
BFX12 11	1NO+1NC for BF09A-BF38A contactors	2	5	0.040
BFX12 20	2NO for BF09A-BF38A contactors	2	5	0.040
Delayed auxiliary contacts 1NO + 1NC (pneumatic operation) on energisation for front centre mounting. Screw terminals.				
11 G485 30	3 s	1	1	0.040
11 G485 60	6 s	1	1	0.040
11 G485 150	15 s	1	5	0.040
11 G485 300	30 s	1	5	0.040
11 G485 600	60 s	1	5	0.040
11 G485 1200	120 s	1	1	0.040

BF series contactors



④ Contacts can also be fitted on B type contactors using the adapter G358.

⑤ 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 / 48 / 110-125 indicate 110 / 220-240 indicate 220 / 380-415VAC indicate 380 (VAC 50/60Hz)
 - DC 12 / 24 / 48 / 110-125 indicate 110 / 220-240 indicate 220 (VDC).

Add-on blocks and accessories for B series contactors

Order code	Characteristics	Qty per pkg n°	Wt [kg]
------------	-----------------	----------------	---------

Rigid connecting kits for three-pole reversing starter assembly.

BFX31 01	For contactors BF09A - BF25A side by side with BFX50 02 or BFX50 03 interlock	1	0.060
BFX31 02	For contactors BF09A-BF25A side by side with BFX50 00 or BFX50 01 interlock	1	0.063
BFX32 01	For BF26A - BF38A contactors side by side with BFX50... interlock	1	0.080

Rigid connecting kits for star-delta starters.

BFX31 31	For BF09A-BF25A (line-star-delta) contactors	1	0.065
BFX32 31	For BF26A-BF38A (line-star-delta) contactors	1	0.085
BFX32 32	For BF26A-BF38A (line-delta) and BF09A-BF25A (star) contactors	1	0.080

Sealing cover.

BFX80	For BF09A-BF38A contactors	10	0.006
--------------	----------------------------	----	-------

Power terminal shroud.

11 G265	IP20 protection for 3-pole BF50 to BF110 contactors	10	0.011
----------------	---	----	-------

Parallel bridges.

11 BA135	2 poles for BF09A-BF25A contactors	10	0.001
11 BA235	2 poles for BF26A-BF38A contactors	10	0.003
11 BA435	3 poles for BF50-BF110 contactors	10	0.029

Enlarged terminals.

11 G231	1-6 mm ² for BF09A-BF25A contactors	12	0.008
11 G232	1-16 mm ² for BF26A-BF38A contactors	12	0.017
11 G271	1-50 mm ² for BF50-BF110 contactors	10	0.130

Auxiliary terminal.

11 G285	For BF50-BF110 contactors	8	0.008
----------------	---------------------------	---	-------

- ① For 3-pole contactors, BF50-BF110 types only.
N.B. Two pieces are required per contactor.

Order code	Characteristics	Max qty per contactor n°	Qty per pkg n°	Wt [kg]
------------	-----------------	--------------------------	----------------	---------

Auxiliary contacts with side mounting. Faston terminals.

11 G350	2NO+1NC or 1NO+2NC reversible	4	4	0.067
11 G354	1NO+1NC	4	4	0.065

Contact block adapter.

11 G358	To fit auxiliary contacts BFX10, (2-contact types only), G484, G485, G486 and G487 types on B115-B630	4	5	0.035
----------------	---	---	---	-------

Mechanical interlock.

11 G355	Side by side	1	1	0.025
11 G356 1	One on top of other	1	1	0.104
11 G356 2	One on top of other	1	1	0.110
11 G356 3	One on top of other	1	1	0.116
11 G356 4	One on top of other	1	1	0.122
11 G356 5	One on top of other	1	1	0.124
11 G356 6	One on top of other	1	1	0.134

Mechanical latch.

11 G495	For B115-B630 contactors	1	1	0.716
----------------	--------------------------	---	---	-------

Power terminal protection.

11 G360	For B115 contactor	6	0.026
11 G361	For B145-B180 contactors	6	0.026
11 G363	For B250-B310-B400 contactors	6	0.047
11 G527	For B500 contactor	1	0.238
11 G529	For B630 contactor	1	0.250

3 pole star connecting bars.

11 BA1595	For B115-B145-B180 contactors	1	0.082
11 BA1721	For B250-B310-B400 contactors	1	0.140
11 BA1846	For B500-B630 contactors	1	0.340

2 pole bars for parallel arrangement.

11 BA1594	For B115-B145-B180 contactors	1	0.089
11 BA1720	For B250-B310-B400 contactors	1	0.140
11 BA1845	For B500-B630 contactors	1	0.320

Terminal adapter.

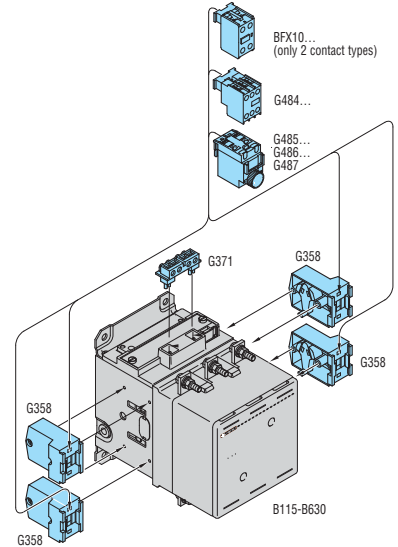
11 G370	To transform Faston terminals of auxiliary contacts and coils into screw terminals	10	0.003
11 G371	To transform both coil Faston terminals into screw terminals	5	0.012

Marking elements.

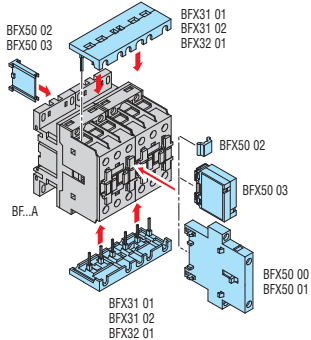
11 BA126 1	Label for alphanumeric symbols	50	0.001
11 BA126 2	Label for writing	50	0.001
3958	Alphanumeric symbols	100	0.002

- ① Replace with the digit of the voltage if 50 or 60 Hz or with the letter C followed by voltage if DC.
Standard voltages are:
- AC (50/60Hz) 48VAC
110-125VAC indicate 110
220-240VAC indicate 220
380-415VAC indicate 380
48VDC
- DC
110-125VDC indicate 110
220-240VDC indicate 220

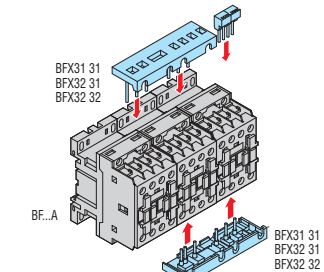
- ② It can be mounted only in contactors if predisposed for it. Contact our Customer Service (Tel. +39 035 4282422; email: service@LovatoElectric.com).
③ Except for B310.
④ Provided for one pole terminal only. Example: For three-pole contactors, purchase 3 pieces for the upper terminals only or 6 pieces for all upper and lower terminals.
⑤ Replace with the required alphanumeric symbol; each package contains 100 pieces of the same symbol.



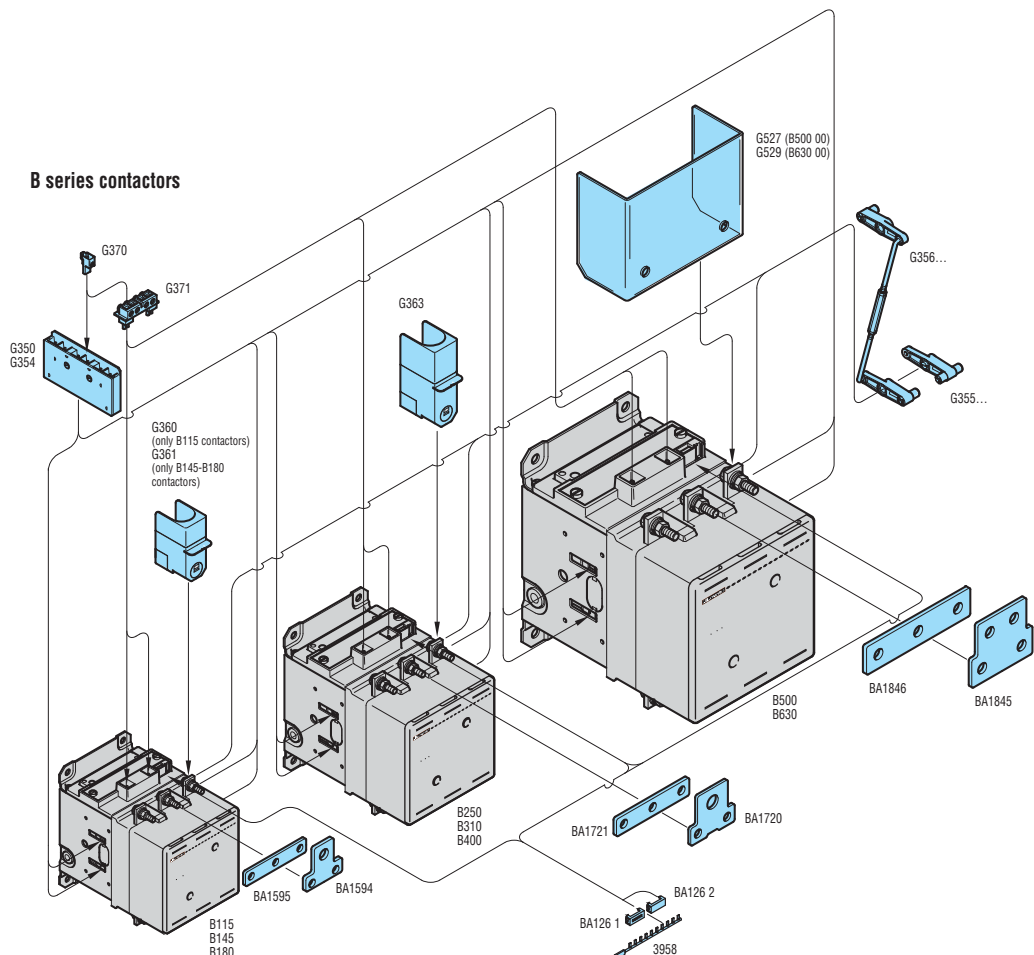
Connections for reversing contactor assembly with BF...A type contactors



Connections for star-delta starter assembly with BF...A type contactors



B series contactors



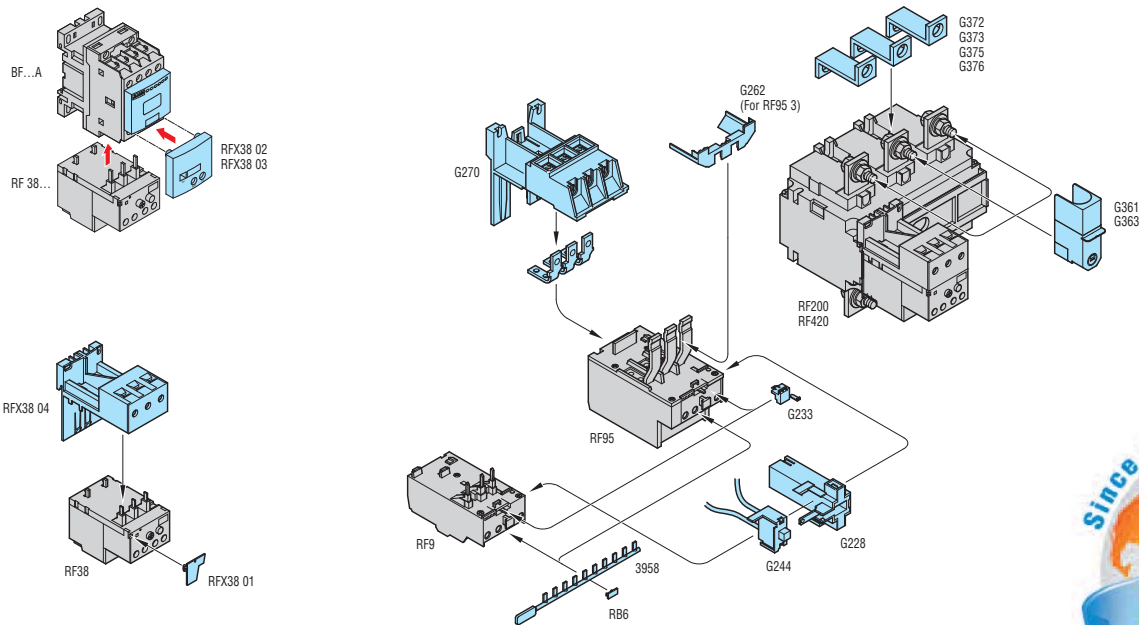
Thermal overload relays

Add-on blocks and accessories for RF series overload relays

Order code	Characteristics	Qty per pkg n°	Wt [kg]
Set of links for direct contactor mounting.			
11 G372	For RF200 on contactor	B115-B145-B180	1 0.082
11 G373		B250-B310-B400	1 0.100
11 G375	For RF420 on contactor	B145-B180	1 0.103
11 G376		B250-B310-B400	1 0.165
Protection cover for thermal overload relay-contactor assembly.			
RFX38 02	For RF38 on contactor BF09A - BF12A - BF18A - BF25A		10 0.007
RFX38 03	For RF38 on contactor BF26A - BF32A - BF38A		10 0.010
Protection shrouds for power terminals.			
11 G262 ①	For RF95...3		10 0.004
11 G361	For RF200		6 0.026
11 G363	For RF420		6 0.046
Independent mounting, screw fixing or 35mm DIN rail (IEC/EN 60715) mounting.			
RFX38 04	For RF38		5 0.040
11 G270 ②	For RF95		10 0.094
Electrical reset.			
11 G228 ③	For RF9 - RF95		5 0.058
Sealing device.			
RFX38 01	For RF38		10 0.003
11 G233	For RF9 - RF95		1 0.002
Electric button NO.			
11 G244	For RF9 - RF95		10 0.011
Marking element.			
11 RB6	For RF9 - RF95		100 0.001
Alphanumeric symbols.			
3958 ④	For RF9 - RF95		100 0.002

- ① Front IP20 protection is warranted to contactor-thermal relay connections.
- ② Independent mounting base for any RF95 relay. Remove the links fixed on RF95 3 and use those supplied with the base.
- ③ Replace with voltage digit. Standard voltages are: 24 - 48 - 110/125 indicate 110 - 220/240 indicate 220 - 380/415 indicate 380 (VAC 50/60Hz).
- ④ Replace with the required alphanumeric symbol.

Thermal overload relays



www.LovatoElectric.com

LOVATO ELECTRIC S.P.A.
 CONTROL SOLUTIONS FOR INDUSTRY
 VIA DON E. MAZZA, 12 - 24020 GORLE (BERGAMO) ITALY
 Tel. +39 035 4282111 Fax +39 035 4282200
 E-mail: info@LovatoElectric.com

Sales Department: Tel. +39 035 4282354 - Fax +39 035 4282400

LOVATO Electric offices in the world

United Kingdom
 LOVATO (UK) LTD
 Tel. +44 8458 110023
 www.Lovato.co.uk

Germany
 DELTEC LOVATO GmbH
 Tel. +49 7237 1733
 www.DeltecLovato.de

Spain
 LOVATO ELECTRIC SLU
 Tel. +34 93 7812016
 www.LovatoElectric.es

Poland
 LOVATO ELECTRIC SP. Z O.O.
 Tel. +48 71 7979010
 www.LovatoElectric.pl

Czech Republic
 LOVATO S.R.O.
 Tel. +420 382 265482
 www.Lovato.cz

USA
 LOVATO ELECTRIC INC
 Tel. +1 757 545 4700
 www.LovatoUsa.com

Canada
 LOVATO ELECTRIC CORPORATION
 Tel. +1 450 681 9200
 www.Lovato.ca

Mexico
 LOVATO ELECTRIC DE MEXICO, S.A. DE C.V.
 Tel. +52 555 3415662
 www.LovatoElectric.com.mx



100% electricity

Soft starters

Remote control software

Order code	Characteristics	Qty per pkg n°	Wt [kg]
51 ADX SW	PC-ADX remote control software with proprietary ASCII and Modbus® RTU protocols and a set of connecting cables 51 C2, 51 C3, 51 C5, 51 C7 for communications via RS232 port, analog or GSM modem	1	0.550

Accessori

Order code	Characteristics	Qty per pkg n°	Wt [kg]
51 ADX TAST	Remote keypad 96x96mm, 2x16 backlit LCD, 208-240VAC supply 208-240VAC supply c/w 3m long connecting cable	1	0.350
51 C2	PC ↔ ADX connecting cable, 1.8m long	1	0.090
51 C3	PC ↔ GSM modem connecting cable, 1.8m long ①	1	0.210
51 C4	PC ↔ 4 PX1 converter drive connecting cable 1.8m long	1	0.147
51 C5	ADX ↔ Analog modem connecting cable, 1.8m long ②	1	0.111
51 C6	ADX ↔ 4 PX1 converter drive connecting cable 1.8m long	1	0.102
51 C7	ADX ↔ GSM modem "FUNK-ANLAGEN" ① connecting cable, 1.8m long	1	0.101
51 C8	ADX ↔ remote keypad connecting cable, 3m long	1	0.081
4 PX1	RS232/RS485 converter drive, opto-isolated, 220-240VAC ③	1	0.600
31 PA 96X96	Protective cover (IP54)	1	0.077

- ① RS232/RS485 opto-isolated analog modem, 38,400 Baud rate maximum, automatic or manual TRANSMIT line supervision, 220-240VAC ±10% (110-120VAC supply on request).
- ② "3Com-U.S. Robotics" 56k V.92, with RS232 interface modem, complete with PC connecting cable, compatible with LOVATO ELECTRIC remote control software.
- ③ RS232/RS485 opto-isolated converter drive, 38,400 Baud-rate maximum, automatic or manual TRANSMIT line supervision, 220...240VAC ±10% supply (110-120VAC available on request).



Present in over 90 countries