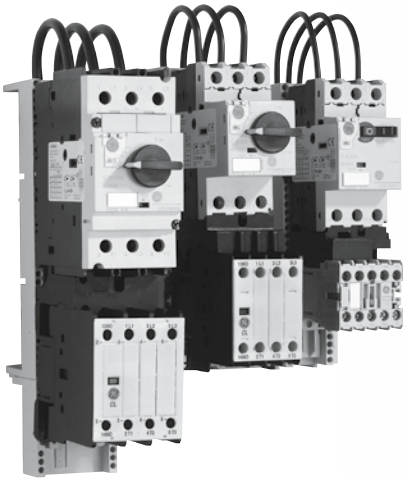


Control and Automation

For industrial applications ED.03

Motor starters



GE imagination at work

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2008 World's Most Respected Companies



2008 World's most innovative companies

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«BARRON'S»

2008 Most Respected Global Company



«R&D»

2007 World's Best R&D Companies

D.2 **SURION - Fuseless starters**

Fuseless starters
Coordination tables
Dimensions

D.18 **Series M, CL, CK - Direct-on-line starters**

Order codes
Diagrams
Dimensions

D.20 **Series M, CL, CK - Reversing starters**

Order codes
Diagrams
Dimensions

D.22 **Series CL, CK - Star-delta starters**

Order codes
Diagrams
Dimensions

Plug-in relays and Auxiliary contactors

Motor protection devices

Contactors and Thermal overload relays

Motorstarters

Control and signalling units

Electronic relays

Limit switches

Speed drive units

Main switches

Numerical index

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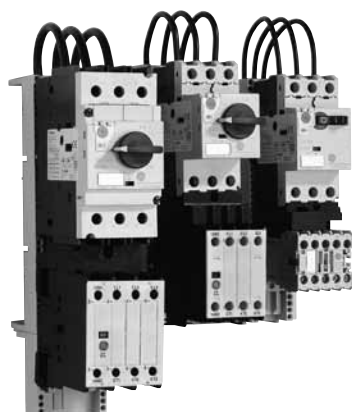
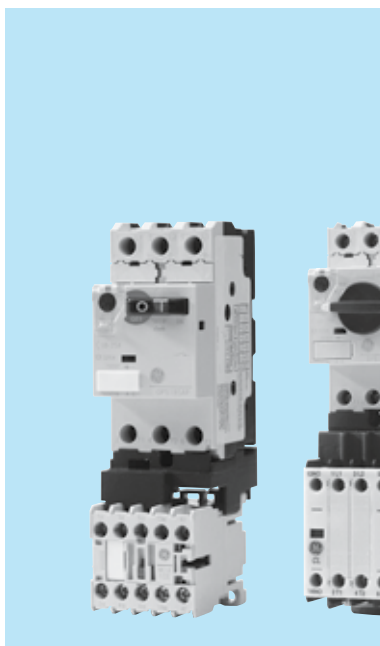
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Fuseless starters and busbar adapter plates

Product range

- Link modules for mechanical and electrical connection of the manual motor starter and the M / CL contactor range
- Base plates for Din rail and busbar adapters
- Wiring kits for reversing applications
- Link connection for two base plates for three phase busbar system with 40 and 60mm center line spacing and 5 to 10mm thickness
- Accessories

Technical performances

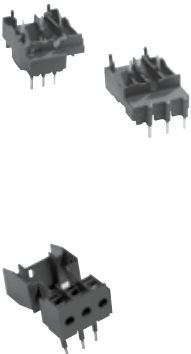
- Compact and high performance solution
- Easy accessibility to the contactor coil terminal A1-A2
- Save spacing only using 45 and 55mm width base plates for busbar adapters
- Quick "clip on" and secure connections
- Minimum 50kA short-circuit breaking capacity applies throughout

For fuseless starter application turn the contactor 180° to have direct accessibility to the A1-A2 coil terminals when contactor is assembled to the manual motor starter. Then fit the contactor plastic cover into the contactor front to have the terminal numbering in the correct position.

Note: when turning the contactor 180° the built-in auxiliary contact (in case) will be located on the first left side terminal.

Coordination tables | pg. D.4
Dimensions | pg. D.13

Fuseless starters

	Description	For use with contactor	ac/dc	Frame size	Cat. no.	Ref. no.	Pack.
Link modules 	For mechanical and electrical connection between contactors and manual motor starters	MC0... MC1...	ac/dc	GPS1	GPF1LMCBA	101410	5
		CL00A... CL01A... CL02A...	ac	GPS1	GPF1L02AA	101411	5
		CL00D... CL01D... CL02D...	dc	GPS1	GPF1L02DA	101412	5
		CL25A...	ac	GPS1	GPF1L25AA	101413	5
		CL25D...	dc	GPS1	GPF1L25DA	101414	5
		CL03A... CL04A...	ac	GPS1	GPF1L04AA	101415	5
		CL03D... CL04D...	dc	GPS1	GPF1L04DA	101416	5
		CL03A... CL04A...	ac	GPS2	GPF2L04AA	101417	5
		CL45A...	ac	GPS2	GPF2L45AA	101418	5
		CL03D... CL04D...	dc	GPS2	GPF2L04DA	101419	5
	For use with MCCB Record Plus with CL09/10A For mechanical and electrical connection between contactor and thermal overload relays RT1	CL45D...	dc	GPS2	GPF2L45DA	101420	5
		CL06A... CL07A...	ac	GPS2	GPF2L07AA	101421	5
		-	-	-	GPF3L09AA	101422	1
		CL00... - CL25	ac/dc	GPS1	GPF1L25CT1	101512	5
Base plates 	Plastic plates for mounting the fuseless starter in panels or in 35 mm DIN rail	CL00... CL01... CL02... CL25...	ac/dc	GPS1	GPF1B1A	101418	5
		CL03... CL04... and CL45...	ac/dc	GPS2	GPF2B2A	101419	5
		CL06... CL07...	ac/dc	GPS2	GPF2B3A	101420	5
		CL03... CL04...	ac/dc	GP	GPF1B4A	101421	5
Base plates 	For use with MCCB Record Plus	-	-	-	GPF3B5A	101422	1
	For two base plates for reversing applications	-	-	-	GPF1CBA	101423	10
Wiring kits for reversing starters 	Suitable to be used with link modules Upper and lower connections without overload relays	MC0... MC1... MC2...	ac/dc		WKMIU	101421	1
		CL00... CL01... CL02...	ac/dc		WKLI02P	101422	1
		CL25...	ac/dc		WKLI25P	101423	1
		CL03... CL04...	ac/dc		WKLI04P	101424	1
		CL45...	ac/dc		WKLI45P	101425	1
		CL06A... CL07A...	ac		WKLI07P	101426	1
Plastic cover 	Fit the plastic cover into the front of the correspondent contactor to allow a clear identification of the terminal numbering	For use with contactor			Cat. no.	Ref. no.	Pack.
		CL00... CL01... and CL02 without built-in auxiliary contact			GPF00C02	107098	5
		CL00... CL01... and CL02 with built-in 1NO auxiliary contact			GPF10C02	107099	5
		CL00... CL01... and CL02 with built-in 1NC auxiliary contact			GPF01C02	107100	5
		CL25... without built-in auxiliary contact			GPF00C25	107101	2
		CL03... CL04... without built-in auxiliary contact			GPF00C04	107102	5
		CL03... CL04... with built-in 1NO auxiliary contact			GPF10C04	107103	5
		CL03... CL04... with built-in 1NC auxiliary contact			GPF01C04	107105	5
		CL45...			GPF00C45	107106	5
		CL06... CL07...			GPF00C08	107107	5

Order codes

A

B

C

D

E

F

G

H

I

X

Technical data

Surion GPS-B: Coordination Type 1 65kA at 380/400V and 415V

MOTOR (1)			MANUAL MOTOR STARTER				CONTACTOR			LINKS
Rated power (kW)	Rated current		Cat. no.	Rated current In (A)	Thermal current Setting range (A)	Magnetic current (A)	Series	Smallest wire Cu (PVC)(2) 380/415V (mm ²)	Minimum frontal electrical safety clearance (mm)	Cat. no. (3)
	380/400V (A)	415V (A)								
0.06	0.23	0.21	GPS1BSAB	0.25	0.16 - 0.25	3.2	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.09	0.34	0.31	GPS1BSAC	0.4	0.25 - 0.4	5.2	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.12	0.44	0.4	GPS1BSAD	0.63	0.4 - 0.63	8.2	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.18	0.65	0.63	GPS1BSAE	1	0.63 - 1	13	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.25	0.9	0.8	GPS1BSAE	1	0.63 - 1	13	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.37	1.25	1.1	GPS1BSAF	1.6	1 - 1.6	20.5	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.55	1.6	1.5	GPS1BSAF	1.6	1 - 1.6	20.5	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.75	2	1.9	GPS1BSAG	2.5	1.6 - 2.5	32.5	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02*
1.1	2.6	2.5	GPS1BSAH	4	2.5 - 4	52	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02*
1.5	3.5	3.4	GPS1BSAH	4	2.5 - 4	52	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02*
2.2	5	4.5	GPS1BSAJ	6.3	4 - 6.3	82	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02*
3	7	6.5	GPS1BSAK	10	6.3 - 10	130	MC1 / CL00	1.5	20	GPF1LMCBA / GPF1L02*
4	9	8	GPS1BSAK	10	6.3 - 10	130	MC1 / CL00	1.5	20	GPF1LMCBA / GPF1L02*
5.5	12	11	GPS1BHAL	13	9 - 13	169	CL01	2.5	20	GPF1L02*
7.5	16	14	GPS1BHAM	16	11 - 16	208	CL02	2.5	20	GPF1L02*
11	22.5	21	GPS1BHAP	25	19 - 25	325	CL25	4	20	GPF1L25*
15	30	28	GPS1BHAR	32	24 - 32	416	CL04	6	20	GPF1L04*
11	22.5	21	GPS2BHAP	25	19 - 25	325	CL04	4	20	GPF2L04*
15	30	28	GPS2BHAR	32	24 - 32	416	CL04	6	20	GPF2L04*
18.5	37	35	GPS2BHAS	40	28 - 40	520	CL45	10	20	GPF2L45*
22	44	41	GPS2BHAT	50	35 - 50	650	CL06	10	25	GPF2L07AA
30	60	55	GPS2BHAU	63	45 - 63	820	CL07	16	25	GPF2L07AA

Surion GPS-B: Coordination Type 2 65kA at 380/400V and 415V

MOTOR (1)			MANUAL MOTOR STARTER				CONTACTOR			LINKS
Rated power (kW)	Rated current		Cat. no.	Rated current In (A)	Thermal current Setting range (A)	Magnetic current (A)	Series	Smallest wire Cu (PVC)(2) 380/415V (mm ²)	Minimum frontal electrical safety clearance (mm)	Cat. no. (3)
	380/400V (A)	415V (A)								
0.06	0.23	0.21	GPS1BHAB	0.25	0.16 - 0.25	3.2	CL00	1	20	GPF1L02*
0.09	0.34	0.31	GPS1BHAC	0.4	0.25 - 0.4	5.2	CL00	1	20	GPF1L02*
0.12	0.44	0.4	GPS1BHAD	0.63	0.4 - 0.63	8.2	CL00	1	20	GPF1L02*
0.18	0.65	0.63	GPS1BHAIE	1	0.63 - 1	13	CL00	1	20	GPF1L02*
0.25	0.9	0.8	GPS1BHAIE	1	0.63 - 1	13	CL00	1	20	GPF1L02*
0.37	1.25	1.1	GPS1BHAF	1.6	1 - 1.6	20.5	CL00	1	20	GPF1L02*
0.55	1.6	1.5	GPS1BHAF	1.6	1 - 1.6	20.5	CL00	1	20	GPF1L02*
0.75	2	1.9	GPS1BHAG	2.5	1.6 - 2.5	32.5	CL00	1	20	GPF1L02*
1.1	2.6	2.5	GPS1BHAH	4	2.5 - 4	52	CL25	1	20	GPF1L25*
1.5	3.5	3.4	GPS1BHAH	4	2.5 - 4	52	CL25	1	20	GPF1L25*
2.2	5	4.5	GPS1BHAJ	6.3	4 - 6.3	82	CL25	1	20	GPF1L25*
3	7	6.5	GPS1BHAJ	10	6.3 - 10	130	CL25	1.5	20	GPF1L25*
4	9	8	GPS1BHAJ	10	6.3 - 10	130	CL25	1.5	20	GPF1L25*
5.5	12	11	GPS1BHAL	13	9 - 13	169	CL25	2.5	20	GPF1L25*
7.5	16	14	GPS1BHAM	16	11 - 16	208	CL25	2.5	20	GPF1L25*
11	22.5	21	GPS1BHAP	25	19 - 25	325	CL25	4	20	GPF1L25*
15	30	28	GPS1BHAR	32	24 - 32	416	CL04	6	20	GPF1L04*
11	22.5	21	GPS2BHAP (4)	25	19 - 25	325	CL04	4	20	GPF2L04*
15	30	28	GPS2BHAR (4)	32	24 - 32	416	CL04	6	20	GPF2L04*
18.5	37	35	GPS2BHAS (4)	40	28 - 40	520	CL45	10	20	GPF2L45*
22	44	41	GPS2BHAT (4)	50	35 - 50	650	CL06	10	25	GPF2L07*
30	60	55	GPS2BHAU (4)	63	45 - 63	820	CL07	16	25	GPF2L07*

- (1) Currents are relevant to four pole motors not having special characteristics of torque.
Inrush currents: 8 time rated current for 1s.
- (2) The minimum cycle cross-sections are referred to an ambient temperature of 30°C max. in free air.
Cables are to withstand the maximum let-through energy and the motor rated current. Besides the user should consider the drop voltage on the cables, the type of laying and the ambient temperature.
- (3) Complete cat. nrs., see page D.3
- (4) Test running.



Surion GPS-B: Coordination Type 1 50kA at 500V and 525V

MOTOR (1)			MANUAL MOTOR STARTER				CONTACTOR			LINKS
Rated power (kW)	Rated current		Cat. no.	Rated current In (A)	Thermal current Setting range (A)	Magnetic current (A)	Series	Smallest wire Cu (PVC)(2) 380/415V (mm²)	Minimum frontal electrical safety clearance (mm)	Cat. no. (3)
	500V	525V (A)								
0.06	0.17	0.16	GPS1BSAB	0.25	0.16 - 0.25	3.2	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02
0.09	0.24	0.22	GPS1BSAB	0.25	0.16 - 0.25	3.2	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02
0.12	0.33	0.3	GPS1BSAC	0.4	0.25 - 0.4	5.2	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02
0.18	0.48	0.46	GPS1BSAD	0.63	0.4 - 0.63	8.2	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02
0.25	0.66	0.64	GPS1BSAE	1	0.63 - 1	13	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02
0.37	0.9	0.85	GPS1BSAE	1	0.63 - 1	13	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02
0.55	1.2	1.15	GPS1BSAF	1.6	1 - 1.6	20.5	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02
0.75	1.5	1.45	GPS1BSAF	1.6	1 - 1.6	20.5	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02
1.1	2.1	1.9	GPS1BSAG	2.5	1.6 - 2.5	32.5	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02
1.5	2.8	2.6	GPS1BSAH	4	2.5 - 4	52	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02
2.2	3.9	3.6	GPS1BSAH	4	2.5 - 4	52	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02
3	5.3	5	GPS1BSAJ	6.3	4 - 6.3	82	MC0 / CL00	1	20	GPF1LMCBA / GPF1L02
4	6.8	6.5	GPS1BHAK	10	6.3 - 10	130	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02
5.5	9.1	8.6	GPS1BHAK	10	6.3 - 10	130	CL00	1.5	20	GPF1L02*
7.5	12	11.4	GPS1BHAL	13	9 - 13	169	CL01	2.5	20	GPF1L02*
10	15.5	14.8	GPS1BHAM	16	11 - 16	208	CL02	2.5	20	GPF1L02*
11	17.6	17	GPS1BHAN	20	14 - 20	260	CL25	2.5	20	GPF1L25*
15	23	22	GPS1BHAP	25	19 - 25	325	CL25	4	20	GPF2L25*
18.5	28.5	27	GPS1BHAR	32	24 - 32	416	CL04	6	20	GPF1L04*
11	17.6	17	GPS2BHAN	20	14 - 20	260	CL04	2.5	20	GPF2L04*
15	23	22	GPS2BHAP	25	19 - 25	325	CL04	4	20	GPF2L04*
18.5	28.5	27	GPS2BHAR	32	24 - 32	416	CL04	6	20	GPF2L04*
22	33	31.5	GPS2BHAS	40	28 - 40	520	CL45	6/10	20	GPF2L45*
30	45	43	GPS2BHAT	50	35 - 50	650	CL06	10	25	GPF2L07*
37	53	52	GPS2BHAU	63	45 - 63	820	CL07	16	25	GPF2L07*

Surion GPS-B: Coordination Type 2 50kA at 500V and 525V

MOTOR (1)			MANUAL MOTOR STARTER				CONTACTOR			LINKS
Rated power (kW)	Rated current		Cat. no.	Rated current In (A)	Thermal current Setting range (A)	Magnetic current (A)	Series	Smallest wire Cu (PVC)(2) 380/415V (mm²)	Minimum frontal electrical safety clearance (mm)	Cat. no. (3)
	500V	525V (A)								
0.06	0.17	0.16	GPS1BS/HAB	0.25	0.16 - 0.25	3.2	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.09	0.24	0.22	GPS1BS/HAB	0.25	0.16 - 0.25	3.2	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.12	0.33	0.3	GPS1BS/HAC	0.4	0.25 - 0.4	5.2	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.18	0.48	0.46	GPS1BS/HAD	0.63	0.4 - 0.63	8.2	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.25	0.66	0.64	GPS1BS/HAE	1	0.63 - 1	13	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.37	0.9	0.85	GPS1BS/HAE	1	0.63 - 1	13	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.55	1.2	1.15	GPS1BS/HAF	1.6	1 - 1.6	20.5	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.75	1.5	1.45	GPS1BS/HAF	1.6	1 - 1.6	20.5	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
1.1	2.1	1.9	GPS1BS/HAG	2.5	1.6 - 2.5	32.5	CL00	1	20	GPF1L02*
1.5	2.8	2.6	GPS1BS/HAH	4	2.5 - 4	52	CL25	1	20	GPF1L25*
2.2	3.9	3.6	GPS1BS/HAH	4	2.5 - 4	52	CL25	1	20	GPF1L25*
3	5.3	5	GPS1BS/HAJ	6.3	4 - 6.3	82	CL25	1	20	GPF1L25*
4	6.8	6.5	GPS1BHAK	10	6.3 - 10	130	CL25	1	20	GPF1L25*
5.5	9.1	8.6	GPS1BHAK	10	6.3 - 10	130	CL25	1.5	20	GPF1L25*
7.5	12	11.4	GPS1BHAL	13	9 - 13	169	CL25	2.5	20	GPF1L25*
10	15.5	14.8	GPS1BHAM	16	11 - 16	208	CL25	2.5	20	GPF1L25*
11	17.6	17	GPS1BHAN	20	14 - 20	260	CL25	2.5	20	GPF1L25*
15	23	22	GPS1BHAP	25	19 - 25	325	CL04	4	20	GPF1L04*
18.5	28.5	27	GPS1BHAR	32	24 - 32	416	CL04	6	20	GPF1L04*
11	17.6	17	GPS2BHAN	20	14 - 20	260	CL04	2.5	20	GPF2L04*
15	23	22	GPS2BHAP	25	19 - 25	325	CL04	4	20	GPF2L04*
18.5	28.5	27	GPS2BHAR	32	24 - 32	416	CL45	6	20	GPF2L45*
22	33	31.5	GPS2BHAS	40	28 - 40	520	CL06	6/10	25	GPF2L07*
30	45	43	GPS2BHAT	50	35 - 50	650	CL06	10	25	GPF2L07*
37	53	52	GPS2BHAU	63	45 - 63	820	CL07	16	25	GPF2L07*

- (1) Currents are relevant to four pole motors not having special characteristics of torque. Inrush currents: 8 time rated current for 1s.
(2) The minimum cycle cross-sections are referred to an ambient temperature of 30°C max. in free air. Cables are to withstand the maximum let-through energy and the motor rated current. Besides the user should consider the drop voltage on the cables, the type of laying and the ambient temperature.
(3) Complete cat. nrs., see page D.3



Surion GPS-M and Record Plus: Coordination Type 1 65kA at 380/400V and 415V

MOTOR (1)			BREAKER				CONTACTOR	OVERLOAD RELAY			
Rated power (kW)	Rated current		Cat. no.	Rated current In (A)	Magnetic setting Im Pick-up band ± 20% Im (A)	Magnetic current (A)	Series	Series	Setting range	Smallest wire Cu (PVC) (2) 380/415V (mm²)	Min frontal safety clearance (mm)
	380/400V (A)	415V (A)									
0.06	0.23	0.21	GPS1MSAB	0.25	-	3.3	CL00	RT1B	0.16-0.26	1	20
0.09	0.34	0.31	GPS1MSAC	0.4	-	5.2	CL00	RT1C	0.25-0.41	1	20
0.12	0.44	0.4	GPS1MSAD	0.63	-	8.2	CL00	RT1D	0.4-0.65	1	20
0.18	0.65	0.63	GPS1MSAE	1	-	13	CL00	RT1D	0.4-0.65	1	20
0.25	0.9	0.8	GPS1MSAE	1	-	13	CL00	RT1F	0.65-1.1	1	20
0.37	1.25	1.1	GPS1MSAF	1.6	-	20.8	CL00	RT1G	1-1.5	1	20
0.55	1.6	1.5	GPS1MSAF	1.6	-	20.8	CL00	RT1H	1.3-1.9	1	20
0.75	2	1.9	GPS1MSAG	2.5	-	32.5	CL00	RT1J	1.8-2.7	1	20
1.1	2.6	2.5	GPS1MSAH	4	-	52	CL00	RT1K	2.5-4	1	20
1.5	3.5	3.4	GPS1MSAH	4	-	52	CL00	RT1K	2.5-4	1	20
2.2	5	4.5	GPS1MSAJ	6.3	-	81.9	CL00	RT1L	4-6.3	1	20
3	7	6.5	GPS1MSAK	10	-	130	CL00	RT1M	5.5-8.5	1.5	20
4	9	8	GPS1MSAK	10	-	130	CL00	RT1N	8-12	1.5	20
5.5	12	11	GPS1MHAL	13	-	169	CL01	RT1P	10-16	2.5	20
7.5	-	14	GPS1MHAM	16	-	208	CL02	RT1P	10-16	2.5	20
7.5	16	-	GPS1MHAM	16	-	208	CL02	RT1S	14.5-18	2.5	20
11	22.5	21	GPS1MHAP	25	-	325	CL25	RT1U	21-26	4	20
15	30	28	GPS1MHAR	32	-	416	CL04	RT1V	25-32	6	20
11	22.5	21	GPS2MHAP	25	-	325	CL04	RT1U	21-26	4	20
15	30	28	GPS2MHAR	32	-	416	CL04	RT1V	25-32	6	20
18.5	37	35	GPS2MHAS	40	-	520	CL45	RT1W	30-40	10	20
22	-	40	GPS2MHAT	50	-	650	CL06	RT2E	30-43	10	25
22	44	-	GPS2MHAT	50	-	650	CL06	RT2G	42-55	10	25
30	60	55	GPS2MHAU	63	-	819	CL07	RT2H	54-65	16	25
45	85	80	FDH36MC100GD	100	1000 - 1500	1140	CL09	RT2L	78 - 97	35	30
55	-	100	FDH36MC160JF	160	1600 - 2400	1400	CL10	RT2M	90 - 110	35	30
55	105	-	FDH36MC160JF	160	1600 - 240	1400	CL10	RT2M	90 - 110	35	30

Surion GPS-M and Record Plus: Coordination Type 2 65kA at 380/400V and 415V

MOTOR (1)			BREAKER				CONTACTOR	OVERLOAD RELAY			
Rated power (kW)	Rated current		Cat. no.	Rated current In (A)	Magnetic setting Im Pick-up band ± 20% Im (A)	Magnetic current (A)	Series	Series	Setting range	Smallest wire Cu (PVC) (2) 380/415V (mm²)	Min frontal safety clearance (mm)
	380/400V (A)	415V (A)									
0.06	0.23	0.21	GPS1MHAB	0.25	-	3.3	CL00	RT1B	0.16-0.26	1	20
0.09	0.34	0.31	GPS1MHAC	0.4	-	5.2	CL00	RT1C	0.25-0.41	1	20
0.12	0.44	0.4	GPS1MHAD	0.63	-	8.2	CL00	RT1D	0.4-0.65	1	20
0.18	0.65	0.63	GPS1MHAH	1	-	13	CL00	RT1D	0.4-0.65	1	20
0.25	0.9	0.8	GPS1MHAH	1	-	13	CL00	RT1F	0.65-1.1	1	20
0.37	1.25	1.1	GPS1MHAF	1.6	-	20.8	CL00	RT1G	1-1.5	1	20
0.55	1.6	1.5	GPS1MHAF	1.6	-	20.8	CL00	RT1H	1.3-1.9	1	20
0.75	2	1.9	GPS1MHAG	2.5	-	32.5	CL00	RT1J	1.8-2.7	1	20
1.1	2.6	2.5	GPS1MHAH	4	-	52	CL25	RT1K	2.5-4	1	20
1.5	3.5	3.4	GPS1MHAH	4	-	52	CL25	RT1K	2.5-4	1	20
2.2	5	4.5	GPS1MHAJ	6.3	-	81.9	CL25	RT1L	4-6.3	1	20
3	7	6.5	GPS1MHAJ	10	-	130	CL25	RT1M	5.5-8.5	1.5	20
4	9	8	GPS1MHAJ	10	-	130	CL25	RT1N	8-12	1.5	20
5.5	12	11	GPS1MHAL	13	-	169	CL25	RT1P	10-16	2.5	20
7.5	-	14	GPS1MHAM	16	-	208	CL25	RT1P	10-16	2.5	20
7.5	16	-	GPS1MHAM	16	-	208	CL25	RT1S	14.5-18	2.5	20
11	22.5	21	GPS2MHAP	25	-	325	CL25	RT1U	21-26	4	20
15	30	28	GPS2MHAR	32	-	416	CL04	RT1V	25-32	6	20
11	22.5	21	GPS2MHAP	25	-	325	CL04	RT1U	21-26	4	20
15	30	28	GPS2MHAR	32	-	416	CL04	RT1V	25-32	6	20
18.5	37	35	GPS2MHAS	40	-	520	CL45	RT1W	30-40	10	20
22	-	40	GPS2MHAT	50	-	650	CL06	RT2E	30-43	10	25
22	44	-	GPS2MHAT	50	-	650	CL06	RT2G	42-55	10	25
30	60	55	GPS2MHAU	63	-	819	CL07	RT2H	54-65	16	25
45	85	80	FDH36MC100GD	100	1000 - 1500	1140	CL09	RT2L	78 - 97	35	30
55	-	100	FDH36MC100GD	100	1000 - 1500	1400	CL10	RT2M	90 - 110	35	30
55	105	-	FDH36MC160JF	160	1600 - 2400	1400	CL10	RT2M	90 - 110	35	30

- (1) Current are relevant to four pole motors not having special characteristics of torque. Inrush currents: H 8 time rated current for H 1s.
(2) The minimum cycle cross-sections are referred to an ambient temperature of 30°C max. in free air and are selected to withstand the maximum let-through energy and the motor rated current. Besides the user has to consider the drop voltage, the type of laying and ambient temperature.

Surion GPS-B: Coordination Type 2 50kA at 380/400V and 415V

MOTOR (1)			MANUAL MOTOR STARTER				CONTACTOR			LINKS
Rated power (kW)	Rated current		Cat. no.	Rated current In (A)	Thermal current Setting range (A)	Magnetic current (A)	Series	Smallest wire Cu (PVC)(2) 380/415V (mm²)	Minimum frontal electrical safety clearance (mm)	Cat. no. (3)
	380/400V (A)	415V								
0.06	0.23	0.21	GPS1BS/HAB	0.25	0.16 - 0.25	3.2	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.09	0.34	0.31	GPS1BS/HAC	0.4	0.25 - 0.4	5.2	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.12	0.44	0.4	GPS1BS/HAD	0.63	0.4 - 0.63	8.2	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.18	0.65	0.63	GPS1BS/HAE	1	0.63 - 1	13	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.25	0.9	0.8	GPS1BS/HAE	1	0.63 - 1	13	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.37	1.25	1.1	GPS1BS/HAF	1.6	1 - 1.6	20.5	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.55	1.6	1.5	GPS1BS/HAF	1.6	1 - 1.6	20.5	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
0.75	2	1.9	GPS1BS/HAG	2.5	1.6 - 2.5	32.5	MC1 / CL00	1	20	GPF1LMCBA / GPF1L02*
1.1	2.6	2.5	GPS1BS/HAH	4	2.5 - 4	52	CL01	1	20	GPF1L02*
1.5	3.5	3.4	GPS1BS/HAH	4	2.5 - 4	52	CL01	1	20	GPF1L02*
2.2	5	4.5	GPS1BS/HAJ	6.3	4 - 6.3	82	CL02	1	20	GPF1L02*
3	7	6.5	GPS1BS/HAK	10	6.3 - 10	130	CL25	1.5	20	GPF1L25*
4	9	8	GPS1BS/HAK	10	6.3 - 10	130	CL25	1.5	20	GPF1L25*
5.5	12	11	GPS1BHAL	13	9 - 13	169	CL25	2.5	20	GPF1L25*
7.5	16	14	GPS1BHAM	16	11 - 16	208	CL25	2.5	20	GPF1L25*
11	22.5	21	GPS1BHAP	25	19 - 25	325	CL25	4	20	GPF1L25*
15	30	28	GPS1BHAR	32	24 - 32	416	CL04	6	20	GPF1L04*
11	22.5	21	GPS2BHAP	25	19 - 25	325	CL04	4	20	GPF2L04*
15	30	28	GPS2BHAR	32	24 - 32	416	CL04	6	20	GPF2L04*
18.5	37	35	GPS2BHAS	40	28 - 40	520	CL45	10	20	GPF2L45*
22	44	41	GPS2BHAT	50	35 - 50	650	CL06	10	25	GPF2L07*
30	60	55	GPS2BHAU	63	45 - 63	820	CL07	16	25	GPF2L07*

(1) Currents are relevant to four pole motors not having special characteristics of torque.

Inrush currents: H 8 time rated current for H 1s.

(2) The minimum cycle cross-sections are referred to an ambient temperature of 30°C max. in free air. Cables are to withstand the maximum let-through energy and the motor rated current. Besides the user should consider the drop voltage on the cables, the type of laying and the ambient temperature.

(3) Complete cat. nrs., see page D.3

Surion GPS-M and Record Plus: Coordination Type 1 65kA at 380/400V and 415V

MOTOR (1)			BREAKER				CONTACTOR	OVERLOAD RELAY			
Rated power	Rated current		Cat. no.	Rated current In	Thermal current	Magnetic current	Series	Series	Setting range	Smallest wire Cu (PVC) (2) 380/415V (mm²)	Min frontal safety clearance (mm)
	380/400V (A)	415V									
(kW)				(A)	(A)	(A)					
0.06	0.23	0.21	GPS1MS/HAB	0.25	-	3.3	CL00	RT1B	0.16-0.26	1	20
0.09	0.34	0.31	GPS1MS/HAC	0.4	-	5.2	CL00	RT1C	0.25-0.41	1	20
0.12	0.44	0.4	GPS1MS/HAD	0.63	-	8.2	CL00	RT1D	0.4-0.65	1	20
0.18	0.65	0.63	GPS1MS/HAE	1	-	13	CL00	RT1D	0.4-0.65	1	20
0.25	0.9	0.8	GPS1MS/HAE	1	-	13	CL00	RT1F	0.65-1.1	1	20
0.37	1.25	1.1	GPS1MS/HAF	1.6	-	20.8	CL00	RT1G	1-1.5	1	20
0.55	1.6	1.5	GPS1MS/HAF	1.6	-	20.8	CL00	RT1H	1.3-1.9	1	20
0.75	2	1.9	GPS1MS/HAG	2.5	-	32.5	CL00	RT1J	1.8-2.7	1	20
1.1	2.6	2.5	GPS1MS/HAH	4	-	52	CL00	RT1K	2.5-4	1	20
1.5	3.5	3.4	GPS1MS/HAH	4	-	52	CL00	RT1K	2.5-4	1	20
2.2	5	4.5	GPS1MS/HAJ	6.3	-	81.9	CL00	RT1L	4-6.3	1	20
3	7	6.5	GPS1MS/HAK	10	-	130	CL00	RT1M	5.5-8.5	1.5	20
4	9	8	GPS1MS/HAK	10	-	130	CL00	RT1N	8-12	1.5	20
5.5	12	11	GPS1MHAL	13	-	169	CL01	RT1P	10-16	2.5	20
7.5	-	14	GPS1MHAM	16	-	208	CL02	RT1P	10-16	2.5	20
7.5	16	-	GPS1MHAM	16	-	208	CL02	RT1S	14.5-18	2.5	20
11	22.5	21	GPS1MHAP	25	-	325	CL25	RT1U	21-26	4	20
15	30	28	GPS1MHAR	32	-	416	CL04	RT1V	25-32	6	20
11	22.5	21	GPS2MHAP	25	-	325	CL25	RT1U	21-26	4	20
15	30	28	GPS2MHAR	32	-	416	CL04	RT1V	25-32	6	20
18.5	37	35	GPS2MHAS	40	-	520	CL45	RT1W	30-40	10	20
22	-	40	GPS2MHAT	50	-	650	CL06	RT2E	30-43	10	25
22	44	-	GPS2MHAT	50	-	650	CL06	RT2G	42-55	10	25
30	60	55	GPS2MHAU	63	-	819	CL07	RT2H	54-65	16	25
37	72	68	FDN36MC080GD	80	-	950	CL08	RT2J	64-82	25	25
45	85	80	FDN36MC100GD	100	-	1140	CL09	RT2L	78-97	35	30
55	105	100	FDN36MC100GD	100	-	1400	CL10	RT2M	90-110	35	30

Surion GPS-M and Record Plus: Coordination Type 2 50kA at 380/400V and 415V

MOTOR (1)			BREAKER				CONTACTOR	OVERLOAD RELAY			
Rated power	Rated current		Cat. no.	Rated current In	Thermal current	Magnetic current	Series	Series	Setting range	Smallest wire Cu (PVC) (2) 380/415V (mm²)	Min frontal safety clearance (mm)
	380/400V (A)	415V (A)									
0.06	0.23	0.21	GPS1MS/HAB	0.25	-	3.3	CL00	RT1B	0.16-0.26	1	20
0.09	0.34	0.31	GPS1MS/HAC	0.4	-	5.2	CL00	RT1C	0.25-0.41	1	20
0.12	0.44	0.4	GPS1MS/HAD	0.63	-	8.2	CL00	RT1D	0.4-0.65	1	20
0.18	0.65	0.63	GPS1MS/HAE	1	-	13	CL00	RT1D	0.4-0.65	1	20
0.25	0.9	0.8	GPS1MS/HAE	1	-	13	CL00	RT1F	0.65-1.1	1	20
0.37	1.25	1.1	GPS1MS/HAF	1.6	-	20.8	CL00	RT1G	1-1.5	1	20
0.55	1.6	1.5	GPS1MS/HAF	1.6	-	20.8	CL00	RT1H	1.3-1.9	1	20
0.75	2	1.9	GPS1MS/HAG	2.5	-	32.5	CL00	RT1J	1.8-2.7	1	20
1.1	2.6	2.5	GPS1MS/HAH	4	-	52	CL01	RT1K	2.5-4	1	20
1.5	3.5	3.4	GPS1MS/HAH	4	-	52	CL01	RT1K	2.5-4	1	20
2.2	5	4.5	GPS1MS/HAJ	6.3	-	81.9	CL02	RT1L	4-6.3	1	20
3	7	6.5	GPS1MS/HAK	10	-	130	CL25	RT1M	5.5-8.5	1.5	20
4	9	8	GPS1MS/HAK	10	-	130	CL25	RT1N	8-12	1.5	20
5.5	12	11	GPS1MHAL	13	-	169	CL25	RT1P	10-16	1.5	20
7.5	-	14	GPS1MHAM	16	-	208	CL25	RT1P	10-16	2.5	20
7.5	16	-	GPS1MHAM	16	-	208	CL25	RT1S	14.5-18	2.5	20
11	22.5	21	GPS1MHAP	25	-	325	CL25	RT1U	21-26	4	20
15	30	28	GPS1MHAR	32	-	416	CL04	RT1V	25-32	6	20
11	22.5	21	GPS2MHAP	25	-	325	CL04	RT1U	21-26	4	20
15	30	28	GPS2MHAR	32	-	416	CL04	RT1V	25-32	6	20
18.5	37	35	GPS2MHAS	40	-	520	CL45	RT1W	30-40	6	20
22	-	40	GPS2MHAT	50	-	650	CL06	RT2E	30-43	10	25
22	44	-	GPS2MHAT	50	-	650	CL06	RT2G	42-55	10	25
30	60	55	GPS2MHAU	63	-	819	CL07	RT2H	54-65	16	25
37	72	68	FDN36MC080GD	80	-	950	CL08	RT2J	64-82	25	25
45	85	80	FDN36MC100GD	100	-	1140	CL09	RT2L	78-97	35	30
55	105	100	FDN36MC100GD	100	-	1400	CL10	RT2M	90-110	35	30

- (1) Current are relevant to four pole motors not having special characteristics of torque. Inrush currents: H 8 time rated current for H 1s.
(2) The minimum cycle cross-sections are referred to an ambient temperature of 30°C max. in free air and are selected to withstand the maximum let-through energy and the motor rated current. Besides the user has to consider the drop voltage, the type of laying and ambient temperature.

Surion GPS-M and Record Plus: Coordination Type 1 50kA at 500 and 525V

MOTOR (1)			BREAKER				CONTACTOR	OVERLOAD RELAY			
Rated power	Rated current		Cat. no.	Rated current In	Magnetic setting Im Pick-up band ± 20% Im (A)	Magnetic current (A)	Series	Series	Setting range	Smallest wire Cu (PVC) (2) 380/415V (mm²)	Min frontal safety clearance (mm)
	500V	525V (A)									
(kW)				(A)		(A)					
0.06	0.17	0.16	GPS1MSAB	0.25	-	3.2	CL00	RT1B	0.16-0.26	1	20
0.09	0.24	0.22	GPS1MSAB	0.25	-	3.2	CL00	RT1B	0.16-0.26	1	20
0.12	0.33	0.3	GPS1MSAC	0.4	-	5.2	CL00	RT1C	0.25-0.41	1	20
0.18	0.48	0.46	GPS1MSAD	0.63	-	8.2	CL00	RT1D	0.4-0.65	1	20
0.25	-	0.64	GPS1MSAE	1	-	13	CL00	RT1D	0.4-0.65	1	20
0.25	0.66	-	GPS1MSAE	1	-	13	CL00	RT1F	0.65-1.1	1	20
0.37	0.9	0.85	GPS1MSAE	1	-	13	CL00	RT1F	0.65-1.1	1	20
0.55	1.2	1.15	GPS1MSAF	1.6	-	20.5	CL00	RT1G	1.0-1.5	1	20
0.75	1.5	1.45	GPS1MSAF	1.6	-	20.5	CL00	RT1H	1.3-1.9	1	20
1.1	2.1	1.9	GPS1MSAG	2.5	-	32.5	CL00	RT1J	1.8-2.7	1	20
1.5	2.8	2.6	GPS1MSAH	4	-	52	CL00	RT1K	2.5-4	1	20
2.2	3.9	3.6	GPS1MSAH	4	-	52	CL00	RT1K	2.5-4	1	20
3	5.3	5	GPS1MSAJ	6.3	-	82	CL00	RT1L	4.0-6.3	1	20
4	6.8	6.5	GPS1MHAK	10	-	130	CL00	RT1M	5.5-8.5	1	20
5.5	9.1	8.6	GPS1MHAK	10	-	130	CL00	RT1N	8.0-12.0	1.5	20
7.5	12	11.4	GPS1MHAL	13	-	169	CL01	RT1P	10-16	2.5	20
10	15.5	14.8	GPS1MHAM	16	-	208	CL02	RT1S	14.5-18	2.5	20
11	17.6	17	GPS1MHAN	20	-	260	CL25	RT1S	14.5-18	2.5	20
15	23	22	GPS1MHAP	25	-	325	CL25	RT1U	21-26	4	20
18.5	28.5	27	GPS1MHAR	32	-	416	CL04	RT1V	25-32	6	20
11	17.6	17	GPS2MHAN	20	-	260	CL04	RT1S	14.5-18	2.5	20
15	23	22	GPS2MHAP	25	-	325	CL04	RT1U	21-26	4	20
18.5	28.5	27	GPS2MHAR	32	-	416	CL04	RT1V	25-32	6	20
22	33	31.5	GPS2MHAS	40	-	520	CL45	RT2E	30-43	6/10	20
30	45	43	GPS2MHAT	50	-	650	CL06	RT2G	42-55	10	25
37	53	52	GPS2MHAU	63	-	820	CL07	RT2G	42-55	16	25
45	-	62	FDN36MC080GD	80	800 - 1200	1000	CL08	RT2H	54 - 65	16	30
45	65	-	FDN36MC080GD	80	800 - 1200	1000	CL08	RT2J	64 - 82	25	30
55	80	76	FDN36MC100GD	100	1000 - 150	1200	CL09	RT2J	64 - 82	25	30

Surion GPS-M and Record Plus: Coordination Type 2 50kA at 500 and 525V

MOTOR (1)			BREAKER				CONTACTOR	OVERLOAD RELAY			
Rated power (kW)	Rated current		Cat. no.	Rated current In (A)	Magnetic setting Im Pick-up band ± 20% Im (A)	Magnetic current (A)	Series	Series	Setting range	Smallest wire Cu (PVC) (2) 380/415V (mm²)	Min frontal safety clearance (mm)
	500V (A)	525V									
0.06	0.17	0.16	GPS1MS/HAB	0.25	-	3.2	CL00	RT1B	0.16-0.26	1	20
0.09	0.24	0.22	GPS1MS/HAB	0.25	-	3.2	CL00	RT1B	0.16-0.26	1	20
0.12	0.33	0.3	GPS1MS/HAC	0.4	-	5.2	CL00	RT1C	0.25-0.41	1	20
0.18	0.48	0.46	GPS1MS/HAD	0.63	-	8.2	CL00	RT1D	0.4-0.65	1	20
0.25	-	0.64	GPS1MS/HAE	1	-	13	CL00	RT1D	0.4-0.65	1	20
0.25	0.66	-	GPS1MS/HAE	1	-	13	CL00	RT1F	0.65-1.1	1	20
0.37	0.9	0.85	GPS1MS/HAE	1	-	13	CL00	RT1F	0.65-1.1	1	20
0.55	1.2	1.15	GPS1MS/HAF	1.6	-	20.5	CL00	RT1G	1.0-1.5	1	20
0.75	1.5	1.45	GPS1MS/HAF	1.6	-	20.5	CL00	RT1H	1.3-1.9	1	20
1.1	2.1	1.9	GPS1MS/HAG	2.5	-	32.5	CL01	RT1J	1.8-2.7	1	20
1.5	2.8	2.6	GPS1MS/HAH	4	-	52	CL25	RT1K	2.5-4	1	20
2.2	3.9	3.6	GPS1MS/HAH	4	-	52	CL25	RT1K	2.5-4	1	20
3	5.3	5	GPS1MS/HAJ	6.3	-	82	CL25	RT1L	4.0-6.3	1	20
4	6.8	6.5	GPS1MHAK	10	-	130	CL25	RT1M	5.5-8.5	1	20
5.5	9.1	8.6	GPS1MHAK	10	-	130	CL25	RT1N	8.0-12	1.5	20
7.5	12	11.4	GPS1MHAL	13	-	169	CL25	RT1P	10-16	2.5	20
10	15.5	14.8	GPS1MHAM	16	-	208	CL25	RT1S	14.5-18	2.5	20
11	17.6	17	GPS1MHAN	20	-	260	CL25	RT1S	14.5-18	2.5	20
15	23	22	GPS1MHAP	25	-	325	CL04	RT1U	21-26	4	20
18.5	28.5	27	GPS1MHAR	32	-	416	CL04	RT1V	25-32	6	20
11	17.6	17	GPS2MHAN	20	-	260	CL04	RT1S	14.5-18	2.5	20
15	23	22	GPS2MHAP	25	-	325	CL04	RT1U	21-26	4	20
18.5	28.5	27	GPS2MHAR	32	-	416	CL45	RT1V	25-32	6	20
22	33	31.5	GPS2MHAS	40	-	520	CL06	RT2E	30-43	6/10	25
30	45	43	GPS2MHAT	50	-	650	CL06	RT2G	42-55	10	25
37	53	52	GPS2MHAU	63	-	820	CL07	RT2G	42-55	16	25
45	-	62	FDN36MC080GD	80	800 - 1200	1000	CL09	RT2H	54 - 65	16	30
45	65	-	FDN36MC080GD	80	800 - 1200	1000	CL09	RT2J	64 - 82	25	30
55	80	76	FDN36MC100GD	100	1000 - 1500	1200	CL10	RT2J	64 - 82	25	30



Surion GPS-B and Record Plus: Coordination Type 2 65kA at 380/400V and 415V

MOTOR			MOTOR PROTECTION CIRCUITBREAKER			CONTACTOR	THERMAL RELAY
Rated power (kW)	I _e 380/400V (A)	I _e 415V	Cat. no.	Setting range I _n (A)	Magnetic setting I _m (A)	Series (A)	Class 10
0.25	0.9	0.8	GPS1BHA E	0.63-1	13	CL00	Integrated into the motor protection circuit breaker
0.37	1.25	1.1	GPS1BHAF	1-1.6	20.5	CL00	Integrated into the motor protection circuit breaker
0.55	1.6	1.5	GPS1BHAF	1-1.6	20.5	CL00	Integrated into the motor protection circuit breaker
0.75	2	1.9	GPS1BHAG	1.6-2.5	32.5	CL00	Integrated into the motor protection circuit breaker
1.1	2.6	2.5	GPS1BHAH	2.5-4	52	CL25	Integrated into the motor protection circuit breaker
1.5	3.5	3.45	GPS1BHAH	2.5-4	52	CL25	Integrated into the motor protection circuit breaker
2.2	5	4.7	GPS1BHAJ	4-6.3	82	CL25	Integrated into the motor protection circuit breaker
3	7	6.5	GPS1BHAK	6.3-10	130	CL25	Integrated into the motor protection circuit breaker
4	9	8	GPS1BHAK	6.3-10	130	CL25	Integrated into the motor protection circuit breaker
5.5	12	11	GPS1BHAL	9.0-13	169	CL25	Integrated into the motor protection circuit breaker
7.5	16	14	GPS1BHAM	11.0-16	208	CL25	Integrated into the motor protection circuit breaker
11	22.5	21	GPS1BHAP	19-25	325	CL25	Integrated into the motor protection circuit breaker
15	30	28	GPS1BHAR	24-32	416	CL04	Integrated into the motor protection circuit breaker
18.5	37	35	GPS2BHAS	28-40	520	CL45	Integrated into the motor protection circuit breaker
22	44	41	GPS2BHAT	25-50	650	CL06	Integrated into the motor protection circuit breaker
30	60	55	GPS2BHAU	45-63	820	CL07	Integrated into the motor protection circuit breaker
37	72.5	65	FDH36MC080	80	950	CL08	RT2J (64-82A)
45	85	79	FDH36MC100	100	1140	CL09	RT2L (78-97A)

Surion GPS-B and Record Plus: Coordination Type 2 80kA at 380/400V and 415V

MOTOR			MOTOR PROTECTION CIRCUITBREAKER			CONTACTOR	THERMAL RELAY
Rated power (kW)	I _e 380/400V (A)	I _e 415V	Cat. no.	Setting range I _n (A)	Magnetic setting I _m (A)	Series (A)	Class 10
0.25	0.9	0.8	GPS1BHA E	0.63-1	13	CL00	Integrated into the motor protection circuit breaker
0.37	1.25	1.1	GPS1BHAF	1-1.6	20.5	CL00	Integrated into the motor protection circuit breaker
0.55	1.6	1.5	GPS1BHAF	1-1.6	20.5	CL00	Integrated into the motor protection circuit breaker
0.75	2	1.9	GPS1BHAG	1.6-2.5	32.5	CL00	Integrated into the motor protection circuit breaker
1.1	2.6	2.5	GPS1BHAH	2.5-4	52	CL25	Integrated into the motor protection circuit breaker
1.5	3.5	3.45	GPS1BHAH	2.5-4	52	CL25	Integrated into the motor protection circuit breaker
2.2	5	4.7	GPS1BHAJ	4-6.3	82	CL25	Integrated into the motor protection circuit breaker
3	7	6.5	GPS1BHAK	6.3-10	130	CL25	Integrated into the motor protection circuit breaker
4	9	8	GPS1BHAK	6.3-10	130	CL25	Integrated into the motor protection circuit breaker
5.5	12	11	GPS1BHAL	9.0-13	169	CL05	Integrated into the motor protection circuit breaker
7.5	16	14	FDH36MC020	20	210	CL04	RT1S (14.5-18A)
11	22.5	21	FDH36MC030	30	300	CL45	RT1U (21-26A)
15	30	28	FDH36MC030	30	450	CL45	RT1V (25-32A)
18.5	37	35	FDH36MC050	50	500	CL45	RT1W (30-40A)
22	44	41	FDH36MC050	50	580	CL06	RT2G (42-55A)
30	66	55	FDH36MC080	80	800	CL07	RT2H (54-65A)
37	72.5	65	FDH36MC080	80	950	CL08	RT2J (64-82A)
45	85	79	FDH36MC100	100	1140	CL09	RT2L (78-97A)

- (1) Current are relevant to four pole motors not having special characteristics of torque. Inrush currents: H 8 time rated current for H 1s.
 (2) The minimum cycle cross-sections are referred to an ambient temperature of 30°C max. in free air and are selected to withstand the maximum let-through energy and the motor rated current. Besides the user has to consider the drop voltage, the type of laying and ambient temperature.

Record Plus: Coordination Type 2 150kA at 380/400V and 415V (Class 10 protection)

MOTOR (1)			THERMAL-MAGNETIC CIRCUIT BREAKER					CONTACTOR		
Rated power (kW)	Rated current		Cat. no. (3)	Magnetic setting Im pick-up band $\pm 20\% I_m$ (A)	Magnetic current Setpoint (A)	Thermal setting range (A)	Thermal setpoint (400V) (A)	Series	Smallest wire Cu (PVC) (2) 380/415V (mm ²)	Min frontal safety clearance (mm)
	380/400V (A)	415V								
7.5	16	14	FD*36TD016ED	160	160	12.8 - 16	16	CL45	2.5	20
11	22.5	21	FD*36TD025ED	250	250	20 - 25	22.5	CL45	4	20
15	30	28	FD*36TD032ED	320	320	26 - 32	30	CL45	6	20
18.5	37	35	FD*36TD040ED	400	400	32 - 40	37	CL45	10	20
22	44	40	FD*36TD050ED	500	500	40 - 50	40	CL06	10	25
30	60	55	FD*36TD063ED	630	630	50 - 63	55	CL07	16	25
37	72	68	FD*36TD080GD	800	800	64 - 80	68	CL08	25	25
45	85	80	FD*36TD100GD	1000	1000	80 - 100	80	CL09	35	30
55	105	100	FD*36TD125GD	1250	1250	100 - 125	100	CL10	35	30
75	138	135	FD*36TD160GD	1280	1280	128 - 160	135	CK75	50	40
90	170	165	FE*36TD200KF	1000 - 2000	1700	160 - 200	165	CK08	70	40
110	211	200	FE*36TD250KF	1250 - 2500	2100	200 - 250	200	CK85	95	40
132	245	240	FE*36TD250KF	1250 - 2500	2500	200 - 250	240	CK09	120	40

(*) Max Iq rating in kA: type N = 50 kA, type H = 80 kA, type L = 150 kA.

- (1) Current are relevant to four pole motors not having special characteristics of torque.
Inrush currents: H 8 times rated current for H 1s (Normal starting) or H 5s (Heavy starting).
- (2) The minimum cycle cross-sections are referred to an ambient temperature of 30°C max. in free air and are selected to withstand the maximum let-through energy and the motor rated current. Besides the user has to consider the drop voltage, the type of laying and ambient temperature.
- (3) Foreseen values for E-frame.

Record Plus: Coordination Type 2 Up to 150kA at 380/400V and 415V (Class 10 protection)

MOTOR (1)			ONLY MAGNETIC CIRCUIT BREAKER			CONTACTOR	OVERLOAD RELAY			
Rated power (kW)	Rated current		Cat. no. (3)	Magnetic setting Im pick-up band ± 20% Im (A)	Magnetic current Setpoint (A)	Series	Series	Setting range (A)	Smallest wire Cu (PVC) (2) 380/415V (mm²)	Min frontal safety clearance (mm)
	380/400V (A)	415V								
4	9	8	FD*36MC012ED	125 - 188	120	CL04	RT1N	8 - 12	1.5	20
5.5	12	11	FD*36MC012ED	125 - 188	150	CL04	RT1P	10 - 16	2.5	20
7.5	-	14	FD*36MC020ED	200 - 300	200	CL04	RT1P	10 - 16	2.5	20
7.5	16	-	FD*36MC020ED	200 - 300	210	CL04	RT1S	14.5 - 18	2.5	20
11	22.5	21	FD*36MC030ED	300 - 450	450	CL45	RT1U	21 - 26	4	20
15	30	28	FD*36MC030ED	300 - 450	500	CL45	RT1V	25 - 32	6	20
18.5	37	35	FD*36MC050ED	500 - 750	500	CL45	RT1W	30 - 40	10	20
22	-	40	FD*36MC050ED	500 - 750	540	CL06	RT2E	30 - 43	10	25
22	44	-	FD*36MC050ED	500 - 750	580	CL06	RT2G	42 - 55	10	25
30	60	55	FD*36MC080GD	800 - 1200	800	CL07	RT2H	54 - 65	16	25
37	72	68	FD*36MC080GD	800 - 1200	950	CL08	RT2J	64 - 82	25	25
45	85	80	FD*36MC100GD	1000 - 1500	1140	CL09	RT2L	78 - 97	35	30
55	-	100	FD*36MC100GD	1000 - 1500	1400	CL10	RT2M	90 - 110	35	30
55	105	-	FE*36MC160JF	1600 - 2400	1400	CL10	RT2M	90 - 110	35	30
75	138	135	FE*36MC160JF	1600 - 2400	1900	CK75	RT3E	110 - 140	50	40
90	170	165	FE*36MC250KF	2500 - 3750	2500	CK08	RT3F	140 - 190	70	40
110	211	200	FE*36MC250KF	2500 - 3750	2800	CK85	RT4P	175 - 280	95	40
132	245	240	FE*36MC250KF	2500 - 3750	3150	CK09	RT4P	175 - 280	120	40

Record Plus: Coordination Type 2 Up to 150kA at 380/400V and 415V (Class 30 protection)

MOTOR (1)			ONLY MAGNETIC CIRCUIT BREAKER			CONTACTOR	OVERLOAD RELAY			
Rated power (kW)	Rated current		Cat. no. (3)	Magnetic setting Im pick-up band ± 20% Im (A)	Magnetic current Setpoint (A)	Series	Series	Setting range (A)	Smallest wire Cu (PVC) (2) 380/415V (mm²)	Min frontal safety clearance (mm)
	380/400V (A)	415V								
2.2	5	4.5	FD*36MC008ED	80 - 120	80	CL25	RT4LB	4 - 6.5	1.5	20
3	7	6.5	FD*36MC008ED	80 - 120	90	CL04	RT4LC	5.5 - 8.5	1.5	20
4	9	8	FD*36MC012ED	125 - 188	120	CL04	RT4aLD	7.5 - 11	1.5	20
5.5	12	11	FD*36MCa012ED	125 - 188	150	CL45	RT4LE	10 - 16	2.5	20
7.5	-	14	FD*36MC020EaD	200 - 300	200	CL45	RT4LE	10 - 16	2.5	20
7.5	16	-	FD*36MC020ED	200 - 300	210	CL45	RT4LF	12.5 - 20	2.5	20
11	22.5	21	FD*36MC030ED	300 - 450	450	CL45	RT4LG	17 - 27	4	20
15	30	28	FD*36MC030ED	300 - 450	500	CL45	RT4LH	26 - 40	6	20
18.5	37	35	FD*36MC050ED	500 - 750	500	CL06	RT4LH	26 - 40	10	25
22	-	40	FD*36MC050ED	500 - 750	540	CL06	RT4LJ	32 - 52	10	25
22	44	-	FD*36MC050ED	500 - 750	580	CL06	RT4LJ	32 - 52	10	25
30	60	55	FD*36MC080GD	800 - 1200	800	CL07	RT4LK	45 - 70	16	25
37	72	68	FD*36MC080GD	800 - 1200	950	CL08	RT4LL	60 - 90	25	25
45	85	80	FD*36MC100GD	1000 - 1500	1140	CL09	RT4LL	60 - 90	35	30
55	-	100	FD*36MC100GD	1000 - 1500	1400	CL10	RT4LM	80 - 125	35	30
55	105	-	FE*36MC160JF	1600 - 2400	1400	CL10	RT4LM	80 - 125	35	30
75	138	135	FE*36MC160JF	1600 - 2400	1900	CK75	RT4LN	120 - 190	50	40a
90	170	165	FE*36MC250KF	2500 - 3750	2500	CK08	RT4LN	120 - 190	70	40
110	211	200	FE*36MC250KF	2500 - 3750	2800	CK85	RT4LR	200 - 310	95	40
132	245	240	FE*36MC250KF	2500 - 3750	3150	CK09	RT4LR	200 - 310	120	40

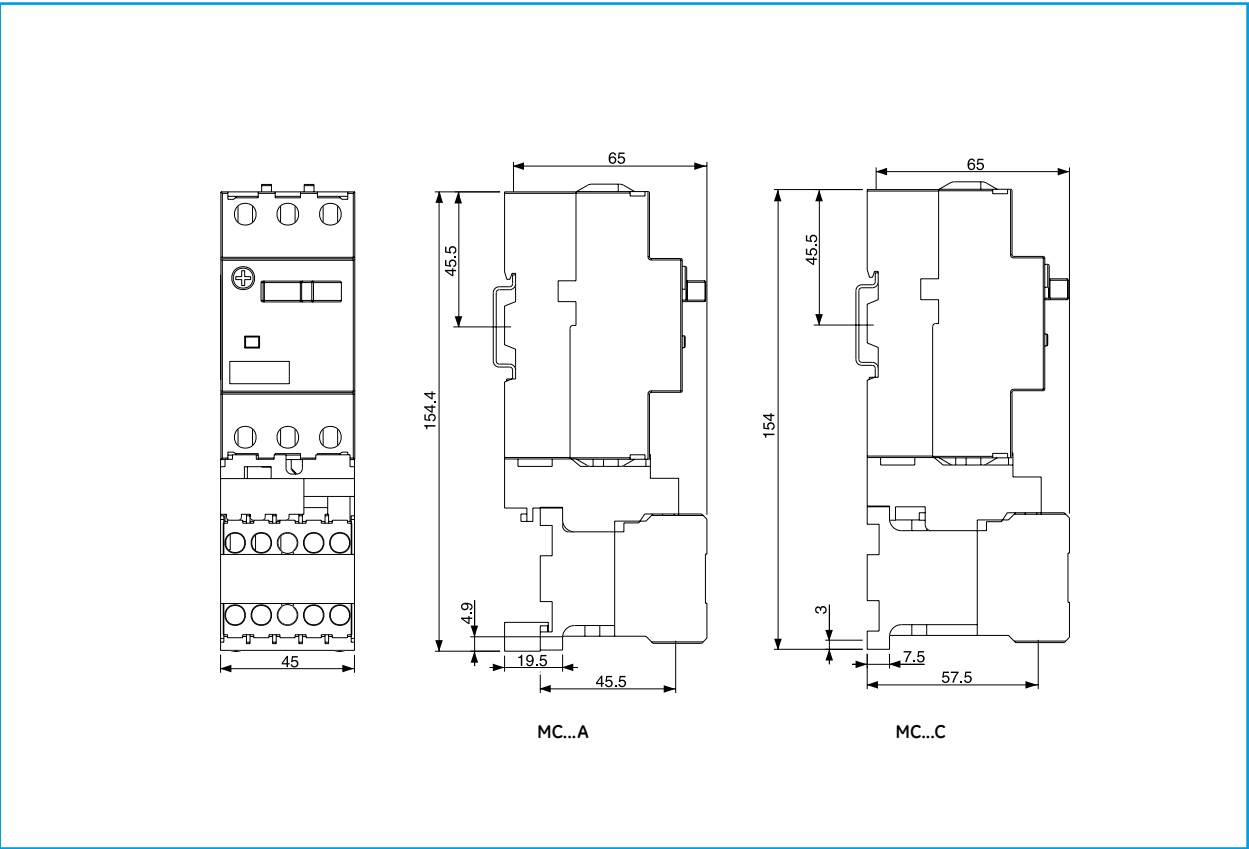
(*) Max Iq rating in kA: type N = 50 kA, type H = 80 kA, type L = 150 kA.

- (1) Current are relevant to four pole motors not having special characteristics of torque.
Inrush currents: H 8 times rated current for H 1s (Normal starting) or H 5s (Heavy starting).
- (2) The minimum cycle cross-sections are referred to an ambient temperature of 30°C max. in free air and are selected to withstand the maximum let-through energy and the motor rated current. Besides the user has to consider the drop voltage, the type of laying and ambient temperature.
- (3) Foreseen values for E-frame.

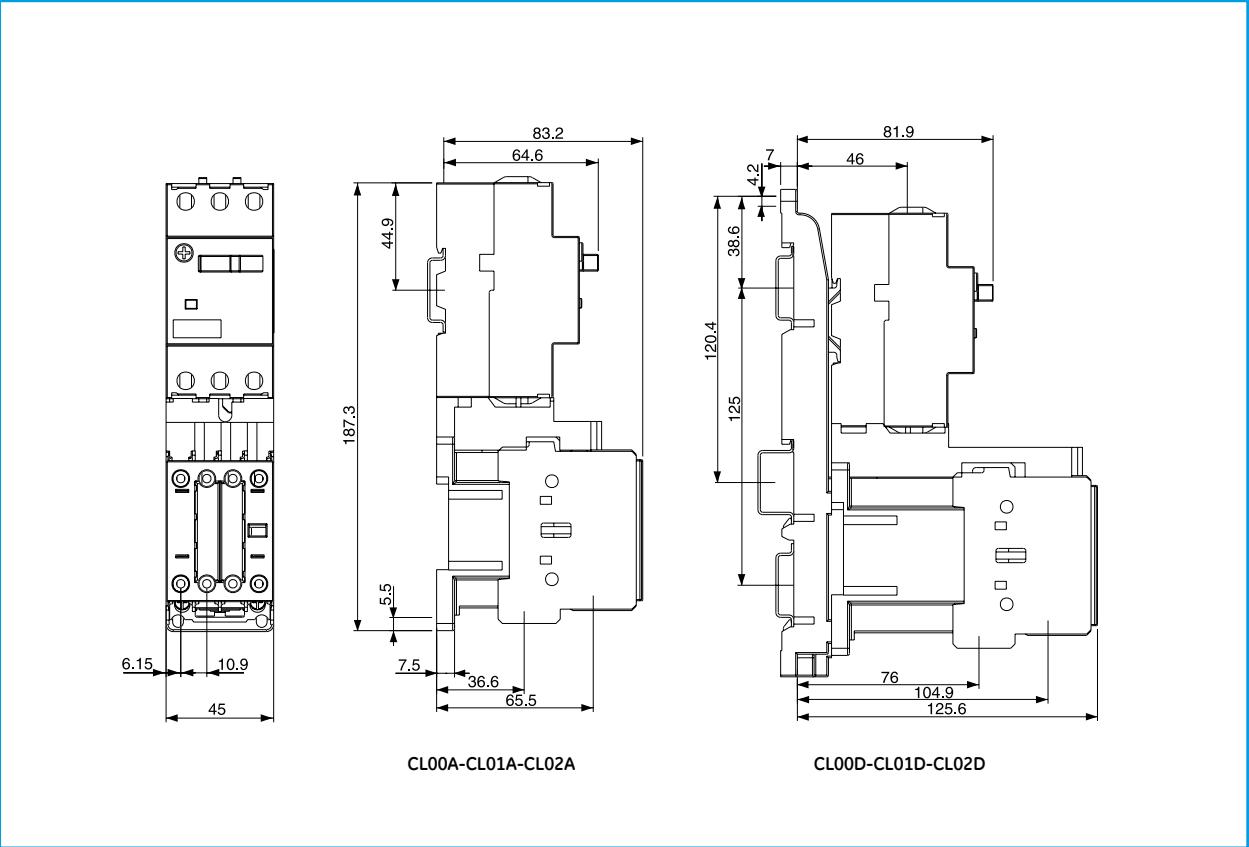


Dimensional drawings

Fuseless starter - GPS1 rocker + Minicontactor MC



Fuseless starter - GPS1 rocker + Contactor CL00-CL01-CL02



Dimensions

A

B

C

D

E

F

G

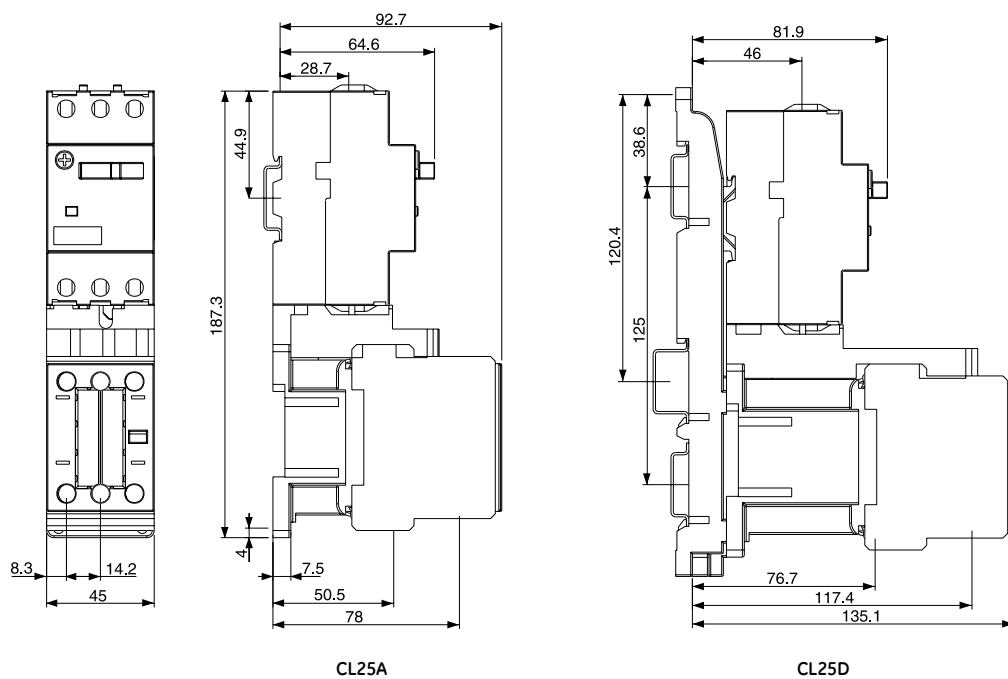
H

I

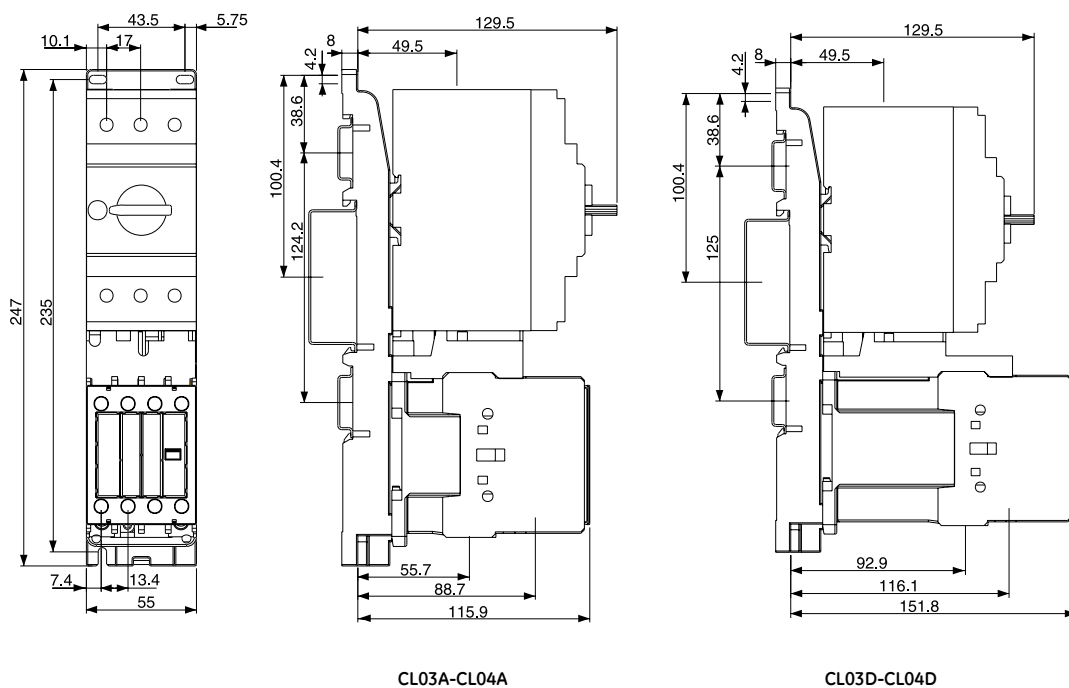
X



Fuseless starter - GPS1 rocker + Contactor CL25

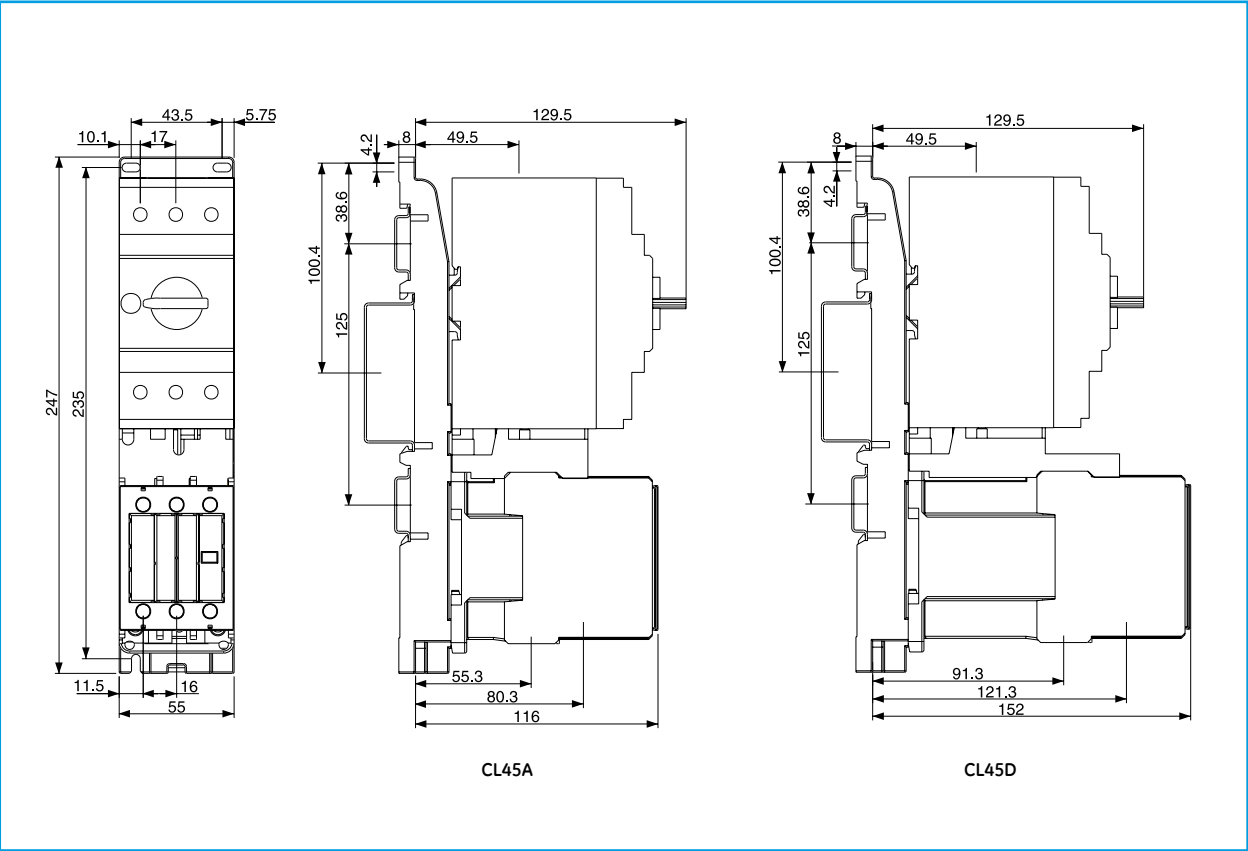


Fuseless starter - GPS2 + Contactor CL03-CL04

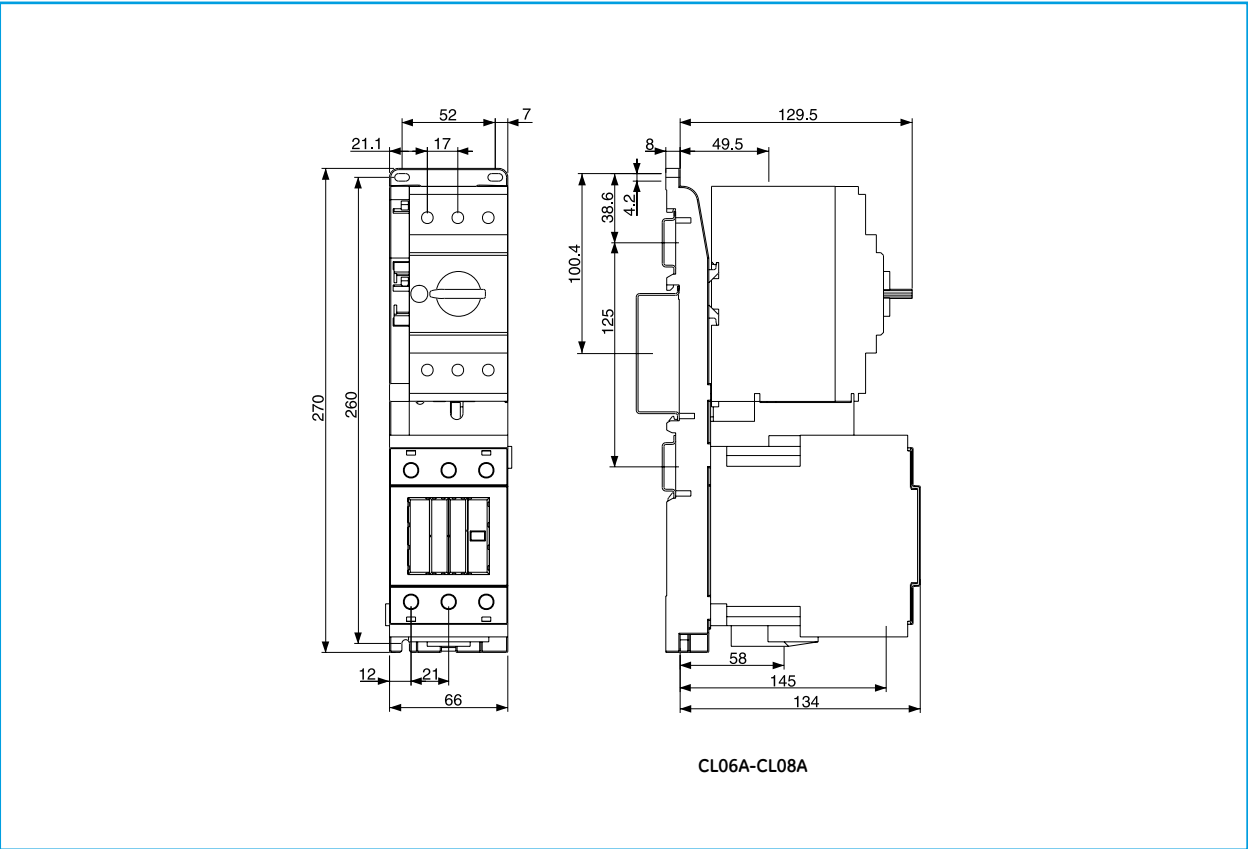


Dimensional drawings

Fuseless starter - GPS2 + Contactor CL45



Fuseless starter - GPS2 + Contactor CL06-CL08



Dimensions

A

B

C

D

E

F

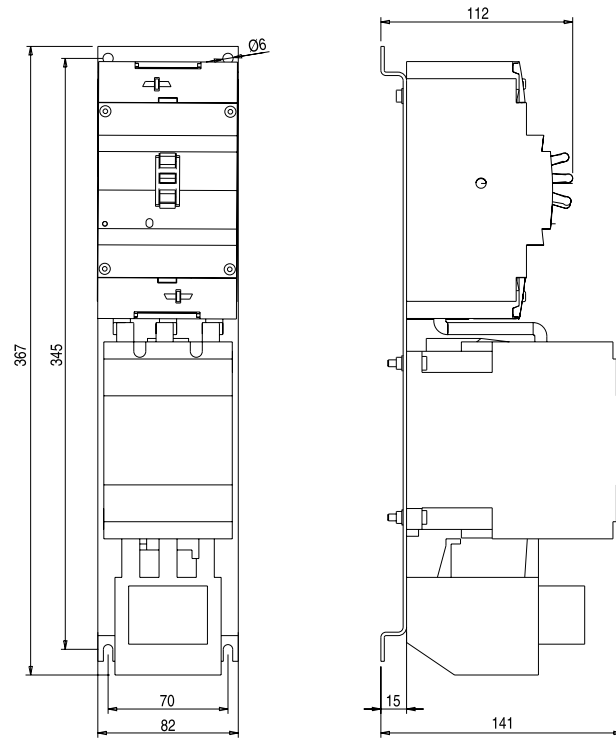
G

H

I

X

Fuseless starter - Record Plus + Contactor CL09 + Thermal overload relay RT2





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Direct-on-line starters

Series M 6 to 12A (AC-3)

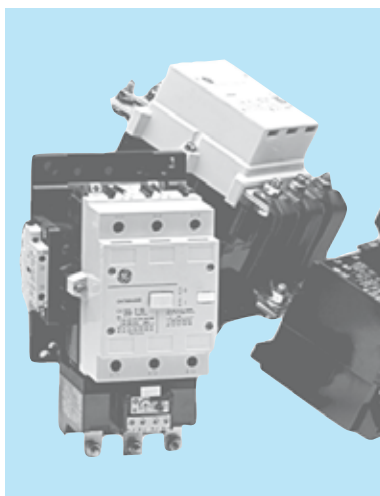
- Power circuit: up to 690V AC
- Control circuit: up to 600V AC
- Polycarbonate enclosure (IP40 - IP65)
 - Shock resistance
 - Total insulation §
 - 4 knock-out input holes PG13.5
 - Cable entry in the base
- Terminals protected against accidental contact
- 16 setting ranges from 0.11 up to 14A
- Start contact block



Order codes | page D.19
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Series CL 9 to 40A (AC-3)

- Power circuit: up to 690V AC
- Control circuit: up to 690V AC
- IP00 version
- Polycarbonate enclosure (IP40 - IP65)
 - Shock resistance
 - Total insulation §
 - 4 knock-out input holes
- Empty enclosures version
- Start contact block



Order codes | page D.19
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Series CK 150 to 825A (AC-3)

- Power circuit: up to 1000V AC
- Control circuit: up to 690V AC
- Protection degree IP00
- Terminals protected against accidental contact: IP20
 - KG75 to KG12: Coil and auxiliary terminals with built-in protection
Main terminals protector on request
 - KG13: Coil and auxiliary terminals with built-in protection

Series M - Direct-on-line starters

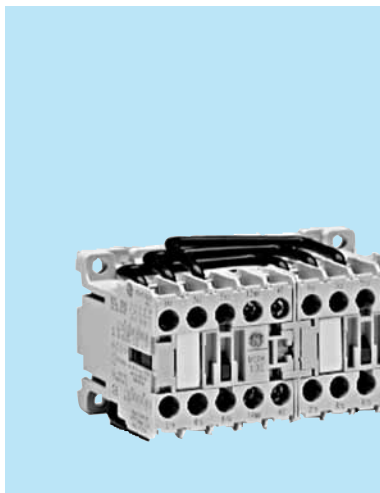
		Push-buttons	Protection degree		Cat. no.	Ref. no	Pack
Empty boxes		Start/Stop + Reset	IP40		MG0004PAT0	209780	1
			IP65		MG0006PAT0	209781	1
		Reset only	IP40		MG0004RAT0	137567	1
			IP65		MG0006RAT0	116402	1
		Start/Emergency stop	IP40		MG0004QAT0	137566	1
			IP65		MG0006QAT0	116074	1
Start contact block	Laterally mounted to the contactor, allowing the electrical operation the box push-button which incises on it.				MAGL110AT	100608	1

Series CL - Direct-on-line starters

	For use with	Push-buttons	Protection degree		Cat. no.	Ref. no	Pack
Empty boxes	CL00, CL01, CL02	Start/Stop + Reset	IP40		LG0004P1B0	209344	1
			IP65		LG0006P1B0	200004	1
		Without push-buttons	IP40		LG0004S1B0	209347	1
			IP65		LG0006S1B0	116011	1
		Only Reset	IP40		LG0004R1B0	116651	1
			IP65		LG0006R1B0	116652	1
	CL25	Start/Stop + Reset	IP40		LG2504P1B0	100885	1
			IP65		LG2506P1B0	101095	1
		Only Reset	IP40		LG2504R1B0	116226	1
			IP65		LG2506R1B0	133611	1
	CL04	Start/Stop + Reset	IP40		LG0404P1B0	116653	1
			IP65		LG0406P1B0	116656	1
		Only Reset	IP40		LG0404R1B0	133264	1
			IP65		LG0406R1B0	133265	1
	CL25, CL04	Without push-buttons	IP40		LG0404S1B0	116996	1
			IP65		LG0406S1B0	116997	1
Neutral terminal					BNL	104797	10
Conversion to permanent control	Pressure-fixed between push-buttons in direct-on-line enclosures for mechanical interlocking into permanent control.				EPL	104798	10
Start contact block	Pressure-fixed onto the front of direct-on-line starters allowing electrical operation using the start push-button on the enclosure				BMLF	104800	10

Series CK - Direct-on-line starters. IP00

			Cat. no.	Ref. no.	Pack
Connection sets	Busbar set for power circuit	CK85, CK09, CK95	KVP85G	104770	1
		CK10, CK11	KVP10G	104771	1
		CK12	KVP12G	104767	1
Plate	Metallic plate	CK85, CK09, CK95	PVP85G	241747	1
		CK10, CK11	PVP10G	241748	1
		CK12	PCP12G	241749	1

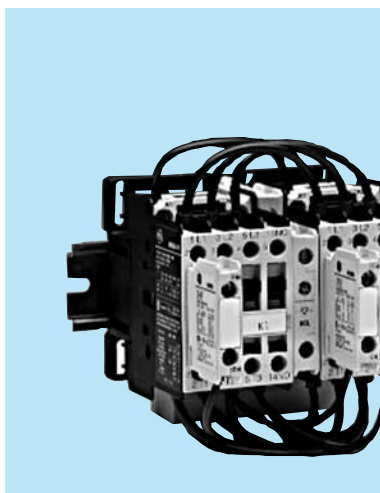


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Reversing starters

Series M 6 to 12A (AC-3)

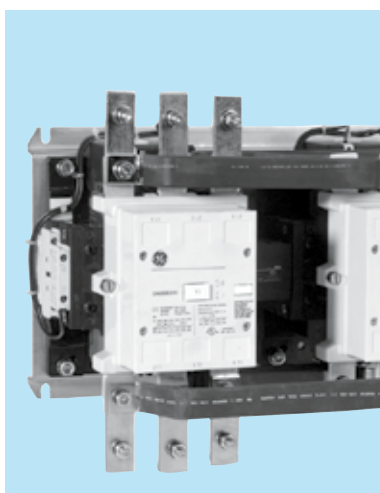
- Power circuit: up to 690V AC
- Control circuit: up to 600V AC
up to 250V DC
- Assembled versions on request.
- Screw and push-on terminals protected against accidental contact.
- Protection degree IP20 in accordance with EN 60529.
- Facility to mount instant and timed auxiliary contact blocks and voltage suppressor blocks.



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Series CL 9 to 105A (AC-3)

- Power circuit: up to 690V AC
- Control circuit: up to 690V AC
- Protection degree IP00



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Series CK 150 to 825A (AC-3)

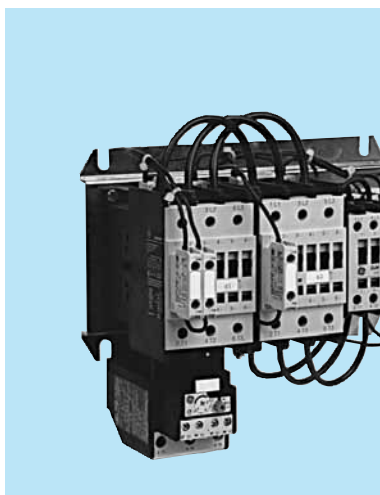
- Power circuit: up to 1000V AC
- Control circuit: up to 690V AC
- Protection degree IP00

Series M and CL - Reversing starters

 Wiring kits for reversing starters	Description	For use with contactor	ac/dc	Cat. no.	Ref. no.	Pack.
	Suitable to be used with link modules Upper and lower connections without overload relays	MC0.., MC1.., MC2..	ac/dc	WKMIU	101421	1
		CL00.., CL01.., CL02..	ac/dc	WKLI02P	101422	1
		CL25..	ac/dc	WKLI25P	101423	1
		CL03.., CL04..	ac/dc	WKLI04P	101424	1
		CL45..	ac/dc	WKLI45P	101425	1
		CL06A.., CL07A..	ac	WKLI07P	101426	1
Plate	Metallic plate	CL06, CL07, CL08		WKI0910	241751	1
		CL08, CL09, CL10		WKI0608	241752	1

Series CK - Reversing starters. IP00

Connection sets	Description	For use with contactor	Cat. no.	Ref. no.	Pack.
	Busbar set for power circuit	CK75, CK08	KVP75U	113627	1
		CK85, CK09, CK95	KVP85U	113628	1
		CK10, CK11	KVP10U	133374	1
		CK12	KVP12U	113630	1
	Busbar set for power circuit For assembly with thermal overload relay.	CK75, CK08	KVP75I	133370	1
		CK85, CK09, CK95	KVP85I	113631	1
		CK10, CK11	KVP10I	133371	1
		CK12	KVP12I	113633	1
Plate	Metallic plate	CK75, CK08	KVB75I	104690	1
		CK85, CK95	KVB95I	104691	1
		CK10, CK11	KVB10I	104692	1
		CK12	KVB12I	104693	1

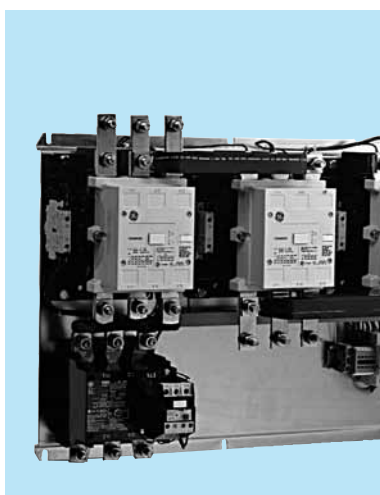


Order codes | page D.23
Wiring diagrams | page D.29
Dimensions | page D.35

Star-delta starters

Series CL

- Power circuit: up to 690V AC
- Control circuit: up to 690V AC
- Protection degree IP00
- Use delay setting by electronic relay NMET
- Terminals protected against accidental contact



Order codes | page D.23
Wiring diagrams | page D.29
Dimensions | page D.35

Series CK

- Power circuit: up to 1000V AC
- Control circuit: up to 690V AC
- Protection degree IP00
- Protection against accidental contacts: IP20
 - KE75: Built-in protection
 - KE08 - KE12: Coil and auxiliary terminals with built-in protection
Main terminals protector on request
 - KE13: Coil and auxiliary terminals with built-in protection

Series CL - Star-delta starters

		Line-delta contactor		Cat. no.	Ref. no.	Pack
Busbar sets for power circuit		CL00		WKLE00	103238	1
		CL01, CL02		WKLE02	103241	1
		CL25		WKLE25	103243	1
Plate	Metallic plate	CL06, CL07, CL08		WLSD	103247	1
		CL09, CL10		WLSD1	241750	1

Series CK - Star-delta starters. IP00

		Line-delta contactor	Star contactor	Cat. no.	Ref. no.	Pack
Busbar sets for power circuit		CK75, CK08	CK75, CK08	KVP75E	133378	1
		CK85, CK09, CK95	CK75, CK08	KVP08E	116212	1
		CK95	CK85, CK09, CK95	KVP85E	133379	1
		CK10, CK11	CK85, CK09, CK95	KVP95E	113637	1
		CK10, CK11	CK10, CK11	KVP10E	133380	1
		CK12	CK10, CK11	KVP12E	116235	1
Plate	Metallic plate	CK75, CK08		KVB75E	104694	1
		CK85, CK95		KVB95E	104695	1
		CK10, CK11		KVB10E	104597	1
		CK12		KVB12E	104587	1

A

B

C

D

E

F

G

H

I

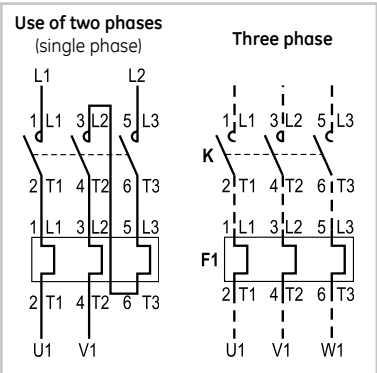
X

Series M, CL

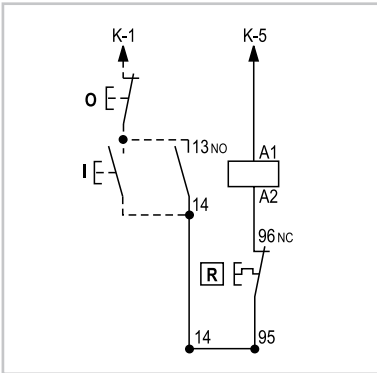
Wiring diagrams

Series M. Direct-on-line starter with reset

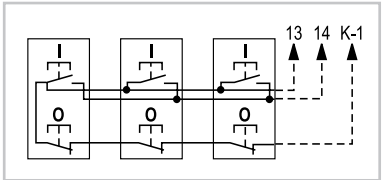
Power circuit



Control circuit

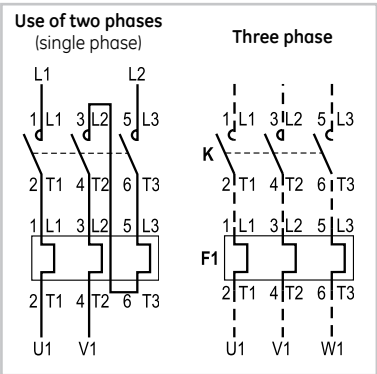


Control by two or more push-buttons

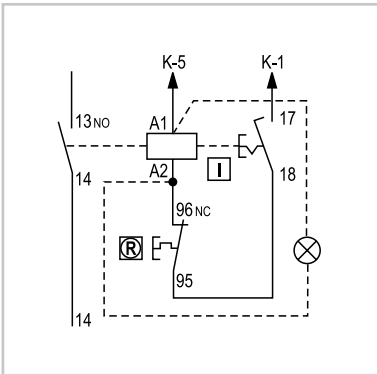


Series M. Direct-on-line starter with start/emergency stop push-button

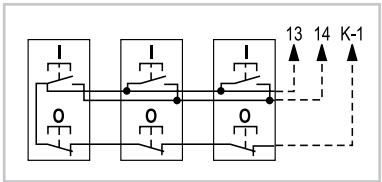
Power circuit



Control circuit

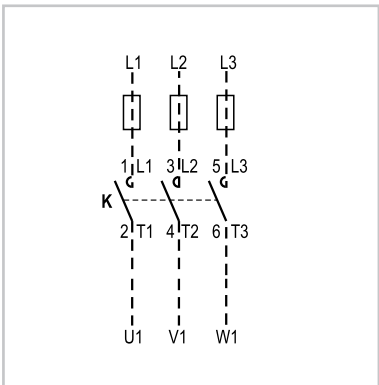


Control by two or more push-buttons

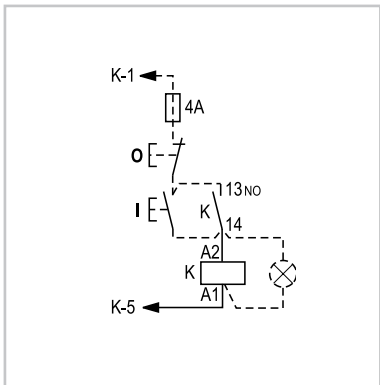


Series CL. Direct-on-line starter

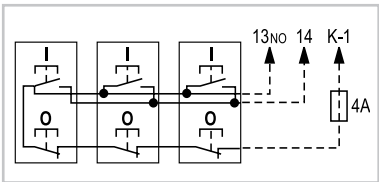
Power circuit



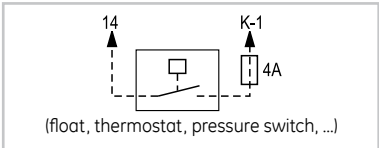
Control circuit



Control by two or more push-buttons

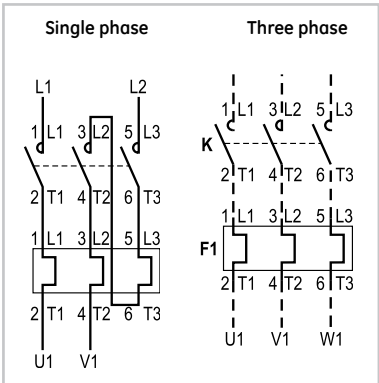


Control by permanent contact

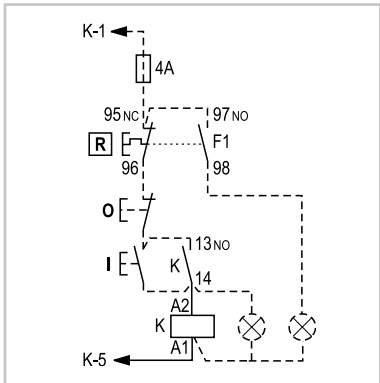


Series CL. Direct-on-line starter with reset push-button

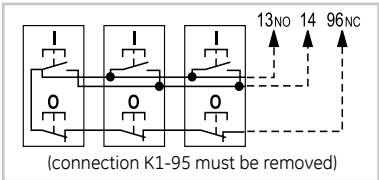
Power circuit



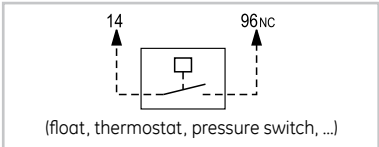
Control circuit



Control by two or more push-buttons

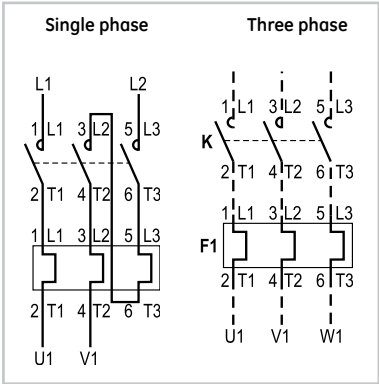


Control by permanent contact

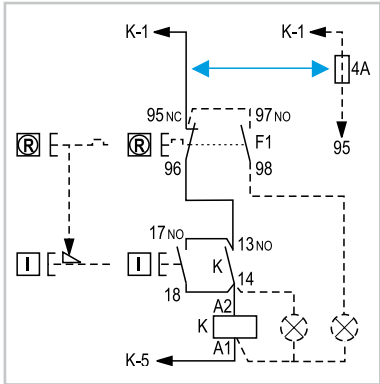


Series CL. Direct-on-line starter with start/stop/reset push-button

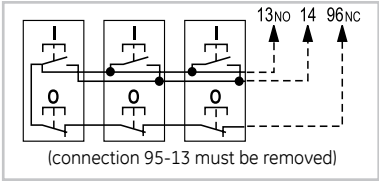
Power circuit



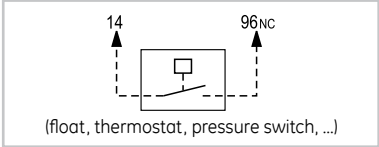
Control circuit



Control by two or more push-buttons



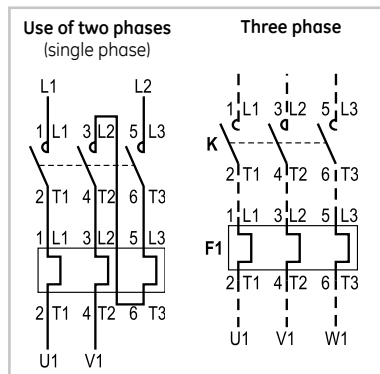
Control by permanent contact



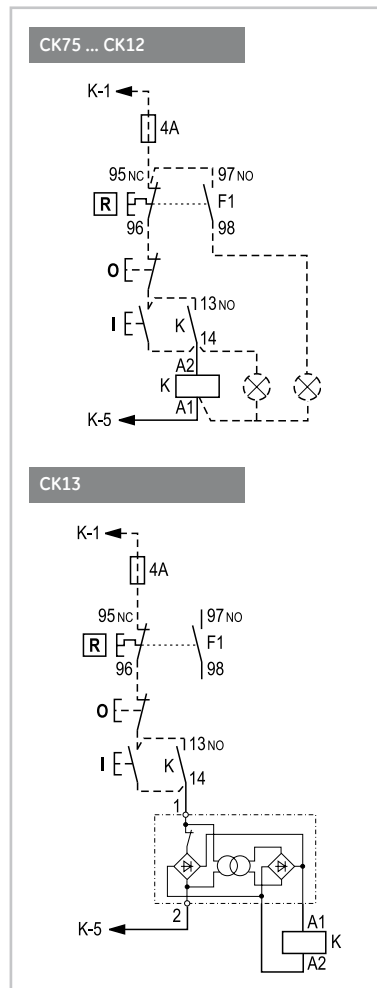
Wiring diagrams

Series CK. Direct-on-line starter

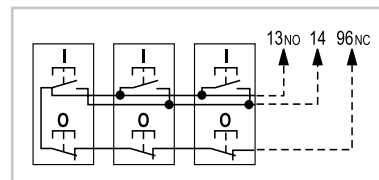
Power circuit



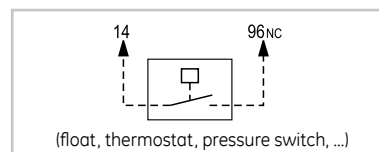
Control circuit



Control by two or more push-buttons



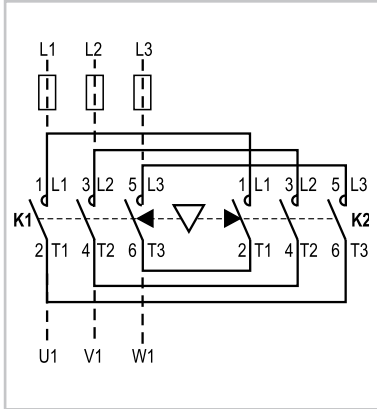
Control by permanent contact



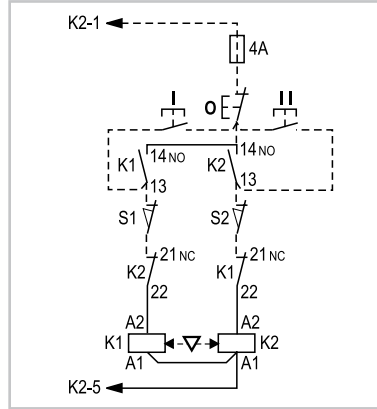
Wiring diagrams

Series M. Reversing starter without thermal overload relay

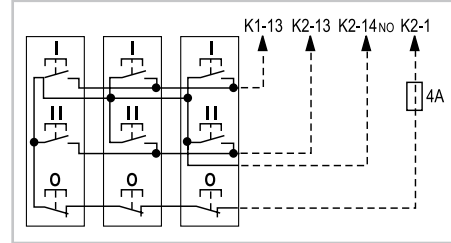
Power circuit



Control circuit

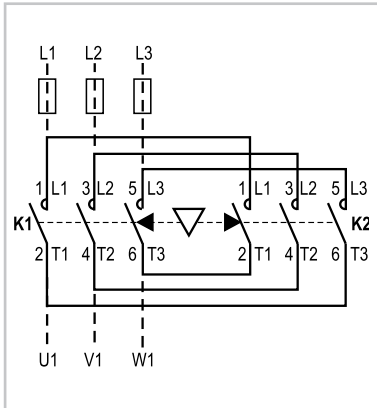


Control by two or more push-buttons

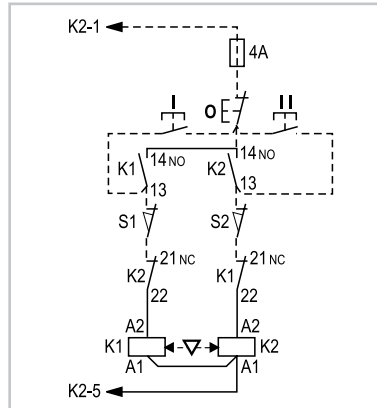


Series CL. Reversing starter without thermal overload relay

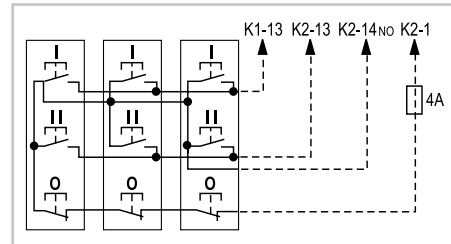
Power circuit



Control circuit

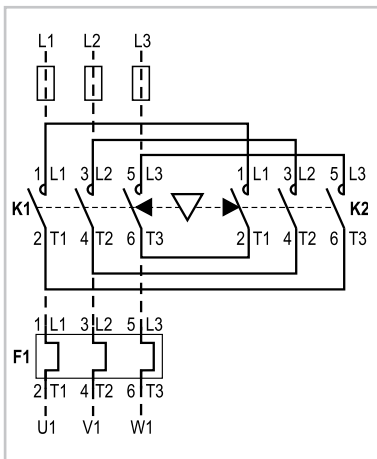


Control by two or more push-buttons

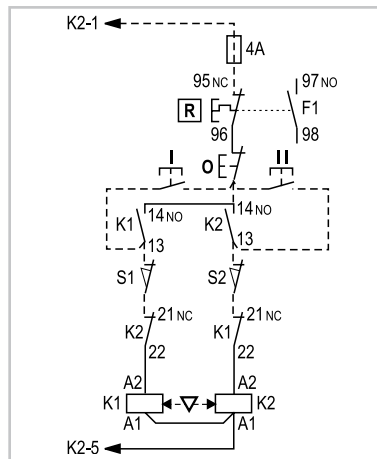


Series CL. Reversing starter with thermal overload relay

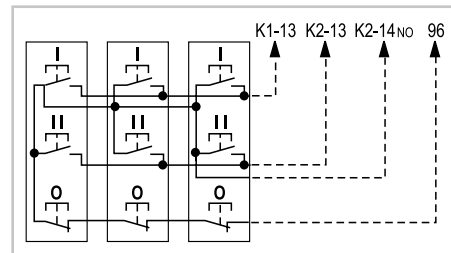
Power circuit



Control circuit

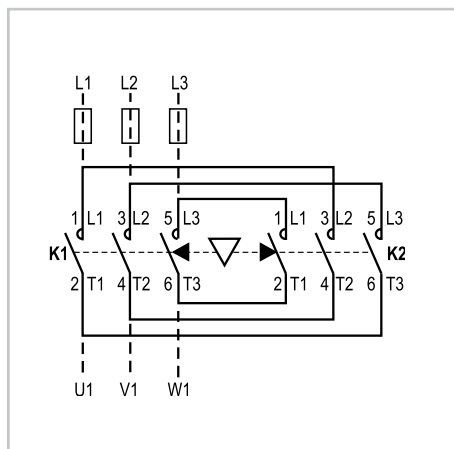


Control by two or more push-buttons

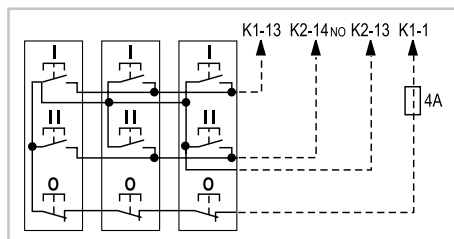


Series CK. Reversing starter without thermal overload relay

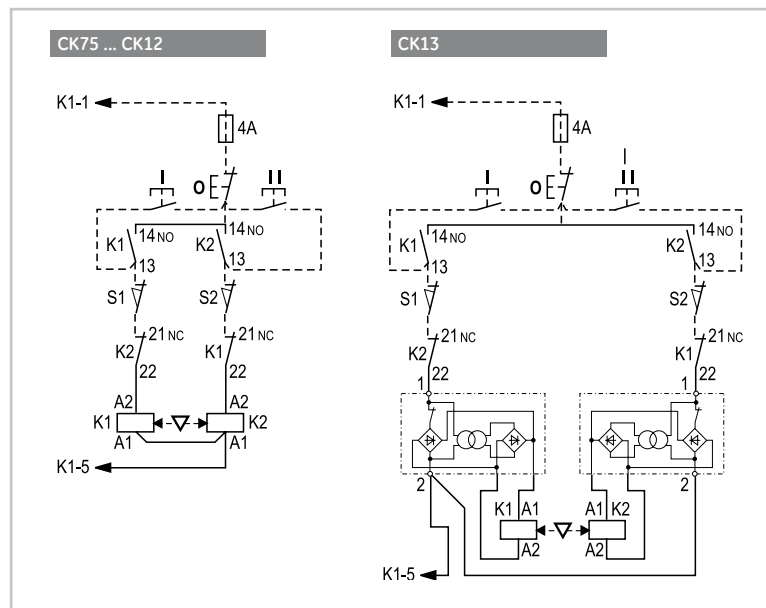
Power circuit



Control by two or more push-buttons

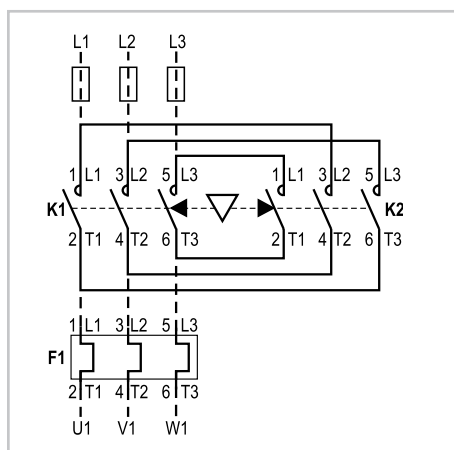


Control circuit

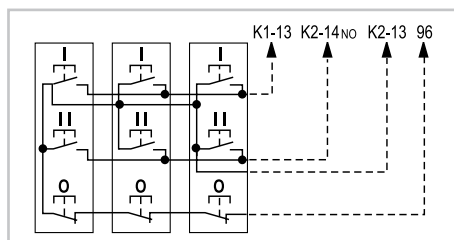


Series CK. Direct-on-line starters with thermal overload relay

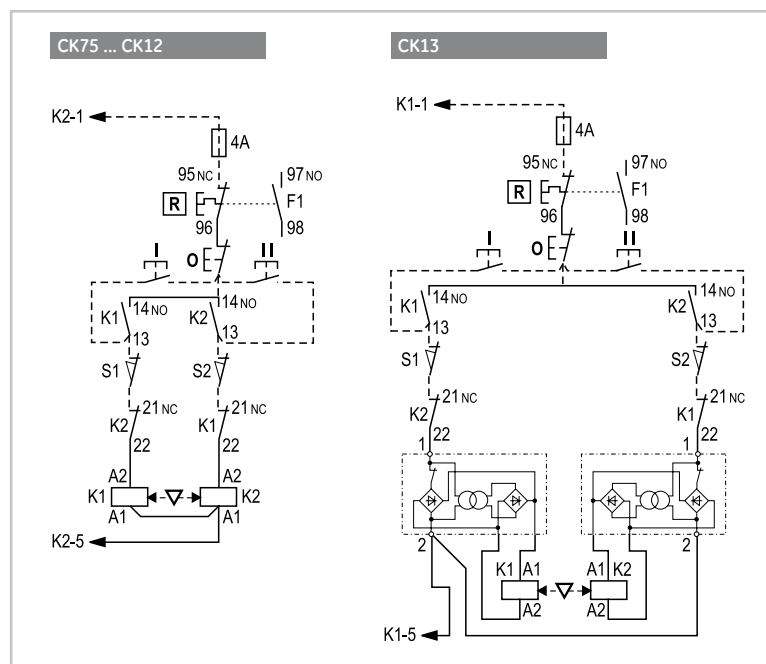
Power circuit



Control by two or more push-buttons



Control circuit



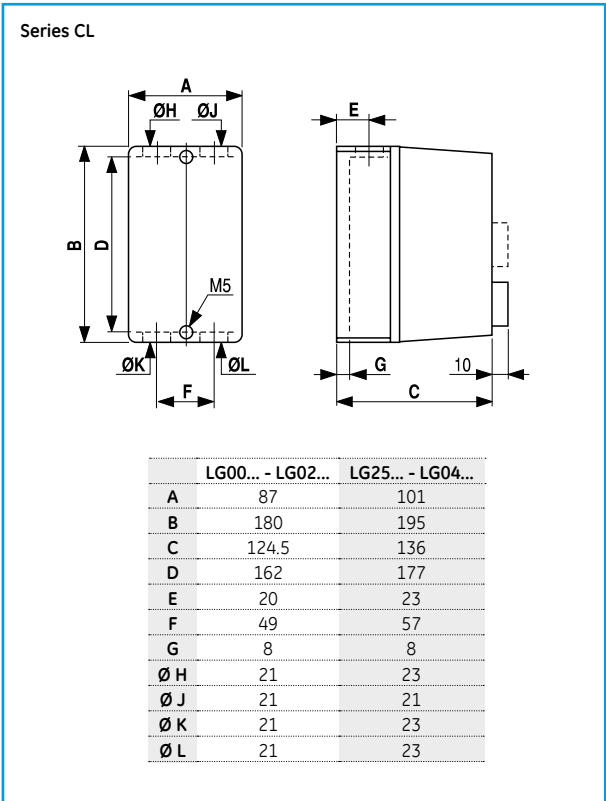
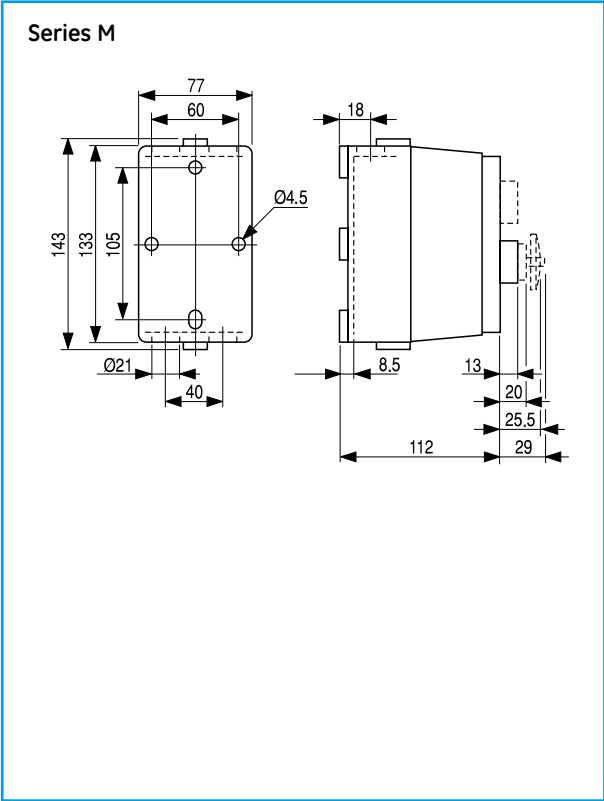
Series CL and CK. Star-delta starters

The diagram illustrates a three-phase motor control system. The main circuit is powered by a three-phase supply (L1, L2, L3) with a frequency of 50Hz and a voltage of 220V. The main switch (S0A) and the main circuit breaker (K1M) are connected in series with the motor (K2M, K3M, K1M). The control circuit is connected between two phases and includes a stop button (K4A) and a thermal relay (K1M). The thermal relay (K1M) is connected in series with the motor (K2M, K3M, K1M) to provide overload protection. The stop button (K4A) is connected in parallel with the thermal relay (K1M) to stop the motor.

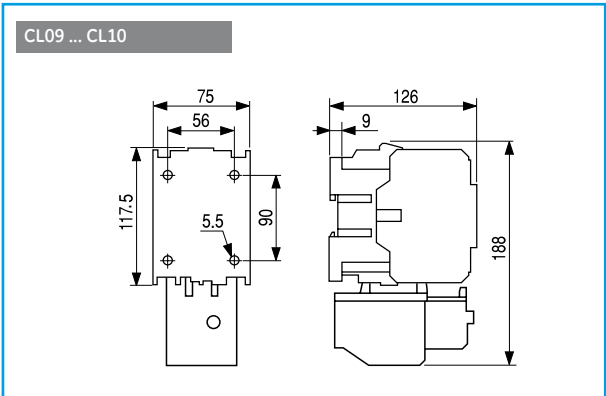
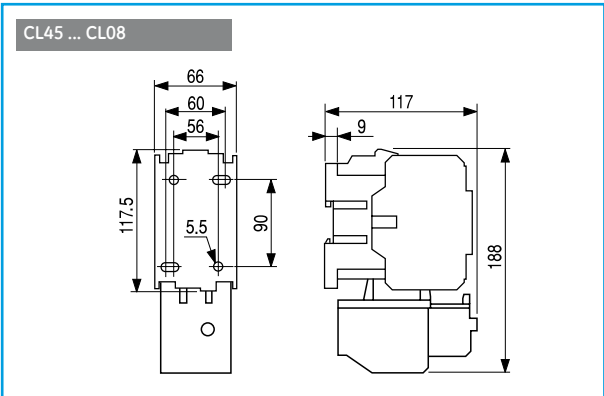
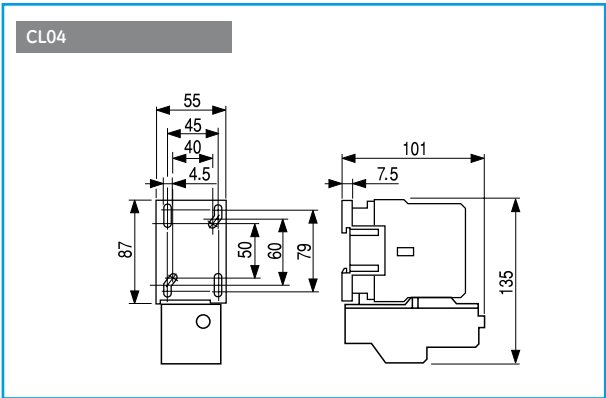
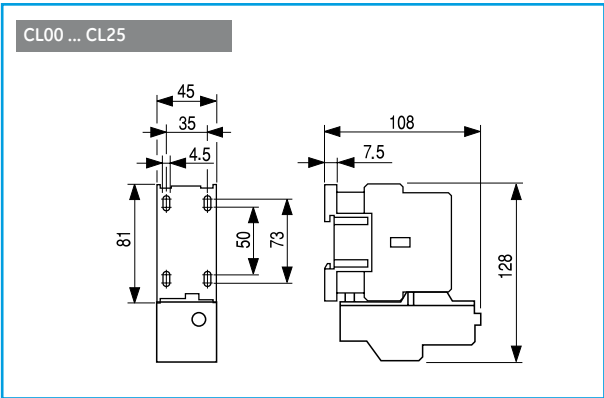
Series M, CL, CK

Dimensional drawings

Direct-on-line starters. IP40 / IP65

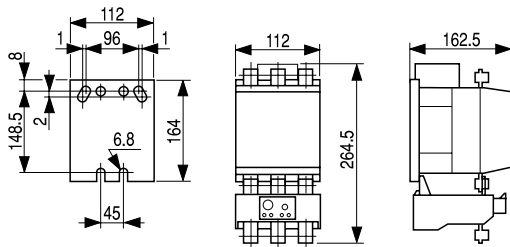


Series CL - Direct-on-line starters

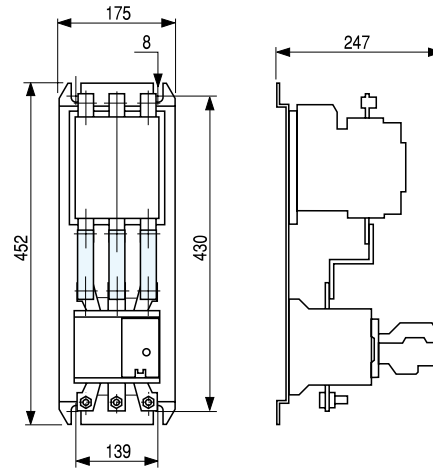


Series CK - Direct-on-line starters

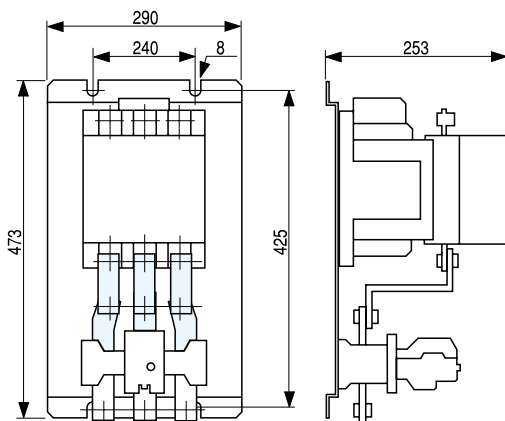
CK75 ... CK08



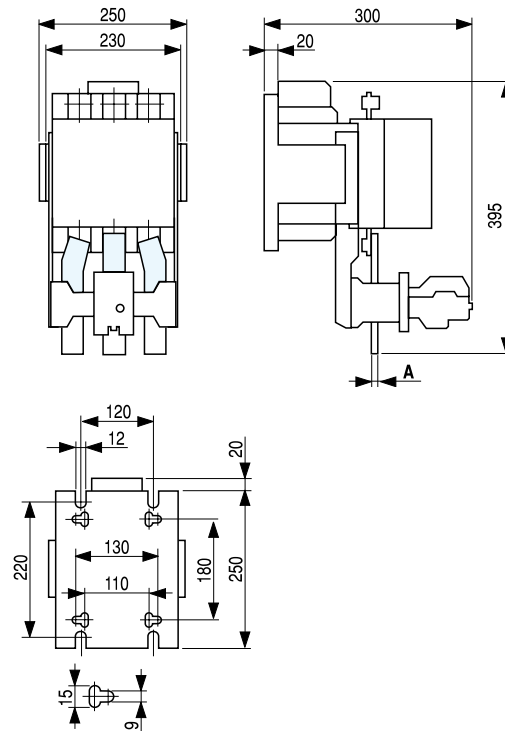
CK85 ... CK95



CK10 ... CK11

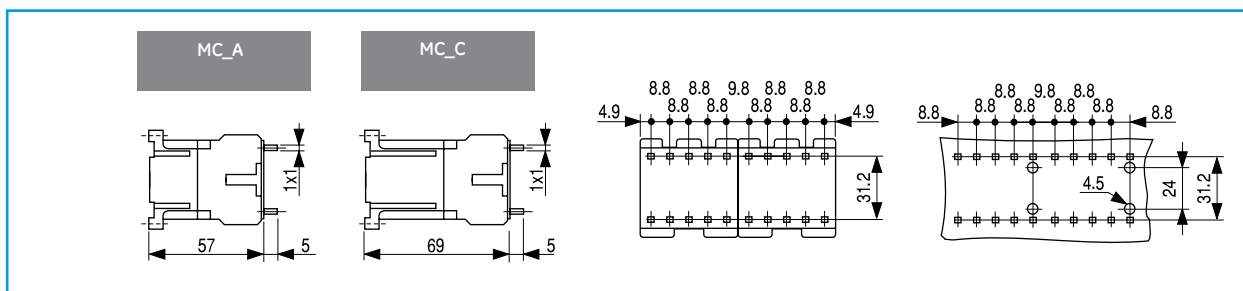
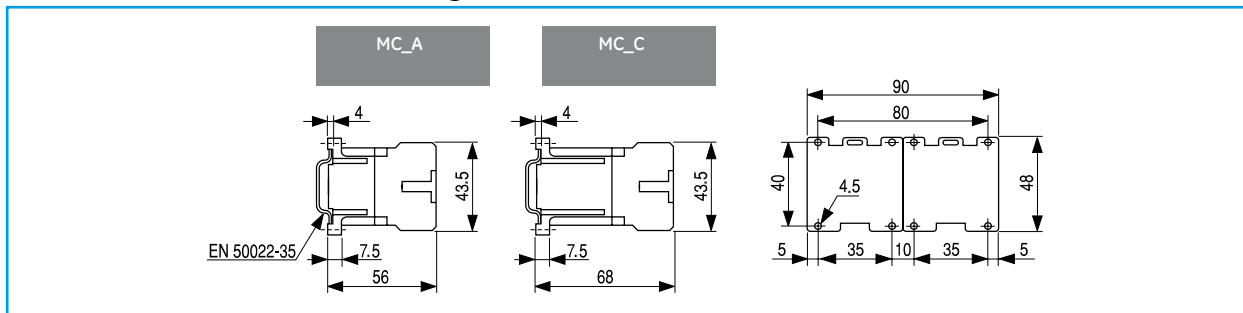


CK12

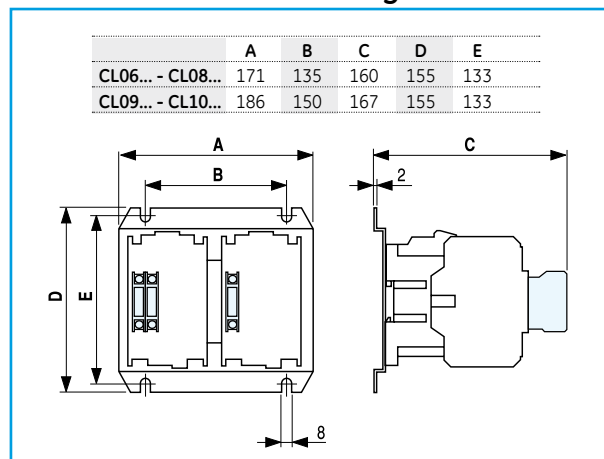
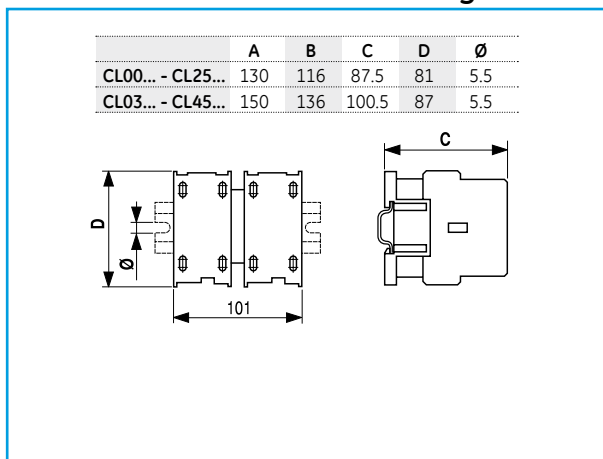


Dimensional drawings

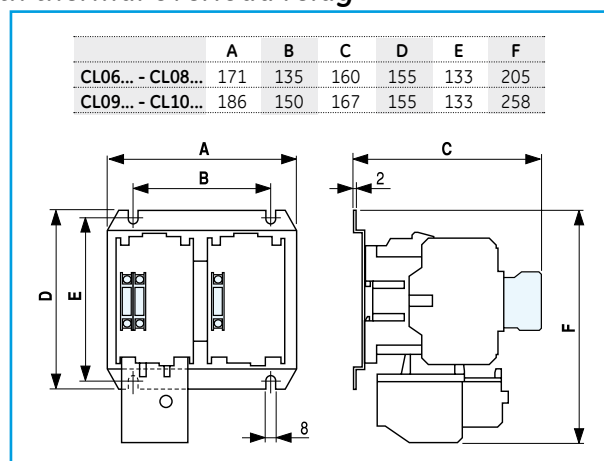
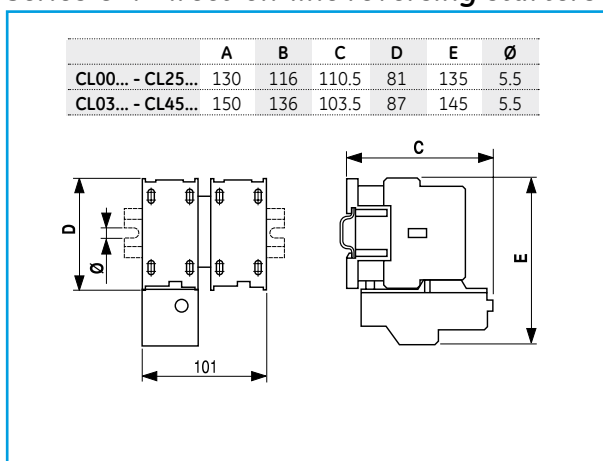
Series M. Direct-on-line reversing starters



Series CL. Direct-on-line reversing starters without thermal overload relay

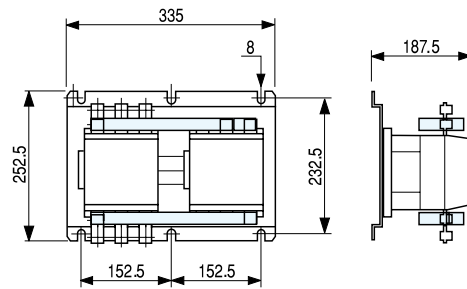


Series CL. Direct-on-line reversing starters with thermal overload relay

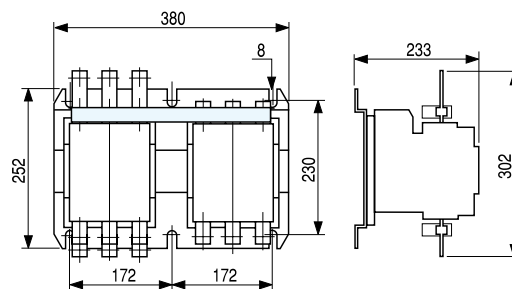


Series CK. Direct-on-line reversing starters without thermal overload relay

CK75 CK08

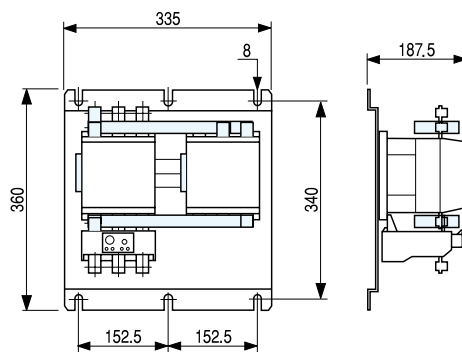


CK85 CK95

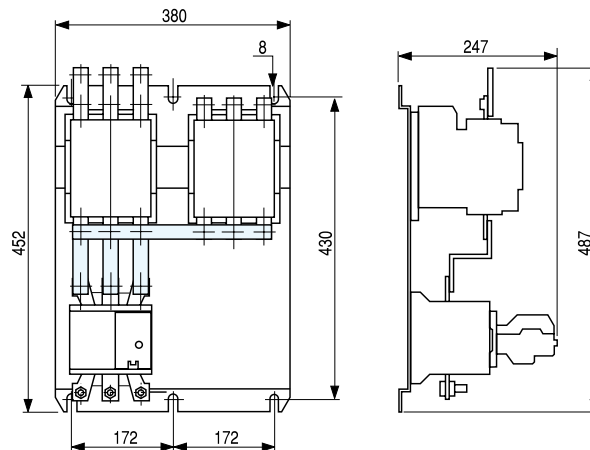


Series CK. Direct-on-line reversing starters with thermal overload relay

CK75 CK08



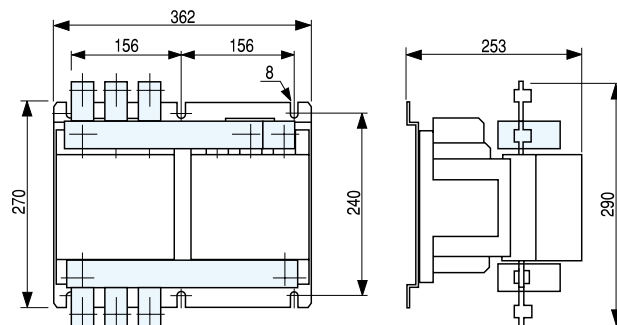
CK85 CK95



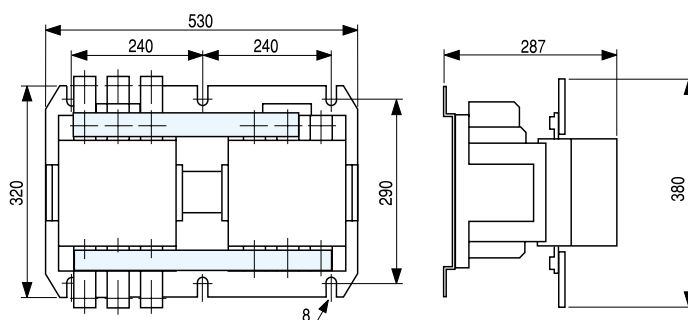
Dimensional drawings

Series CK - Direct-on-line reversing starters without thermal overload relay

CK10 CK11

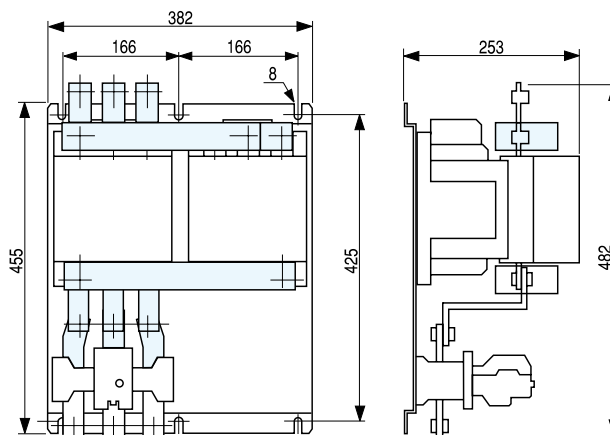


CK12

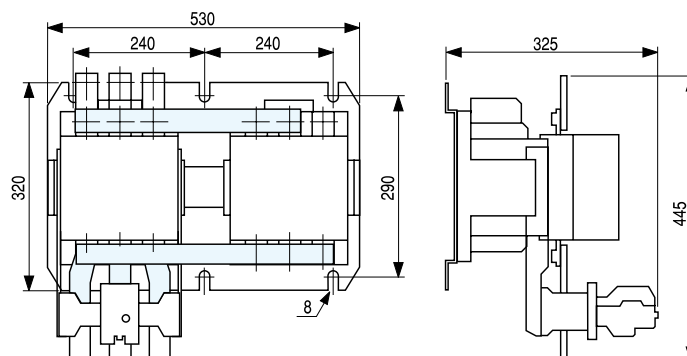


Series CK - Direct-on-line reversing starters with thermal overload relay

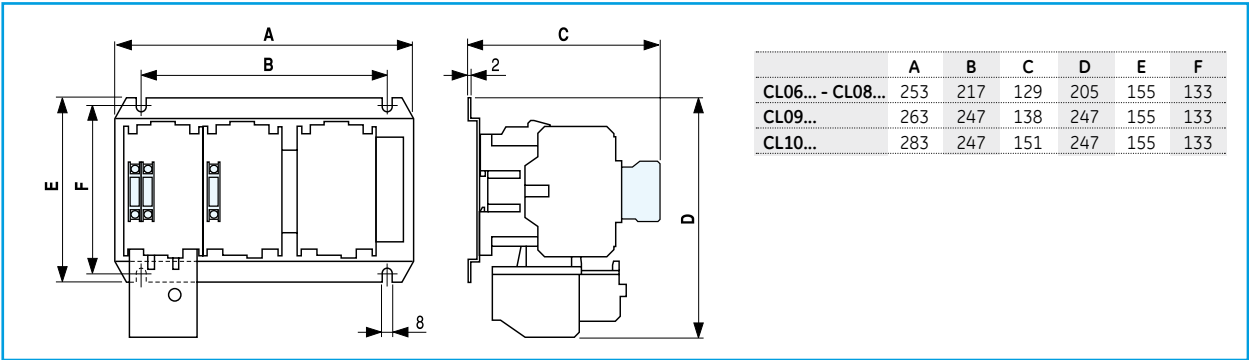
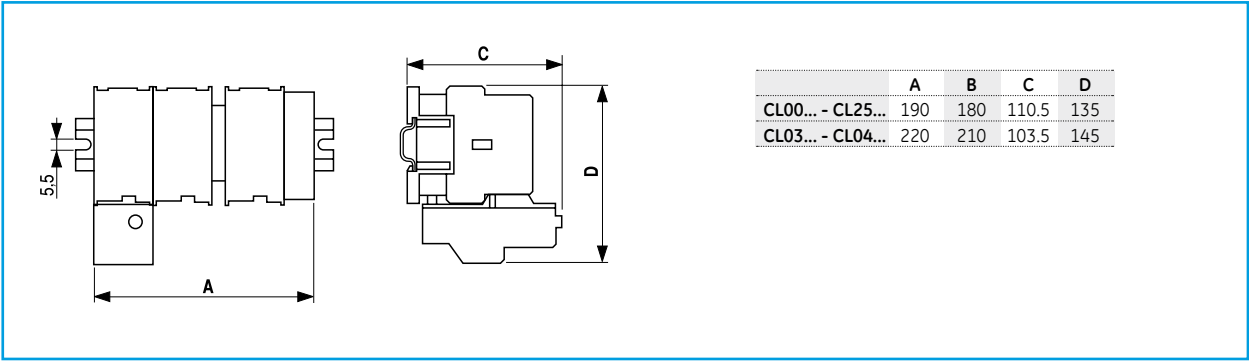
CK10 CK11



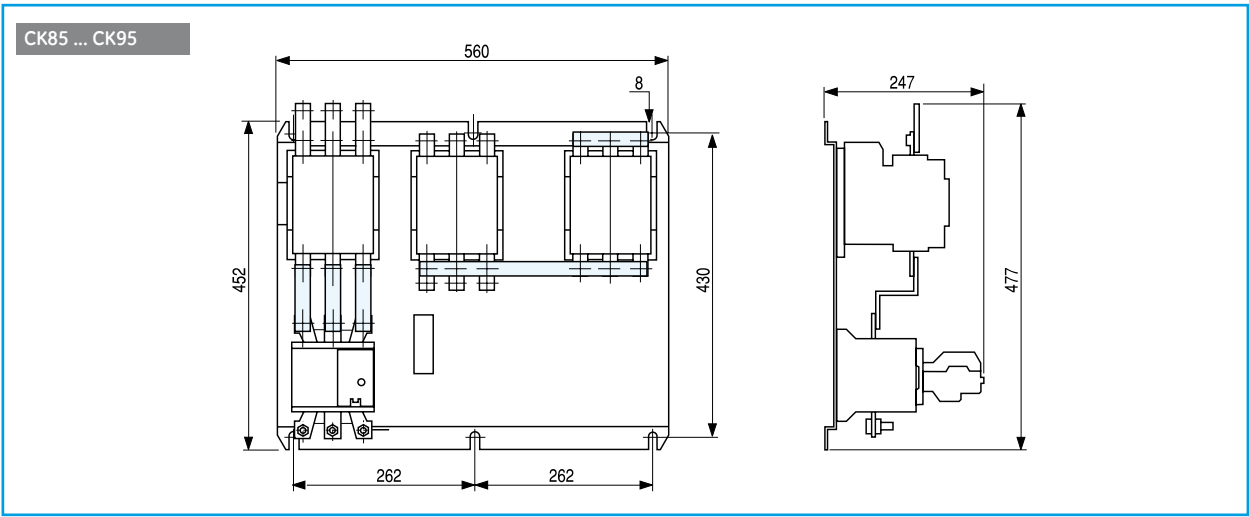
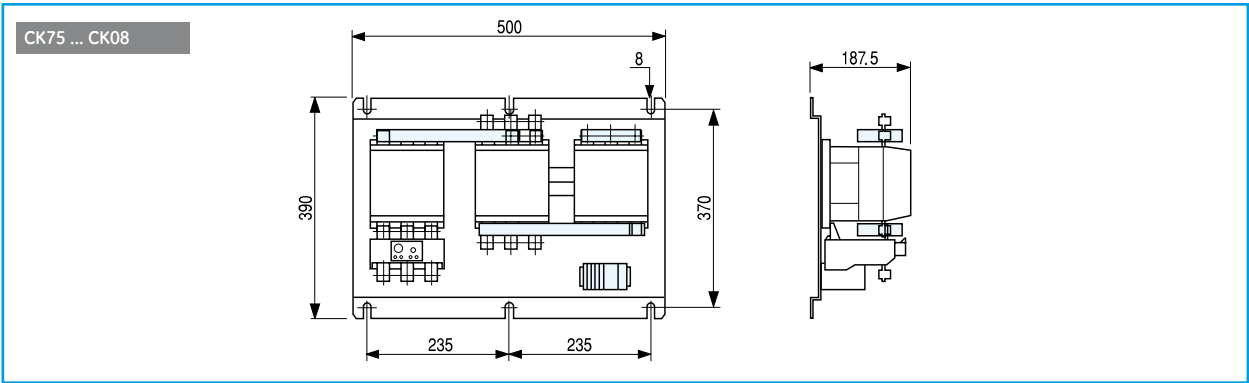
CK12



Series CL - Star-delta starters



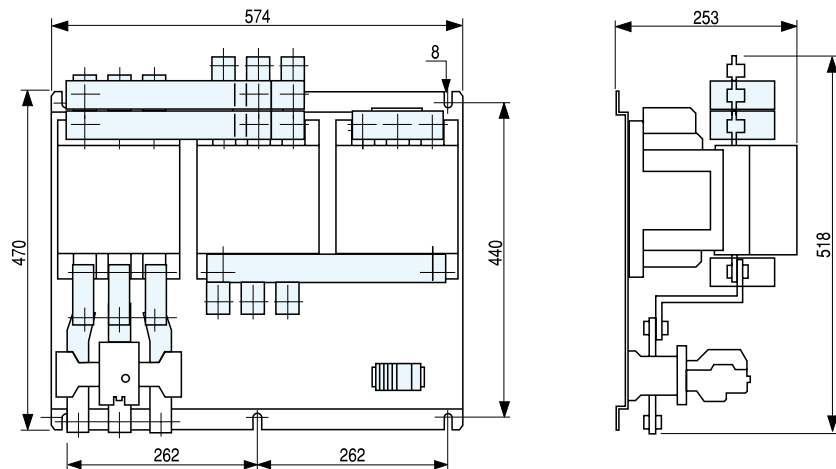
Series CK - Star-delta starters



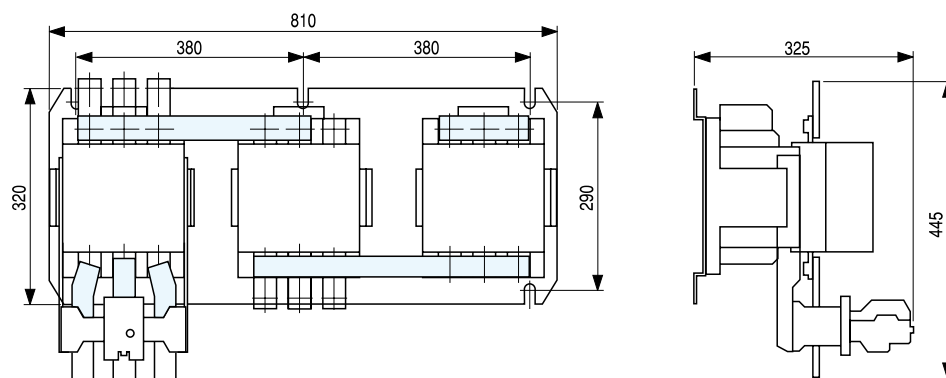
Dimensional drawings

Series CK - Star-delta starters

CK10 ... CK11



CK12



Notes

Grid of dots for notes.

REGIONAL OFFICES

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Haryana - 122002
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