

Control and Automation

For industrial applications ED.03

Contactors and Thermal overload relays



GE imagination at work

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NEW

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NEW

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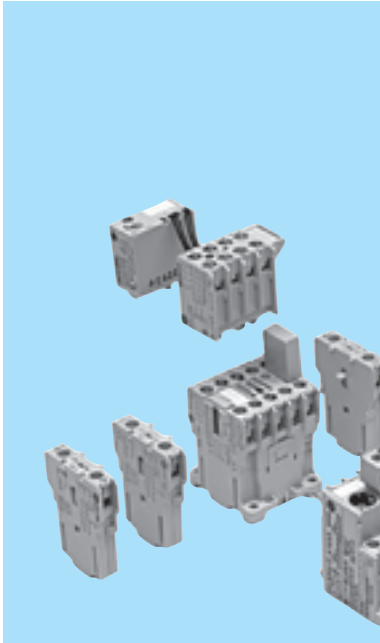
Main switches

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Three and four pole minicontactors 6, 9 and 12A (AC3) 20A (AC1)

- Control circuit: Alternating current up to 600V
Direct current up to 440V
- Terminal numbering in accordance with EN 50012
- Fixing by clipping onto 35 mm DIN rail (EN 50022-35) or by screws
- Screws and fast-on terminals protected against accidental contact in accordance with VDE 0106 T.100 and VBG4
- Versions: Ring terminal and printed circuit terminals
- Facility to mount instant and timed auxiliary contact blocks and voltage suppressor block
- Degree of protection IP20 (EN 60529).
- Maximum number of auxiliary contacts to be added: 6

Standards

IEC/EN 60947-1	BS 4794
IEC/EN 60947-4-1	NFC 63-110
IEC/EN 60947-5-1	CSA C22.2/14
EN 50003	VDE 0660
EN 50005	SEV 10254
EN 50012	JIS C8325
UL 508	JEM 1038
NEMA ICS-1	CENELEC HD 419

General data

	MC0...	MC1...	MC2...
Maximum number of poles	4	4	4
Rated thermal current (Ith) $\theta \leq 60^{\circ}\text{C}$	(A) 20	20	20
Rated operational current Ie⁽²⁾ (3x440V, 50/60Hz, AC3)	(A) 6	9	12
Rated insulation current Ui	(V) 750	750	750
Rated operational current Ue	(V) 690	690	690

Approvals



- Order codes pg. C.3
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- Accessories pg. C.8
- Technical data pg. C.23
- Terminal numbering pg. C.29
- Dimensions pg. C.50

Standard voltages

To complete the catalogue number, replace the symbol \blacklozenge by the code corresponding to the voltage and frequency of the control circuit (other voltages on request)

Alternating current (V). Bifrequency coil

\blacklozenge	10	1	2	9	3	4	5	6	7	8	12	13
AC	12	24	42	48	110	120	220	230	240	440	380	400
50/60Hz					115							

Operating voltages limits with bifrequency coils:

With 60Hz = 0.85 to 1.1 x Us

With 50Hz = 0.8 to 1.1 x Us in continuous service (ED=100%) with a maximum ambient temperature of 40°C

Alternating current (V).

\blacklozenge	A	E	G	K	M	N	S	U	W	Y
AC			48	115		220	260	380	415	500
50Hz				127		240		400	440	
AC	6	32	60		208	240		440	480	600
60Hz					220	277				

Direct current (V)

\blacklozenge	A	B	C	D	E	F	G	H	I	J	K	L	N	17	R	S	16
DC	6	12	32	24	36	42	48	60	72	110	120	125	220	230	240	250	440

Direct current (V) - Wide voltage range

\blacklozenge	WD	WE	WG	WI	WJ	WN
DC	24	33	48	72	110	220



Three pole minicontactors

Max.operat.current Non- inductive loads AC1 ⁽²⁾ A	Motors <440V, 3 ~ 50/60Hz AC3 ⁽³⁾ A	Admissible power AC3					Aux. contacts		Control circuit: Alternating current		Control circuit: Direct current	
		1-phase 115V 220V		3-phase 220V 380V 500V 230V 400V			.3 .4	.1 .2	Cat. no. ⁽¹⁾	Pack	Cat. no. ⁽¹⁾	Pack
		kW HP	kW HP	kW HP	kW HP	kW HP			Ref. no. see bottom		Ref. no. see bottom	
Terminal: screw												
20	6	0.37	0.75	1.5	2.2	3	1	0	MC0A310AT	20	MC0C310AT	10
		0.5	1	2	3	4	0	1	MC0A301AT	20	MC0C301AT	10
20	9	0.56	1.12	2.2	4	4	1	0	MC1A310AT	20	MC1C310AT	10
		0.75	1.5	3	5.5	5.5	0	1	MC1A301AT	20	MC1C301AT	10
20	12	0.75	2	3	5.5	5.5	1	0	MC2A310AT	20	MC2C310AT	10
		1	2.6	4	7.3	7.3	0	1	MC2A301AT	20	MC2C301AT	10
Terminal: ring terminal												
20	6	0.37	0.75	1.5	2.2	3	1	0	MC0A310AR	20	MC0C310AR	10
		0.5	1	2	3	4	0	1	MC0A301AR	20	MC0C301AR	10
20	9	0.56	1.12	2.2	4	4	1	0	MC1A310AR	20	MC1C310AR	10
		0.75	1.5	3	5.5	5.5	0	1	MC1A301AR	20	MC1C301AR	10
20	12	0.75	2	3	5.5	5.5	1	0	MC2A310AR	20	MC2C310AR	10
		1	2.6	4	7.3	7.3	0	1	MC2A301AR	20	MC2C301AR	10
Terminal: faston 2x2.8 insulated (5)												
16 ⁽⁴⁾	6	0.37	0.75	1.5	2.2	3	1	0	MC0A310AF	20	MC0C310AF	10
		0.5	1	2	3	4	0	1	MC0A301AF	20	MC0C301AF	10
16 ⁽⁴⁾	9	0.56	1.12	2.2	4	4	1	0	MC1A310AF	20	MC1C310AF	10
		0.75	1.5	3	5.5	5.5	0	1	MC1A301AF	20	MC1C301AF	10
Terminal: printed circuit												
20	6	0.37	0.75	1.5	2.2	3	1	0	MC0A310AI	20	MC0C310AI	10
		0.5	1	2	3	4	0	1	MC0A301AI	20	MC0C301AI	10
20	9	0.56	1.12	2.2	4	4	1	0	MC1A310AI	20	MC1C310AI	10
		0.75	1.5	3	5.5	5.5	0	1	MC1A301AI	20	MC1C301AI	10
20	12	0.75	2	3	5.5	5.5	1	0	MC2A310AI	20	MC2C310AI	10
		1	2.6	4	7.3	7.3	0	1	MC2A301AI	20	MC2C301AI	10
Spare coil									MB0A	10	MB0C	10

- (1) To complete the catalogue number, replace the symbol ♦ by the code corresponding to the voltage and frequency of the control circuit (other voltages on request) (see C.2)
- (2) Electrical endurance AC-1: MC0... 0.2 × 10⁶ operations
MC1... 0.3 × 10⁶ operations
MC2... 0.35 × 10⁶ operations
- (3) Electrical endurance AC-3: MC0... (6A) = 1.2 × 10⁶ operations
MC1... (9A) = 0.85 × 10⁶ operations
MC2... (12A) = 0.6 × 10⁶ operations
- (4) Terminal with wire 1.5 mm²: I_e = 16A
with wire 1 mm²: I_e = 10A
Insulated terminal type B 2.8 × 0.8 and wire 1 mm² I_e = 8A in accordance with DIN 46247.
- (5) Fast-on 1 × 6.3 terminals on request (replace letter F by H in the catalogue number)

For reference numbers, see chapter X, pg. X.4



Three pole interface contactors

Max. oper. current Non-inductive load AC1 A	Motors <440V, 3 ~ 50/60Hz AC3 ⁽³⁾ A	Admissible power AC3					Aux. contacts		Voltage 24V D.C, coil 1.2W ⁽¹⁾			Voltage 24V D.C, coil 2W ⁽²⁾		
		1-phase		3-phase			.3 .4	.1 .2	Cat. no. ⁽¹⁾	Ref. no.	Pack	Cat. no. ⁽¹⁾	Ref. no.	Pack
		115V	220V	220V	380V	500V								
		kW	kW	kW	kW	kW								
Terminal: screw														
20	6	0.37	0.75	1.5	2.2	3	1	0	MC0I310ATD	100570	10	MC0K310ATD	100574	10
							0	1	MC0I301ATD	100571	10	MC0K301ATD	100575	10
20	9	0.56	1.12	2.2	4	4	1	0	MC1I310ATD	100572	10	MC1K310ATD	100576	10
							0	1	MC1I301ATD	100573	10	MC1K301ATD	100577	10
20	12	0.75	2	3	5.5	5.5	1	0	MC2I310ATD	100559	10	MC2K310ATD	103590	10
							0	1	MC2I301ATD	100538	10	MC2K301ATD	103591	10
Spare coil									MB0ID	100470	10	MB0KD	100471	10



- (1) No possibility of adding instantaneous auxiliary contact blocks.
- (2) Facility to mount an instantaneous auxiliary contact block of two contacts or two instantaneous auxiliary contact blocks of one contact.
- (3) Electrical endurance AC-3:
 - MC0... (6A) = 1.2×10^6 operations.
 - MC1... (9A) = 0.85×10^6 operations.
 - MC2... (12A) = 0.6×10^6 operations.

Four poles minicontactors



Max.oper.current Non-inductive load AC1 ⁽²⁾ A	Motors <440V, 3 ~ 50/60Hz AC3 ⁽³⁾ A	Admissible power AC3					Poles		Control circuit: Alternating current		Control circuit: Direct current	
		1-phase		3-phase			4	0	Cat. no. ⁽¹⁾	Pack	Cat. no. ⁽¹⁾	Pack
		115V	220V	220V	380V	500V						
		kW	kW	kW	kW	kW	0	4	Ref. no. see bottom	Ref. no. see bottom		
		HP	HP	HP	HP	HP						
Screw terminal												
20	6	AC1					4	0	MC0A400AT ♦	20	MC0C400AT ♦	10
		1.8	3.5	6.1	10.5	13.8	2	2	MC0AB00AT ♦	20	MC0CB00AT ♦	10
		-	-	-	-	-	0	4	MC0AA00AT ♦	20		
		AC3										
		0.37	0.75	1.5	2.2	3						
		0.5	1	2	3	4						
20	9	AC1					4	0	MC1A400AT ♦	20	MC1C400AT ♦	10
		2.3	4.4	7.5	13	17	2	2	MC1AB00AT ♦	20	MC1CB00AT ♦	10
		-	-	-	-	-	0	4	MC1AA00AT ♦	20		
		AC3										
		0.56	1.12	2.2	4	4						
		0.75	1.5	3	5.5	5.5						
20	12	AC1					4	0	MC2A400AT ♦	20	MC2C400AT ♦	10
		2.3	4.4	7.5	13	17	2	2	MC2AB00AT ♦	20	MC2CB00AT ♦	10
		-	-	-	-	-						
		AC3										
		0.75	2	3	5.5	5.5						
		1	2.6	4	7.3	7.3						
Terminal: faston 2x2.8 insulated (5)												
20	6	AC1					4	0	MC0A400AF ♦	20	MC0C400AF ♦	10
		1.8	3.5	6.1	10.5	13.8	2	2	MC0AB00AF ♦	20	MC0CB00AF ♦	10
		-	-	-	-	-	0	4	MC0AA00AF ♦	20		
		AC3										
		0.37	0.75	1.5	2.2	3						
		0.5	1	2	3	4						
16 ⁽⁴⁾	9	AC1					4	0	MC1A400AF ♦	20	MC1C400AF ♦	10
		2.3	4.4	7.5	13	17	2	2	MC1AB00AF ♦	20	MC1CB00AF ♦	10
		-	-	-	-	-	0	4	MC1AA00AF ♦	20		
		AC3										
		0.56	1.12	2.2	4	4						
		0.75	1.5	3	5.5	5.5						
Terminal: printed circuit												
20	6	AC1					4	0	MC0A400AI ♦	20	MC0C400AI ♦	10
		1.8	3.5	6.1	10.5	13.8	2	2	MC0AB00AI ♦	20	MC0CB00AI ♦	10
		-	-	-	-	-	0	4	MC0AA00AI ♦	20		
		AC3										
		0.37	0.75	1.5	2.2	3						
		0.5	1	2	3	4						
20	9	AC1					4	0	MC1A400AI ♦	20	MC1C400AI ♦	10
		2.3	4.4	7.5	13	17	2	2	MC1AB00AI ♦	20	MC1CB00AI ♦	10
		-	-	-	-	-	0	4	MC1AA00AI ♦	20		
		AC3										
		0.56	1.12	2.2	4	4						
		0.75	1.5	3	5.5	5.5						

Spare coil

MBOA ♦ 10 MBOC ♦ 10

- (1) To complete the catalogue number, replace the symbol ♦ by the code corresponding to the voltage and frequency of the control circuit (see C.2)
- (2) Electrical endurance AC-1: MC0... 0.2 x 10⁶ operations
MC1... 0.3 x 10⁶ operations
MC2... 0.35 x 10⁶ operations
- (3) Electrical endurance AC-3: MC0... (6A) = 1.2 x 10⁶ operations
MC1... (9A) = 0.85 x 10⁶ operations
MC2... (12A) = 0.6 x 10⁶ operations
- (4) Terminal with wire 1.5 mm²: I_e = 16A
with wire 1 mm²: I_e = 10A
Insulated terminal type B 2.8 x 0.8 and wire of 1 mm² I_e = 8A in accordance with DIN 46247.
- (5) Faston 1 x 6.3 terminals on request, (replace letter F by H in the catalogue number).

For reference numbers, see chapter X, pg. X.4



A

B

C

D

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F

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H

I

X

Instantaneous auxiliary contact blocks

Front mounting



Number contacts	Combinations with basic contactor 10E	Contacts in acc. with EN 50012	Contacts in acc. with EN 50005	Aux. contacts		Cat. no.	Ref. no.	Pack
				.3 .4	.1 .2			
Screw terminal								
2	21E	11		1	1	MACN211AT	100999	10
2	12E	02		0	2	MACN202AT	100998	10
2			20	2	0	MARN220AT	100994	10
2			11	1	1	MARN211AT	100993	10
2			02	0	2	MARN202AT	100992	10
4	41E	31		3	1	MACN431AT	100997	10
4	32E	22		2	2	MACN422AT	100996	10
4	23E	13		1	3	MACN413AT	100995	10
4			40	4	0	MARN440AT	100991	10
4			31	3	1	MARN431AT	100990	10
4			22	2	2	MARN422AT	100989	10
4			13	1	3	MARN413AT	100988	10
4			04	0	4	MARN404AT	100987	10
Ring terminal								
2	21E	11		1	1	MACN211AR	103557	10
2	12E	02		0	2	MACN202AR	103558	10
2			20	2	0	MARN220AR	103349	10
2			11	1	1	MARN211AR	103350	10
2			02	0	2	MARN202AR	103351	10
4	41E	31		3	1	MACN431AR	103559	10
4	32E	22		2	2	MACN422AR	103560	10
4	23E	13		1	3	MACN413AR	103561	10
4			40	4	0	MARN440AR	103352	10
4			31	3	1	MARN431AR	103353	10
4			22	2	2	MARN422AR	103354	10
4			13	1	3	MARN413AR	103355	10
4			04	0	4	MARN404AR	103300	10

• Two or four additional contacts, to cover combinations of 3 or 5 contacts without increasing the surface area of the basic contactor

Contactor

A

B

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D

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Instantaneous auxiliary contact blocks

Lateral mounting



Number contacts	Combinations with basic contactor 10E	Contacts in acc. with EN 50012	Contacts in acc. with EN 50005	Aux. contacts 	Cat. no.	Ref. no.	Pack
-----------------	---------------------------------------	--------------------------------	--------------------------------	-------------------	----------	----------	------

• One or two additional blocks, to cover combinations of 1 or 2 contacts without increasing the height of the basic unit contactor

Screw terminal							
1	20	10		1 0	MACL110AT	100560	10
1	11E	01		0 1	MACL101AT	100561	10
Ring terminal							
1	20	10		1 0	MACL110AR	103555	10
1	11E	01		0 1	MACL101AR	103556	10
Terminal: faston 2x2.8 insulated (1)							
1	20	10		1 0	MACL110AF	100562	10
1	11E	01		0 1	MACL101AF	100563	10
Terminal: printed circuit							
1	20	10		1 0	MACL110AI	100564	10
1	11E	01		0 1	MACL101AI	100565	10

- One or two additional blocks, when up to 6 or 7 contacts are needed (combination possible with frontal blocks)
- One or two additional blocks on both sides, to cover up to five contacts (combination possible only with lateral blocks)

Screw terminal							
1			10	1 0	MARL110ATS	100519	10
1			01	0 1	MARL101ATS	100520	10
Ring terminal							
1			10	1 0	MARL110ARS	103299	10
1			01	0 1	MARL101ARS	103298	10
Terminal: faston 2x2.8 insulated (1)							
1			10	1 0	MARL110AFS	100521	10
1			01	0 1	MARL101AFS	100522	10
Terminal: printed circuit							
1			10	1 0	MARL110AIS	100523	10
1			01	0 1	MARL101AIS	100524	10

(1) Terminal with wire 1 mm²: Ie = 10A
 Insulated terminal type B 2.8 x 0.8 with wire 1 mm²: Ie = 8A, in accordance with DIN 46247

A

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Accessories

	For use with:	Time	Function	Ue	Cat. no.	Ref. no.	Pack
 <p>Electronic timer block</p>	Lateral or front fixing to the contactor						
	MCR..MC_ ...	0.5 - 60 seg.	delay ON	24... 250V AC/DC	MREBC10AC2	100541	10
	MCR..MC_ ...	0.2 - 24 seg.	delay ON	24...250V AC/DC	MREBC20AC2	100542	10
 <p>DIN rail adaptor for electronic timer block</p>	For fixing onto EN 50022-35						
	MREBC...				MVB0R	100543	10
 <p>Voltage suppressor block</p>	Connection and (plug-in) fixing on to the connector						
	MCRA,MC_ ...	R/C	AC	12...60V 50/60Hz	MP0AAE1	100544	10
	MCRA,MC_ ...	R/C	AC	72...250V 50/60Hz	MP0AAE2	100545	10
	MCRC,MC_ ...	Diode	DC	6...250V DC	MP0CAE3	100546	10
	MCRC,MC_ ...	Varistor	AC/DC	24-48V	MP0DAE4	100536	10
 <p>Pole paralleling links</p>	To connect two, three or four phases in parallel						
	MC_ ...	2, 3, 4 (parallel)	Ø4.5mm - 16mm ²		MVPOC	100600	10
 <p>Mechanical interlock</p>	Mechanical interlock and pole jumpers						
	MCR, MC_ ...				MMHO	100547	10
<p>Identification</p>	Cat. no.						
	Ref. no.						
	Pack						
	MCR, MC_ ...	Labels (10 sheets of 260 labels)			EAT 260	100548	1
	MCR, MC_ ...	Labelling plate base. Plug-in labelling plate bases (50 pieces in one pack)			SPR	100549	1

Multipack. Series M and Series CL

To reduce the amount of waste packaging material and to save time during installation, we offer the opportunity to order contactors in a multipack without the individual packaging.

	Product	Type	Standard pack	Multipack (1)
	Minicontactors	MCOA...MC2A	20	40
	Contactors	CL00A...CL25A...	20	40
		CL03...CL45...	10	20

(1) The quantity ordered must be a multiple of the quantity in each multipack (with the same frame/size and coil voltage)

How to order

To order a multipack, add the suffix **MP** to the standard catalogue number

Example	Standard pack	Multipack
	MCOA310ATN	MCOA310ATN MP (40 pieces)
	CL03A400MJ	CL03A400MJ MP (20 pieces)

A

B

C

D

E

F

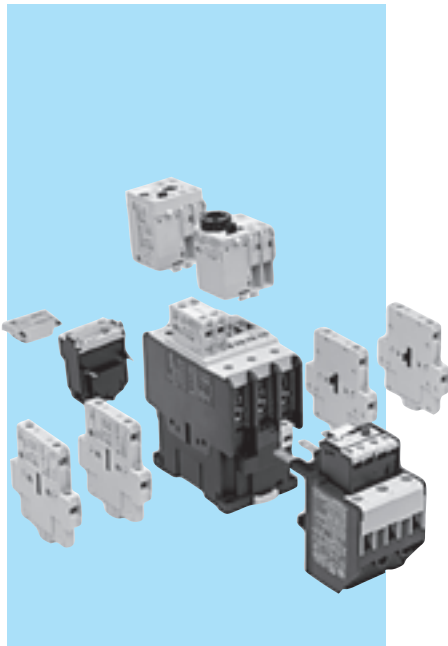
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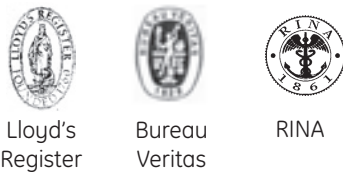
Three and four pole contactors 9 to 105A (AC3) 25 to 140A (AC1)

- Control circuit: Alternating current up to 690V
Direct current up to 440V
- Terminal numbering in accordance with EN 50005 and EN 50012
- Fixing by clipping onto 35mm DIN rail EN 50022-35 or by screws
- Screws protected against accidental contact in accordance with VDE 0106 T.100, VBG4.
- Ring terminal version
- Three coil terminals
- Mounting possibilities of front/side instantaneous auxiliary contact blocks, timed auxiliary contact blocks, mechanical latch, transient suppressor block and interface modules.
- Degree of protection: IP20 to CL00 ... CL02
IP10 to CL25 ... CL10
- Maximum number of auxiliary contacts: 4 for CL00 ... CL25
6 for CL04 ... CL45
8 for CL06 ... CL10

Standards

IEC/EN 60947-1	CSA 22.2/14
IEC/EN 60947-4-1	NFC 63-110
IEC/EN 60947-5-1	ASE 1025
EN 50005	VDE 0660/102
UL 508	CENELEC HD 419
NEMA ICS 1	
BS 5424 & 775	

Approvals



- Order codes ● pg. C.11
- Auxiliary contact blocks ● pg. C.15
- Accessories ● pg. C.16
- Technical data ● pg. C.31
- Terminal numbering ● pg. C.39
- Dimensions ● pg. C.52

Standard voltages

To complete the catalogue number, replace the symbol ♦ by the code corresponding to the voltage and frequency of the control circuit.

Alternating current (V). Dual-frequency coil

♦	1	2	9	3	4	5	6	7	13	8	15
AC	24	42	48	110	120	220	230	240	400	440	480
50/60Hz				115							

Alternating current (V).

♦	E	K	L	N	T	U	W	Y	Z
AC	32	127		220		380	415	500	660
50Hz				230		400		690	
AC			208	277	380	480	460	600	
60Hz									

Direct current (V)

For contactors type CL...D / Operating limits: 0.80 ... 1.10 x Us

♦	B	D	E	F	G	H	I	J	K	N	P	R	T	X
Voltage	12	24	36	42	48	60	72	110	120	220	230	240	250	440
										125				

Coil with electronic module for contactors CL...E (can also be used with alternating current)

♦	D	F	H	J	N	Y
Voltage	24	42	60	110	220	440
	28	48	72	125	250	

Direct current (V). Coil with wide voltage range (0.70 ... 1.30 x Us)

For contactors type CL...D

♦	WB	WD	WE	WF	WG	WH	WI	WJ	WK	WN	WP	WR	WT	WX
DC	12	24	33	42	48	60	72	110	125	220	230	240	250	440

Maximum number of add-on auxiliary contact blocks:

CL00D...CL02D : 2NO or 1NC
CL03D...CL45D : 1NO and 1NC
CL05D...CL10D : 4NO or 2NC
CL05E...CL10E : 4 cont. aux.

Coil with electronic module for contactors CL...E

♦	WD	WE	WF	WH	WJ	WN
Voltage	24	33	48	72	110	220

Different auxiliary contact configurations, contact us.



Three pole contactors. Screw terminal

Max.oper.current Non-inductive load AC1 A	Motors <440V, 3 ~ 50/60Hz AC3 A	Admissible power AC3				Electrical endurance Cat. AC3 Operations	Aux. contacts		Control circuit: Alternating current		Control circuit: Direct current		Control circuit: Coil with electronic module (AC/DC)	
		220V 230V	380V 400V	415V 440V	500V		.3 .4	.1 .2	Cat. no. ⁽¹⁾	Pack ⁽³⁾	Cat. no. ⁽¹⁾	Pack ⁽³⁾	Cat. no. ⁽¹⁾	Pack ⁽³⁾
		kW HP	kW HP	kW HP	kW HP									
25	9	2.2	4	4	5.5	2x10 ⁶	0	0	CL00A300T♦	5				
		3	5.5	5.5	7.5		1	0	CL00A310T♦	5	CL00D310T♦	10		
							0	1	CL00A301T♦	5	CL00D301T♦	10		
25	12	3	5.5	5.5	7.5	2x10 ⁶	0	0	CL01A300T♦	5				
		4	7.5	7.5	10		1	0	CL01A310T♦	5	CL01D310T♦	10		
							0	1	CL01A301T♦	5	CL01D301T♦	10		
32	18	4	7.5	7.5	10	1.7x10 ⁶	0	0	CL02A300T♦	5				
		5.5	10	10	13.5		1	0	CL02A310T♦	5	CL02D310T♦	10		
							0	1	CL02A301T♦	5	CL02D301T♦	10		
45	25	7.5	11	11	15	1.2x10 ⁶	0	0	CL25A300T♦	5				
		10	15	15	20						CL25D300T♦	10		
45	25	7.5	12	12	15	2x10 ⁶	0	0	CL03A300M♦	10				
		10	16	16	20		1	0	CL03A310M♦	10	CL03D310M♦	10		
							0	1	CL03A301M♦	10	CL03D301M♦	10		
60	32	9	16	16	18.5	2x10 ⁶	0	0	CL04A300M♦	10				
		12	22	22	25		1	0	CL04A310M♦	10	CL04D310M♦	10		
							0	1	CL04A301M♦	10	CL04D301M♦	10		
60	40	11	18.5	22	25	2x10 ⁶	0	0	CL45A300M♦	10				
		15	25	30	34		1	1	CL45A311M♦ ⁽²⁾	10	CL45D300M♦	10		
90	50	15	22	25	30	1.8x10 ⁶	0	0	CL06A300M♦	1				
		20	30	34	40		1	1	CL06A311M♦ ⁽²⁾	1	CL06D300M♦	1	CL06E300M♦	1
110	65	18.5	30	37	40	1.7x10 ⁶	0	0	CL07A300M♦	1				
		25	40	50	55		1	1	CL07A311M♦ ⁽²⁾	1	CL07D300M♦	1	CL07E300M♦	1
110	80	22	37	45	45	1.5x10 ⁶	0	0	CL08A300M♦	1				
		30	50	60	60		1	1	CL08A311M♦ ⁽²⁾	1	CL08D300M♦	1	CL08E300M♦	1
140	95	25	45	50	55	1.7x10 ⁶	0	0	CL09A300M♦	1				
		34	60	68	75		1	1	CL09A311M♦ ⁽²⁾	1	CL09D300M♦	1	CL09E300M♦	1
140	105	30	55	55	65	1.5x10 ⁶	0	0	CL10A300M♦	1				
		40	75	75	88		1	1	CL10A311M♦ ⁽²⁾	1	CL10D300M♦	1	CL10E300M♦	1
Spare coils									CL00 - CL25	LB1A ♦	5	LB1D ♦	5	
									CL03 - CL45	LB3A ♦	5	LB3D ♦	5	
									CL06 - CL10	LB4A ♦	5	LB4D ♦	1	
									coil + electronic module CL06E - CL10E					LB4E ♦

- (1) To complete the catalogue number, replace the symbol ♦ by the code corresponding to the voltage and frequency of the control circuit (see C.10).
- (2) Equipped with two blocks BCLF
- (3) Multipack, see C.9

For reference numbers, see chapter X, pg. X.6



3P and 4P contactors

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X

Three pole contactors. Ring terminal

Contactors

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Max.oper.current Non- inductive load AC1 A	Motors <440V, 3 ~ 50/60Hz AC3 A	Admissible power AC3				Electrical endurance Cat. AC3 Operations	Aux. contacts		Control circuit: Alternating current		Control circuit: Direct current		
		220V 230V	380V 400V	415V 440V	500V		-3 .4	.1 .2	Cat. no. ⁽¹⁾	Pack ⁽²⁾	Cat. no. ⁽¹⁾	Pack ⁽²⁾	
25	9	2.2	4	4	5.5	2x10 ⁶	0	0	CL00A300R♦	5			
		3	5.5	5.5	7.5		1	0	CL00A310R♦	5	CL00D310R♦	10	
							0	1	CL00A301R♦	5	CL00D301R♦	10	
25	12	3	5.5	5.5	7.5	2x10 ⁶	0	0	CL01A300R♦	5			
		4	7.5	7.5	10		1	0	CL01A310R♦	5	CL01D310R♦	10	
							0	1	CL01A301R♦	5	CL01D301R♦	10	
32	18	4	7.5	7.5	10	1.7x10 ⁶	0	0	CL02A300R♦	5			
		5.5	10	10	13.5		1	0	CL02A310R♦	5	CL02D310R♦	10	
							0	1	CL02A301R♦	5	CL02D301R♦	10	
45	25	7.5	11	11	15	1.2x10 ⁶	0	0	CL25A300R♦	5		CL25D300R♦	10
		10	15	15	20		1	0	CL03A300R♦	10	CL03D310R♦	10	
							0	1	CL03A301R♦	10	CL03D301R♦	10	
60	32	9	16	16	18.5	2x10 ⁶	0	0	CL04A300R♦	10			
		12	22	22	25		1	0	CL04A310R♦	10	CL04D310R♦	10	
							0	1	CL04A301R♦	10	CL04D301R♦	10	
60	40	11	18.5	22	25	2x10 ⁶	0	0	CL45A300R♦	10		CL45D300R♦	10
		15	25	30	34								
90	50	15	22	25	30	1.8x10 ⁶	0	0	CL06A300R♦	1		CL06D300R♦	1
		20	30	34	40								
110	65	18.5	30	37	40	1.7x10 ⁶	0	0	CL07A300R♦	1		CL07D300R♦	1
		25	40	50	55								
110	80	22	37	45	45	1.5x10 ⁶	0	0	CL08A300R♦	1		CL08D300R♦	1
		30	50	60	60								
140	95	25	45	50	55	1.7x10 ⁶	0	0	CL09A300R♦	1		CL09D300R♦	1
		34	60	68	75								
140	105	30	55	55	65	1.5x10 ⁶	0	0	CL10A300R♦	1		CL10D300R♦	1
		40	75	75	88								

Spare coils

CL00 - CL25	LB1A ♦	5	LB1D ♦	5
CL03 - CL45	LB3A ♦	5	LB3D ♦	5
CL06 - CL10	LB4A ♦	5	LB4D ♦	1


(1) To complete the catalogue number, replace the symbol ♦ by the code corresponding to the voltage and frequency of the control circuit (see C.10).

(2) Multipack, see C.9


For reference numbers, see chapter X, pg. X.6




Four pole contactors. Screw terminal



Max.oper.current Non-inductive loads		Admissible power AC1				Electrical endurance Operations	Power contacts		Control circuit: Alternating current		Control circuit: Direct current		Control circuit: Coil with electronic module (AC/DC)		
AC1 A	AC3 A	220V 230V	380V 400V	415V 440V	500V		Cat. AC1	d	b	Cat. no. ⁽¹⁾	Pack ⁽²⁾	Cat. no. ⁽¹⁾	Pack ⁽²⁾	Cat. no. ⁽¹⁾	Pack ⁽²⁾
		kW	kW	kW	kW							Ref. no. see bottom		Ref. no. see bottom	
25	12	9.5	16.5	18	21.5	1.5x10 ⁶	4	0	CL01A400T♦	5	CL01D400T♦	10			
32	18	12	22	23	27.5	1.5x10 ⁶	4	0	CL02A400T♦	5	CL02D400T♦	10			
45	25	17	29	32	39	2x10 ⁶	4	0	CL03A400M♦	10	CL03D400M♦	10			
60	32	22.5	39.5	43	52	1.5x10 ⁶	4	0	CL04A400M♦	10	CL04D400M♦	10			
90	50	34	59	64	78	1.5x10 ⁶	4	0	CL05A400M♦	1	CL05D400M♦	1	CL05E400M♦	1	
110	65	42	72.5	79	95	1.8x10 ⁶	4	0	CL07A400M♦	1	CL07D400M♦	1	CL07E400M♦	1	
140	95	53	92	100	121	1.8x10 ⁶	4	0	CL09A400M♦	1	CL09D400M♦	1	CL09E400M♦	1	



Max.oper.current Non-inductive loads		Admissible power AC3				Electrical endurance Operations	Power contacts		Control circuit: Alternating current		Control circuit: Direct current		Control circuit: Coil with electronic module (AC/DC)	
AC1 A	Motors <440V, 3~ 50/60Hz AC3 A	220V 230V	380V 400V	415V 440V	500V		d	b	Cat. no. ⁽¹⁾	Pack ⁽²⁾	Cat. no. ⁽¹⁾	Pack ⁽²⁾	Cat. no. ⁽¹⁾	Pack ⁽²⁾
		kW HP	kW HP	kW HP	kW HP					Ref. no. see bottom		Ref. no. see bottom		Ref. no. see bottom
25	12	3 4	5.5 7.5	5.5 7.5	7.5 10	2	2	CL01AB00T♦	5	CL01DB00T♦	5			
32	18	4 5.5	7.5 10	7.5 10	10 13.5	2	2	CL02AB00T♦	5	CL02DB00T♦	5			
45	25	7.5 10	12 16	12 16	15 20	2	2	CL03AB00M♦	10	CL03DB00M♦	10			
60	32	9 12	16 22	16 22	18.5 25	2	2	CL04AB00M♦	10	CL04DB00M♦	10			
90	40	11 15	18.5 25	22 30	25 34	2	2	CL05AB00M♦	1	CL05DB00M♦	1	CL05EB00M♦	1	
110	65	18.5 25	30 40	37 50	40 55	2	2	CL07AB00M♦	1	CL07DB00M♦	1	CL07EB00M♦	1	
110	80	22 30	37 50	45 60	45 60	2	2	CL08AB00M♦	1	CL08DB00M♦	1	CL08EB00M♦	1	



Spare coils	Model	Cat. no. ♦	Pack	Cat. no. ♦	Pack	
	CL00 - CL25	LB1A ♦	5	LB1D ♦	5	
	CL03 - CL45	LB3A ♦	5	LB3D ♦	5	
	CL05A - CL08A	LB4A ♦	5	LB4D ♦	1	
	Coil + Electronic module CL05E - CL08E	LB4E ♦	1		LB4E ♦	1

(1) To complete the catalogue number, replace the symbol ♦ by the code corresponding to the voltage and frequency of the control circuit (see C.10).
 (2) Multipack, see C.9

For reference numbers, see chapter X, pg. X.6



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Four poles. Ring terminal



Max.oper.current Non-inductive load		Admissible power AC1				Electrical endurance Cat. AC1 Operations	Power contacts		Control circuit: Alternating current		Control circuit: Direct current		
AC1 A	AC3 A	220V 230V	380V 400V	415V 440V	500V		kW	kW	kW	kW	Cat. no. ⁽¹⁾	Pack ⁽²⁾	Cat. no. ⁽¹⁾
25	12	9.5	16.5	18	21.5	1.5x10 ⁶	4	0	CL01A400R♦	5		CL01D400R♦	10
32	18	12	22	23	27.5	1.5x10 ⁶	4	0	CL02A400R♦	5		CL02D400R♦	10
45	25	17	29	32	39	2x10 ⁶	4	0	CL03A400R♦	10		CL03D400R♦	10
60	32	22.5	39.5	43	52	1.5x10 ⁶	4	0	CL04A400R♦	10		CL04D400R♦	10
90	50	34	59	64	78	1.5x10 ⁶	4	0	CL05A400R♦	1		CL05D400R♦	1
110	65	42	72.5	79	95	1.8x10 ⁶	4	0	CL07A400R♦	1		CL07D400R♦	1
140	95	53	92	100	121	1.8x10 ⁶	4	0	CL09A400R♦	1		CL09D400R♦	1

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Max.oper.current Non-inductive load		Admissible power AC3				Power contacts	Control circuit: Alternating current		Control circuit: Direct current				
AC1 A	Motors <440V, 3~ 50/60Hz AC3 A	220V 230V	380V 400V	415V 440V	500V		kW HP	kW HP	kW HP	kW HP	Cat. no. ⁽¹⁾	Pack ⁽²⁾	Cat. no. ⁽¹⁾
25	12	3 4	5.5 7.5	5.5 7.5	7.5 10	2	2	CL01AB00R♦	5			CL01DB00R♦	5
32	18	4 5.5	7.5 10	7.5 10	10 13.5	2	2	CL02AB00R♦	5			CL02DB00R♦	5
45	25	7.5 10	12 16	12 16	15 20	2	2	CL03AB00R♦	10			CL03DB00R♦	10
60	32	9 12	16 22	16 22	18.5 25	2	2	CL04AB00R♦	10			CL04DB00R♦	10

Spare coils






CL00 - CL25	LR1A ♦	5	LR1D ♦	5
CL03 - CL45	LR3A ♦	5	LR3D ♦	5
CL05A - CL08A	LR4A ♦	5	LR4D ♦	1

- (1) To complete the catalogue number, replace the symbol ♦ by the code corresponding to the voltage and frequency of the control circuit (see C.10).
 (2) Multipack, see C.9



For reference numbers, see chapter X, pg. X.6



Auxiliary contact blocks

Instantaneous		Number of contacts	Contacts				Type	Time	Cat. no.	Ref. no.	Pack
			.3 .4	.1 .2	.7 .8	.5 .6					
	Frontal mounting	Terminal: screw									
		1	1	0	0	0			BCLF10	104700	10
		1	0	1	0	0			BCLF01	104701	10
		1	0	0	1	0			BCLF10G	104702	10
		1	0	0	0	1			BCLF01G	104703	10
		Terminal: ring terminal									
1	1	0	0	0			BCRF10	108901	10		
1	0	1	0	0			BCRF01	108902	10		
	Side mounting	Terminal: screw									
		2	2	0	0	0			BCLL20	104706	10
		2	1	1	0	0			BCLL11	104707	10
		For combinations of more than 4 front-mounted and 2 side-mounted auxiliary contact blocks									
		2	2	0	0	0			BRLL20	104704	10
		2	1	1	0	0			BRLL11	104705	10
2	0	2	0	0			BRLL02	106622	10		
Pneumatic timer											
	Front mounting	Terminal: screw									
		2	0	0	1	1	Delay ON	0.1 - 30 sec.	BTLF30C	104709	10
		2	0	0	1	1	Delay ON	1 - 60 sec.	BTLF60C	104710	10
		2	0	0	1	1	Delay OFF	0.1 - 30 sec.	BTLF30D	104711	10
		2	0	0	1	1	Delay OFF	1 - 60 sec.	BTLF60D	104712	10
		Terminal: ring terminal									
		2	0	0	1	1	Delay ON	0.1 - 30 sec.	BTRF30C	108903	10
		2	0	0	1	1	Delay ON	1 - 60 sec.	BTRF60C	108904	10
		2	0	0	1	1	Delay OFF	0.1 - 30 sec.	BTRF30D	108905	10
		2	0	0	1	1	Delay OFF	1 - 60 sec.	BTRF60D	108906	10
Seaking cover protection for pneumatic timer								BTLFX	113001	5	

Accessories

		Number of contacts	Contacts				For use with:	Cat. no. ⁽¹⁾	Ref. no.	Pack		
			.3 .4	.1 .2	.7 .8	.5 .6						
	Interlock	Mechanical										
		-	-	-	-	-	CL00 ... CL10	BELA	104723	5		
		Mech./ electrical										
		2	0	2	-	-	CL00 ... CL10	BELA02	104724	5		
Support interlock												
Only for direct current contactors						CL00D...CL10D	SBELA	101017	5			
	Mechanical latch blocks	Frontal mounted to the contactor							CL00 ... CL10	RMLF ♦	see bottom	10
		♦	D	G	HC	J	N	U	Y			
		50Hz	24, 32	42, 48		110, 115, 120, 127	220, 230, 240	380, 400, 415, 440, 480	500, 660/690			
60Hz	24, 32	48, 60		110, 115, 120, 127	208, 220, 240, 277	380, 400, 415, 440, 480	600					
DC	24, 32, 36	42, 48	60, 72	110, 120, 125	220, 230, 240, 250	440						

1) To complete the catalogue number, replace the symbol ♦ by the code corresponding to the voltage and frequency of the control circuit (see C.10).

For reference numbers, see chapter X, pg. X.6



Accessories

Transient voltage suppressor block



For use with:	Type	Control circuit	Ue	Cat. no.	Ref. no.	Pack
Fixation to the coil terminals, that allows simultaneous use with the auxiliary contact blocks.						
CL00 ... CL45	R/C	AC	12V ... 48V	BSLR2G	104713	10
CL00 ... CL45	R/C	AC	50V ... 127V	BSLR2K	104714	10
CL00 ... CL45	R/C	AC	130V ... 250V	BSLR2R	104715	10
CL05A ... CL10A	R/C	AC	12V ... 48V	BSLR3G	104716	10
CL05A ... CL10A	R/C	AC	50V ... 127V	BSLR3K	104717	10
CL05A ... CL10A	R/C	AC	130V ... 250V	BSLR3R	104718	10
CL ... D	Diode	DC	12V ... 600V	BSLDZ	104719	10
CL00 ... CL10	Varistor	AC / DC	24V ... 48V	BSLV3G	104720	10
CL00 ... CL10	Varistor	AC / DC	50V ... 127V	BSLV3K	104721	10
CL00 ... CL10	Varistor	AC / DC	130V ... 250V	BSLV3R	104722	10
CL00 ... CL10	Varistor	AC / DC	277V ... 500V	BSLV3U	110836	10

Electronic timer module



For use with:	Control circ.	Type	Time	Cat. no.	Ref. no.	Pack
Fixation to the coil terminals, that allows simultaneous use with the auxiliary contact blocks.						
CL00 ... CL10	24-250V AC/DC	delay ON	0.1 - 2 sec.	BETL02C	113602	5
CL00 ... CL10	24-250V AC/DC	delay ON	1.5 - 45 sec.	BETL45C	113603	5
CL00 ... CL10	24-250V AC/DC	delay OFF	0.1 - 2 sec.	BETL02D	113604	5
CL00 ... CL10	24-250V AC/DC	delay OFF	1.5 - 45 sec.	BETL45D	113605	5

Accessories

	For use with:			Cat. no.	Ref. no.	Pack
Identification	CL00 ... CL10	Sheets of labels (sheets of 260 labels each)		EAT 260	100548	1
	CL00 ... CL10	Labelling plate base (50 pieces in one pack)		SPR	100549	1
Pole terminal protector IPXXB	CL03 ... CL04			PTP04	113850	8
	CL45			PTP45	113851	6
	CL05 ... CL08			PTP08	113852	8
	CL09 ... CL10			PTP10	113853	8

Spares

	For use with:	Number of sets	Type		Cat. no.	Ref. no.	Pack
Contact kits	CL00	3	NO		V31200B	104738	1
	CL01_3 /CL01_4	3	NO		V31201B	104739	1
	CL01_B	4	2NO-2NC		VB1201B	104740	1
	CL02_3 /CL02_4	3	NO		V31202B	104741	1
	CL02_B	4	2NO-2NC		VB1202B	104742	1
	CL25_3	3	NO		V31225B	104757	1
	CL03_3 /CL03_4	3	NO		V31203B	104743	1
	CL03_B	4	2NAO-2NC		VB1203B	133170	1
	CL04_3 /CL04_4	3	NO		V31204B	104745	1
	CL04_B	4	2NO-2NC		VB1204B	133885	1
	CL45_3	3	NO		V31245B	104758	1
	CL05_4	4	NO		V31205B	104747	1
	CL05_B	4	2NO-2NC		VB1205B	104748	1
	CL06	3	NO		V31206B	104749	1
	CL07_3 /CL07_4	3	NO		V31207B	104750	1
	CL07_B	4	2NO-2NC		VB1207B	104751	1
	CL08_3 /CL08_4	3	NO		V31208B	104752	1
	CL08_B	4	2NO-2NC		VB1208B	104753	1
	CL09	3	NO		V31209B	104754	1
	CL10	3	NO		V31210B	104755	1

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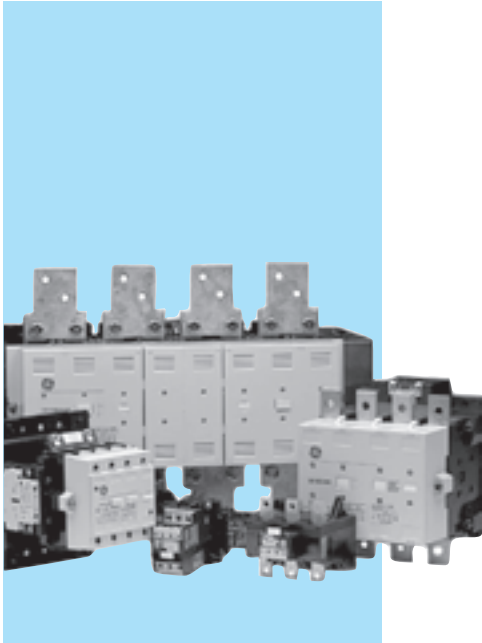
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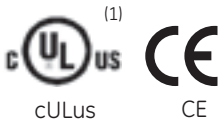
Three and four pole contactors 150 to 825A (AC3) 200 to 1250A (AC1)

- Control circuit: Alternating current up to 690V
Direct current up to 500V
- Degree of protection IP00 (IPxxB with accessories)
- CK07...CK13: auxiliary and coil terminals originally protected against accidental contacts.
Protection for power contacts on request (see accessories)
- Terminals protected against accidental contacts according to VDE 0106 T.100, VBG4.
- CK_ _E with electronic module suitable for DC and AC. (50/60Hz)
- CK contactors always provided with one auxiliary contact block BCLL11 (1NO+1NC)

Standards

IEC/EN 60947-1	CSA 22.2/14
IEC/EN 60947-4-1	CENELEC HD 419
IEC/EN 60947-5-1	NFC 63-110
EN 50005	ASE 1025
UL 508	UNE 20109
NEMA ICS 1	VDE 0660/102
BS 5424 & 775	

Approvals



Standard voltages

To complete the catalogue number, replace the symbol \blacklozenge by the code corresponding to the voltage and frequency of the control circuit.

Alternating current (V)

Three-pole contactors: CK75CA3..., CK08CA3..., CK85BA3...
Four-pole contactors: CK07BA4..., CK08BA4...

\blacklozenge	C	D	F	G	H	I	J	K	M	N	R	S	T	U	V	W	X	Y	Z
50Hz	24	42	48				110	127		220	240			380		415	440	500	660
60Hz	24		48		110	120			220	277		240	380	480	440				600

Alternating current (V). Dual-frequency coil

Three-pole contactors: CK75CA3..., CK08CA3..., CK85BA3...
Four-pole contactors: CK07BA4..., CK08BA4...

\blacklozenge	1	2	3	6	13
50/60Hz	24	48	110	230	400

Alternating current (V)

Three-pole contactors: CK13BA3...
Four-pole contactors: CK13BA4...

\blacklozenge	J	N	U	Y	Z
50/60Hz	110	220	380	480	600
	240	440	500	660	

Control circuit with rectifier bridge

\blacklozenge	J	N	U
50Hz	110	220	380
	230	400	
60Hz	120	240	480

Direct current (V). With electronic module (0.7 ... 1.3 x Us)

Three-pole contactors: CK75CE3..., CK08CE3....

\blacklozenge	WD	WE	WF	WH	WJ	WN
Voltage	24	33	48	72	110	220

Alternating c. / Direct c. (V). With electronic module (0.8 ... 1.10 x Us)

Three-pole & four-pole contactors: CK E.....

\blacklozenge	D	F	J	N	U	Y
Voltage	24	42	110	220	380	440
	28	48	127	250	415	500

(1) CK13 not UL

- Order codes ● pg. C.19
- Aux. contact blocks ● pg. C.20
- Accessories & Spares ● pg. C.21
- Technical data ● pg. C.42
- Dimensions ● pg. C.58



Three pole contactors



Max.oper.current Non-inductive loads AC1 A	Motors <440V, 3 ~ 50/60Hz AC3 A	Admissible power AC3					Electrical endurance Cat. AC3 Operations	Control circuit: Alternating current		Control circuit: A.C. / D.C.	
		220V 230V	380V 400V	415V 440V	440V 440V	500V		Cat. no. ⁽¹⁾	Pack	Cat. no. ⁽¹⁾	Pack
250	150	45 60	75 100	80 108	80 108	100 135	1.7x10 ⁶	CK75CA311 ♦	1	CK75CE311 ♦	1
250	185	55 75	90 125	100 135	100 135	110 150	1.2x10 ⁶	CK08CA311 ♦	1	CK08CE311 ♦	1
315	205	65 88	110 150	125 170	125 170	132 180	1.7x10 ⁶	CK85BA311 ♦	1	CK85BE311 ♦	1
315	250	75 100	132 180	132 180	132 180	160 220	1.5x10 ⁶			CK09BE311 ♦	1
450	309	90 125	160 220	160 220	185 250	200 270	1.1x10 ⁶			CK95BE311 ♦	1
600	420	125 170	220 300	230 312	230 312	300 405	1x10 ⁶			CK10CE311 ♦	1
700	550	160 220	280 380	315 425	315 425	400 540	0.8x10 ⁶			CK11CE311 ♦	1
1000	700	220 300	375 510	400 540	425 540	480 650	0.7x10 ⁶			CK12BE311 ♦	1
1250	825	250 340	450 610	450 610	450 610	500 680	0.7x10 ⁶ (2)	CK13BA311 ♦	1		

Spare coil	CK75CA3 ... CK08CA3	C12168 ♦	1	
	CK85BA3	C04255 ♦	1	
	CK13BA3	C08998 ♦	1	
	Control circuit with incorporated rectifier bridge CK13BA3	C09120 ♦	1	
Coil	CK75CE3 ... CK08CE3	KB4E ♦	1	
	CK85BE3 ... CK95BE3	KB5E ♦	1	
	CK12BE3	KB6E ♦	1	
	CK10CE3 ... CK11CE3	KB7E ♦	1	
Electronic module	CK75CE3 ... CK08CE3	KM4E ♦	1	
	CK85BE3 ... CK95BE3	KM5E ♦	1	
	CK12BE3	KM6E ♦	1	
	CK10CE3 ... CK11CE3	KM7E ♦	1	

- (1) To complete the catalogue number, replace the symbol ♦ by the code corresponding to the voltage and frequency of the control circuit (see C.18).
 (2) CK13 non allow the aux. block in right side.

For reference numbers, see chapter X, pg. X.7



3P and 4P contactors

A
B
C
D
E
F
G
H
I
X

Four pole contactors

Max.oper. current	Admissible power							Electrical endurance	Control circuit: Alternating current		Control circuit: A.C. / D.C.	
	AC3		AC1						Cat. AC3	Cat. no. ⁽¹⁾	Pack	Cat. no. ⁽¹⁾
Non-inductive loads AC1 A	380V 400V		220V 230V	380V 400V	415V	440V	500V	Operations	Ref. no. see bottom		Ref. no. see bottom	
200	55	105	76	131	143	151	173	1x10 ⁶	CK07BA41 ♦	1	CK07BE411 ♦	1
325	100	185	123	214	233	247	281	0.6x10 ⁶	CK08BA411 ♦	1	CK08BE411 ♦	1
400	132	250	152	263	287	304	346	0.6x10 ⁶			CK09BE411 ♦	1
500	160	309	191	329	359	380	415	0.6x10 ⁶			CK95BE411 ♦	1
600	220	408	228	395	431	456	519	0.5x10 ⁶			CK10CE411 ♦	1
700	280	530	266	460	503	533	606	0.4x10 ⁶			CK11CE411 ♦	1
1000	375	680	381	658	719	762	866	0.4x10 ⁶			CK12BE411 ♦	1
1250	450	800	476	822	898	952	1082	0.6x10 ⁶ (2)	CK13BA411 ♦	1		



Spare coil

	CK07BA4	C04255 ♦	1	
	CK08BA4	C04787 ♦	1	
	CK13BA4	C08998 ♦	1	
	Control circuit with incorporated rectifier bridge CK13BA4	C09120 ♦	1	
Coil	CK07BE4			KB5E ♦ 1
	CK08BE4 ... CK95BE4, CK12BE4			KB6E ♦ 1
	CK10CE4 ... CK11CE4			KB7E ♦ 1
Electronic module	CK07BE4			KM5E ♦ 1
	CK08BE4 ... CK95BE4, CK12BE4			KM6E ♦ 1
	CK10CE4 ... CK11CE4			KM7E ♦ 1

(1) To complete the catalogue number, replace the symbol ♦ by the code corresponding to the voltage and frequency of the control circuit (see C.18).
 (2) CK13 non allow the aux. block in right side.

Auxiliary instantaneous contact block



Number of contacts	Contacts				Cat. no.	Ref. no.	Pack
	•3	•1	•7	•5			
	•4	•2	•8	•6			
Side mounting	2	2	0	0	BCLL20	104706	10
	2	1	1	0	BCLL11	104707	10
combinations of more than 2 blocks							
	2	2	0	0	BRL20	104704	10
	2	1	1	0	BRL11	104705	10
	2	0	2	0	BRLL02	106622	10



For reference numbers, see chapter X, pg. X.9




Accessories

	For use with:	Mounting	Voltage	Ue	Cat. no.	Ref. no.	Pack	
 <p>Transient voltage suppressor</p>	Fixation to the coil terminals, that allows simultaneous use with the auxiliary contact blocks.							
	CK75 ... CK08		AC	24V - 48V	BSLR3G	104716	10	
	CK75 ... CK08		AC	50V - 127V	BSLR3K	104717	10	
	CK75 ... CK08		AC	130V - 240V	BSLR3R	104718	10	
	CK75 ... CK08		AC	227V - 500V	BSLV3U	110836	10	
	CK85 ... CK13		AC	24V	KRC24	104760	10	
	CK85 ... CK13		AC	260V	KRC48/260	104761	10	
	CK85 ... CK13		AC	415V	KRC380/415	104762	10	
	 <p>Mechanical interlock</p>	CK07B ... CK12	Horizontal			BEKH	104763	1
CK07B ... CK95		Vertical			BEKVS 1	104786	1	
CK10C ... CK12B		Vertical			BEKVA 1	104785	1	
CK13		Vertical			BEKV	104764	1	
<p>Pole terminal protection</p>	CK75C ... CK08C	1 pole. VDE0106			CM1CA5F	105200	1	
	CK85B ... CK12B	1 pole. VDE0106	Contactors 3P		C09476	104766	6	
	CK08B ... CK12B	1 pole. VDE0106	Contactors 4P		C09479	204800	8	
	CK75C ... CK08C	1 pole IPXXB			PTPCK75	103747	1 ⁽¹⁾	
	CK85B ... CK95B	1 pole IPXXB			PTPCK95	103748	3 ⁽²⁾	
	CK10C ... CK12B	1 pole IPXXB			PTPCK11	103749	1 ⁽¹⁾	

(1) One phase
(2) Three pole

Spares

	For use with:	Type		Cat. no.	Ref. no.	Pack		
 <p>Contact kits</p>	One set consists of two fixed contacts, one moving contact and accessory parts. When contact replacement is needed, it is recommended to replace all the contacts at the same time.							
	CK07B	NA		V1107BA	113612	1		
	CK75C	NA		V1175CA	113613	1		
	CK08C	NA		V1108CA	113614	1		
	CK08B	NA	Contactors 4P	V1108BA	113505	1		
	CK85B	NA		V1185BA	113615	1		
	CK09B	NA		V1109BA	113616	1		
	CK09B	NA	Contactors 4P	V1109BA	113899	1		
	CK95B	NA		V1195BA	113617	1		
	CK10C	NA		V1110CE	113618	1		
	CK11C	NA		V1111CE	113619	1		
	CK12B	NA		V1112BA	113620	1		
	CK13B	NA		V1113BA	113621	1		

Notes

Contactors

A

B

C

D

E

F

G

H

I

X

Grid area for notes.



Technical data

General

		MC0...	MC1...	MC2...
Rated thermal current $I_{th} \theta \leq 60^{\circ C(1)}$	(A)	20	20	20
Rated operational current $I_e^{(2)}$ (3 x 440V, 50/60Hz, AC-3)	(A)	6	9	12
Maximum number of poles		4	4	4
Rated insulation current U_i	(V)	750	750	750
Rated operational current U_e	(V)	690	690	690

(1) Insulated terminal type B 2.8 x 0.8 with wire 1 mm²:

$I_e = 8A$, design DIN 46 247

(2) Max.operational current AC3, 3 -phases $\leq 440V$, according to IEC 947-4-1

Conformity to standards

IEC/EN 60947-1	CSA C22.2/14	SEV 10254
IEC/EN 60947-4-1	CENELEC HD 419	JIS C8325
IEC/EN 60947-5-1	VDE 0660	JEM 1038
EN 50003	NFC 63110	NEMA ICS-1
EN 50005	BS 4794	UL 508
EN 50012		

Approvals

cULus	NEMKO	SEMKO
SETI	DEMKO	RINA
IMQ		
Lloyd's Register	Bureau Veritas	CE

Ambient conditions

Storage temperature	-55°C to +80°C	
Operation temperature	-40°C to +60°C	
Altitude	up to 3000m	Nominal values
	from 3000 up to 4000m	90% I_e 80% U_e
	from 4000 up to 5000m	80% I_e 75% U_e

Climatic resistance

Continuous tests 40 / 125 / 56		
Cold (72h)	Temperature	-40°C
	Relative humidity	< 50%
Dry heat (96h)	Temperature	+125°C
	Relative humidity	< 50%
Humid heat (56h)	Temperature	+40°C
	Relative humidity	95%
Cyclic tests		
First half-cycle (12h)	Low temperature	+25°C
	Relative humidity	93%
Second half-cycle (12h)	Low temperature	+55°C
	Relative humidity	95%
Number of consecutive cycles	6	

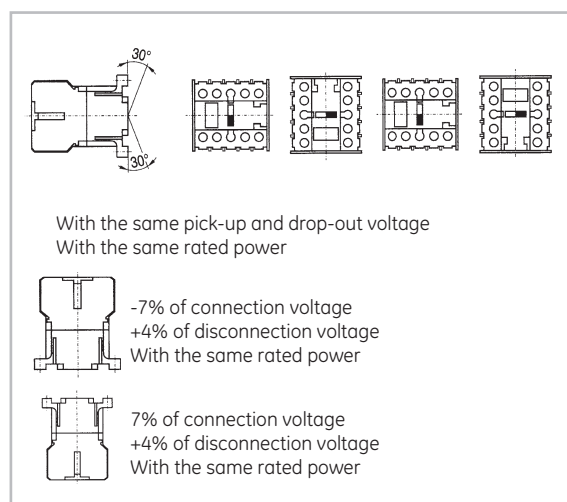
Shock resistance (IEC 68-2-27)

Continuously closed (at 0.8Us)	
Admissible acceleration	25 g
Impulse duration	11 ms
Continuously opened (no voltage)	
Admissible acceleration	20 g
Impulse duration	11 ms

Vibration resistance (IEC 68-2-6)

Continuously closed (at 0.8Us)	
Admissible acceleration	15 g
Sweep between	10 - 200 Hz
Continuously opened (no voltage)	
Admissible acceleration	5g (AC) - 35g (DC)
Sweep between	10 - 200 Hz

Mounting positions



Terminal capacity

Terminal with M3.5 screw (with pozidrive head and safety flange)	Tightening torque	
	0.8 Nm - 7 Lb/in	
Solid wire	mm ²	0.75 to 2 x 2 w.
Flexible wire without terminal	mm ²	0.75 to 2.5 x 2 w.
Flexible wire without terminal with cap	mm ²	0.75 to 2.5 x 1 w.
	mm ²	0.75 to 1 x 2 w.
Ring terminal	0.8 Nm - 7 Lb/in	
Faston terminal 2.8 - 2 insulated terminals	mm ²	1 x 2 w.
Terminal for printed circuit (Ø of PCB hole)	1.8 mm	
Ring terminal cap	7.8 mm	
Fork terminal cap	6.5 mm	

Control circuit

		MC_A...	MC_C...	MC_I...	MC_K...	MC_C...W
Rated insulation voltage (Ui)	(V)	750	750	750	750	750
Standard voltages (Us)						
50Hz(V)		24 ... 690	-	-	-	-
60Hz(V)		6 ... 600	-	-	-	-
DC	(V)	-	6 ... 440	24	24	12 ... 440
Operating voltages limits						
Operating ⁽¹⁾	xUs	0.8 ... 1.1	0.8 ... 1.1	0.8 ... 1.25	0.7 ... 1.25	0.7 ... 1.3
Drop-out	xUs	0.35 ... 0.55	0.15 ... 0.4	0.15 ... 0.3	0.15 ... 0.35	0.15 ... 0.3
Operating voltages limits with coil 50/60 Hz						
Operating	xUs	0.8 ... 1.1	-	-	-	-
Drop-out	xUs	0.35 ... 0.55	-	-	-	-
Consumption						
50 or 60Hz - monofrequency coil						
Pick-up	(VA)	26	-	-	-	-
Seal	(VA)	4	-	-	-	-
50/60Hz - bifrequency coil						
Pick-up	(VA)	32	-	-	-	-
Seal	(VA)	6	-	-	-	-
DC	(W)	-	3	1.2	2	4
Power factor						
Magnetic circuit open	(cos φ)	0.8	-	-	-	-
Magnetic circuit closed	(cos φ)	0.35	-	-	-	-
Power dissipation	(W)	1.4	3	1.2	2	4
Opening and closing times						
Values between ± %Us						
Time on energisation NO	(ms)	6 ... 13	22 ... 36	30 ... 70	20 ... 50	17 ... 28
Time on de-energisation NC	(ms)	8 ... 16	9 ... 12	9 ... 16	9 ... 16	9 ... 12
Time on energisation NC	(ms)	5 ... 11	18 ... 27	20 ... 45	18 ... 35	12 ... 25
Time on de-energisation NO	(ms)	6 ... 13	5 ... 7	5 ... 9	5 ... 9	5 ... 7
Values at Us						
Time on excitation NO	(ms)	7 ... 12	24 ... 27	25 ... 45	25 ... 40	11 ... 23
Time on desexcitation NC	(ms)	8 ... 16	9 ... 11	9 ... 16	9 ... 16	9 ... 11
Time on excitation NC	(ms)	6 ... 10	20 ... 26	25 ... 35	20 ... 30	15 ... 21
Time on desexcitation NO	(ms)	6 ... 13	5 ... 8	5 ... 9	5 ... 8	5 ... 8
Maximum time without voltage	(ms)	3	3	3	3	3
Mechanical endurance						
Monofrequency coil	10 ⁶ ops.	>15	-	-	-	-
Bifrequency coil	10 ⁶ ops.	>10	-	-	-	-
DC	10 ⁶ ops.	-	10	10	10	10
Maximum rate						
No load	Monofrequency coil	ops./h	9000	-	-	-
	Bifrequency coil	ops./h	3600	-	-	-
	DC	ops./h	-	9000	9000	9000
AC1 and AC3 (at rated power)	ops./h	1200	1200	1200	1200	1200
AC4 (at rated power)	ops./h	300	300	300	300	300

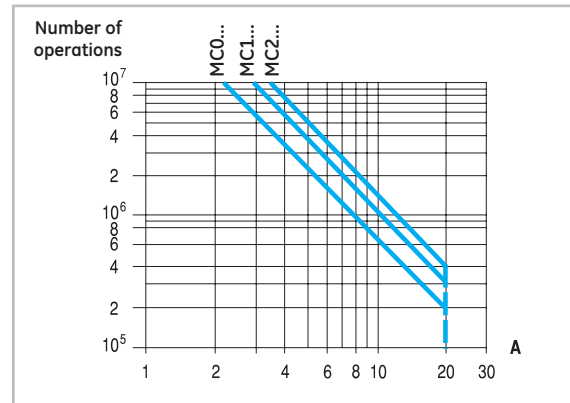
Main circuit (poles)

		MC 0...	MC1...	MC2...
Rated insulation voltage (Ui) (acc. IEC 947-4)	(V)	750	750	750
Rated thermal current (Ith) $\theta \leq 60^\circ$ (1)	(A)	20	20	20
Frequency limits	(Hz)	0...400	0...400	0...400
Making capacity (r.m.s.) $U_e \leq 690V$ 50/60Hz	(A)	160	160	160
Breaking capacity (r.m.s.) $U_e \leq 440V$	(A)	106	106	106
$U_e = 500V$	(A)	90	90	90
$U_e = 690V$	(A)	80	80	90
Short-time current				
0.3 sec.	(A)	470	470	470
1 sec.	(A)	250	250	250
5 sec.	(A)	125	125	125
10 sec.	(A)	95	95	95
30 sec.	(A)	70	70	70
1 min.	(A)	50	50	50
3 min.	(A)	40	40	40
Recovery time	min.	10	10	10
Protec. against short-circuits (IEC 947-4). w/o TOR				
Coordination type "1" gL/gG	(A)	32	32	32
Coordination type "2" gL/gG	(A)	16	20	20
w/o welding contacts gL/gG	(A)	12	16	16
Circuit breaker rating (curve G CEE 19.1)		16	20	20
Impedance per pole	(m Ω)	1.5	1.5	1.5
Power dissipation per pole				
AC1	(W)	0.6	0.6	0.6
AC3	(W)	0.06	0.128	0.228
Insulation resistance				
Between adjacent poles	(m Ω)	> 10	> 10	> 10
Between pole and earth	(m Ω)	> 10	> 10	> 10
Between input and output	(m Ω)	> 10	> 10	> 10
Guaranteed no overlap between NO and NC contacts				
Space	(mm)	1	1	1
Time	(ms)	> 2	> 2	> 2

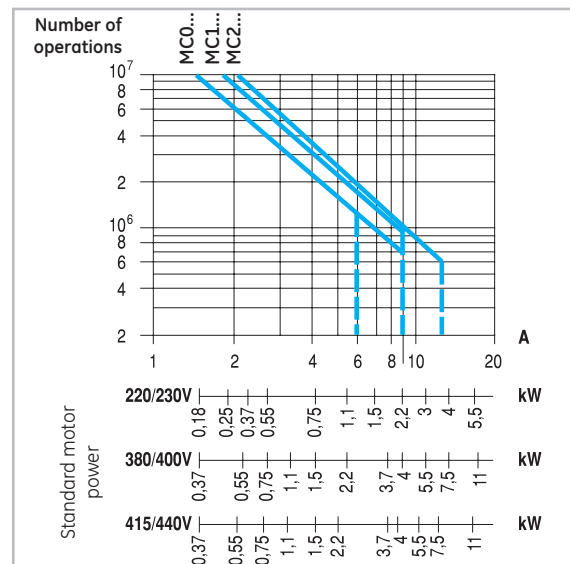
(1) Insulated terminal type B 2.8 x 0.8 with wire 1 mm² Ie = 8A acc. to DIN 46247

Electrical endurance

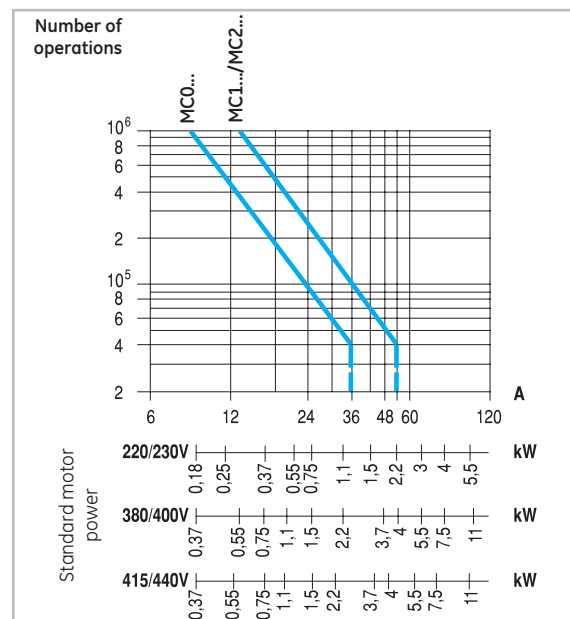
Category AC1



Category AC3



Category AC4

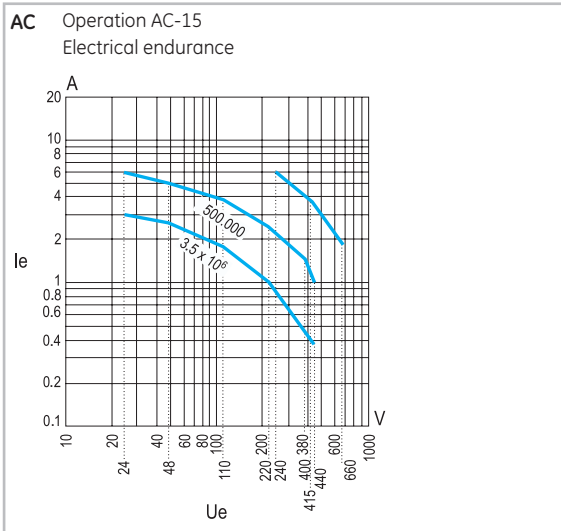


Internal auxiliary contacts

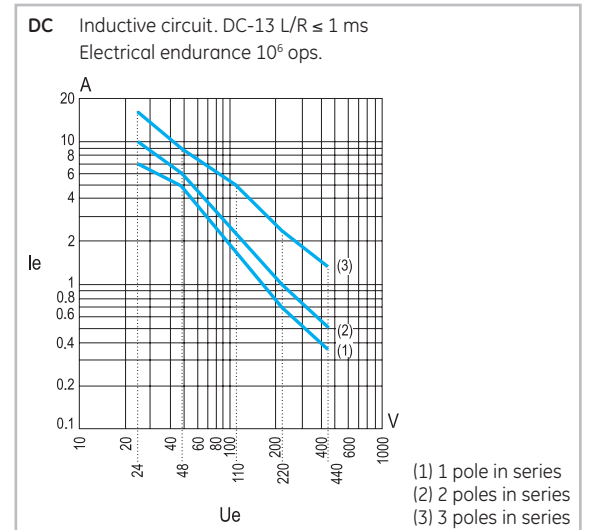
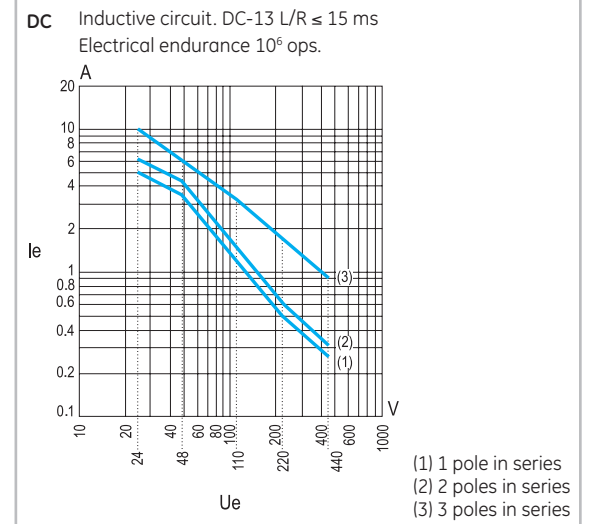
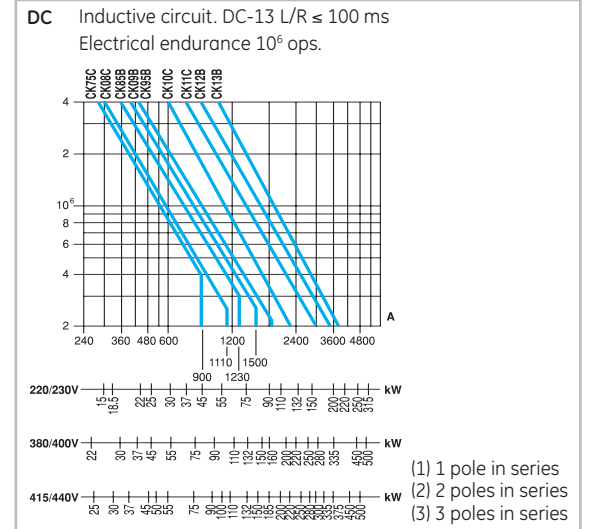
	MC0 / MC1 / MC2
Rated insulation voltage (Ui) IEC 60947-5	(V) 750
Rated thermal current (Ith) $\theta \leq 60^\circ\text{C}$ (1)	(A) 16
Making capacity according with IEC 60947-5-1	
$U_e \leq 690$ 50-60 Hz	(A) 160
$U_e \leq 440\text{V DC}$	(A) 160
Breaking capacity (r.m.s.) IEC 60947-5-1	
AC-15	
$U_e \leq 440\text{V} / 50-60$ Hz	(A) 106
DC-13	
$U_e \leq 110\text{V DC}$	(A) 3
$U_e = 220\text{V DC}$	(A) 1.2
$U_e = 48\text{V DC}$	(A) 10
Minimum operational power (operational safety.)	5mA, 17V
Short-circuit protection (max.class gI fuse) w/o welding	(A) 10
Insulation resistance	
Between adjacent contacts	(m Ω) > 10
Between contacts and earth	(m Ω) > 10
Between input and output	(m Ω) > 10
Guaranteed no overlap between NO and NC contacts	
Space	(mm) 0.5
Minimal time	(ms) > 2
Impedance	(m Ω) 2.3
Terminal capacity	Same as main circuit

(1) Insulated terminal type B 2.8 x 0.8 with wire 1 mm² Ie = 8A acc. with DIN 46247

Tripping characteristics (AC)



Tripping characteristics (DC)

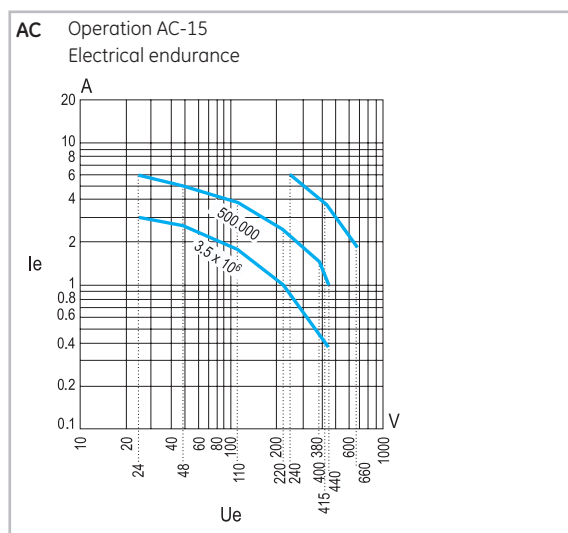


Instantaneous auxiliary contact blocks

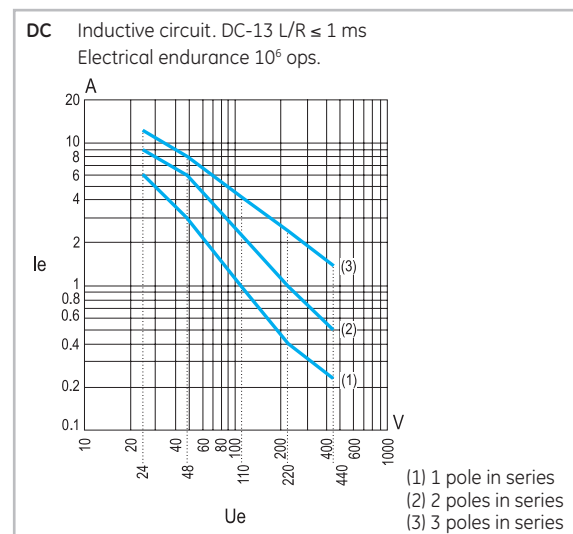
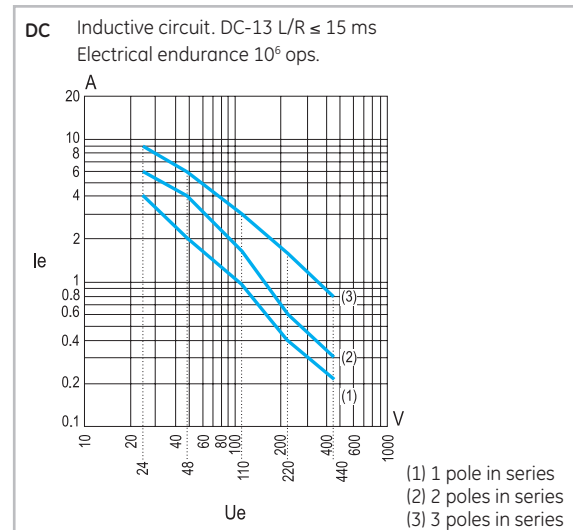
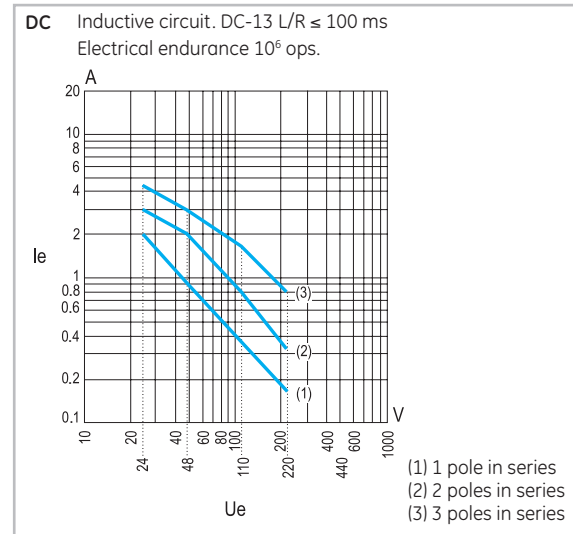
		MACN..., MACL...
Rated insulation voltage (Ui) acc. IEC 60947-1	(V)	750
Rated thermal current (Ith) $\theta \leq 60^\circ\text{C}$ ⁽¹⁾	(A)	10
Making capacity (r.m.s.) according with IEC/EN 60947-5-1		
AC-15	Ue \leq 220V 50/60 Hz	(A) 73
	Ue = 380V 50/60 Hz	(A) 38
	Ue = 690V 50/60 Hz	(A) 22
DC-13	Ue \leq 100V DC	(A) 2.6
	L/R=100ms Ue = 220V DC	(A) 1
	Ue = 440V DC	(A) 0.6
Breaking capacity (r.m.s.) acc. IEC/EN 60947-5-1		
AC-15	Ue \leq 220V 50/60 Hz	(A) 73
	Ue = 380V 50/60 Hz	(A) 38
	Ue = 690V 50/60 Hz	(A) 22
DC-13	Ue \leq 100V DC	(A) 2
	LR=100ms Ue = 220V DC	(A) 0,8
	Ue = 440V DC	(A) 0.4
Rated voltage and rated current Ue-le		
AC-15	according to IEC 60947	120V - 6A
		230V - 6A
		400V - 4A
		500V - 1A
		600V - 1A
		according to UL, CSA
DC-13	according to IEC 60947	24V - 4A
		48V - 2A
		110V - 0.7A
		220V - 0.3A
		440V - 0.1A
		according to UL, CSA
Minimum operational power (operational safety)		5 mA, 17V
Short-circuit protection (max. class gI fuse) w/o welding	(A)	10
Insulation resistance		
Between adjacent contacts	(m Ω)	> 10
Between contacts an earth	(m Ω)	> 10
Between input and output	(m Ω)	> 10
Guaranteed no overlap between NO and NC contacts		
Space	(mm)	0.5
Minimal time	(ms)	> 2
Impedance	(m Ω)	2.4
Terminal capacity		Same as main circuit

(1) Insulated terminal type B 2.8 x 0.8 with wire 1 mm² Ie = 8A acc. with DIN 46247

Tripping characteristics (AC)

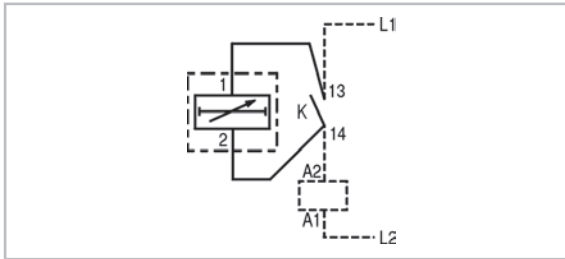


Tripping characteristics (DC)



Electronic timer block

		MREBC...
Rated insulation voltage (Ui)	(V)	750
Rated thermal current (Ith) $\theta \leq 60^\circ\text{C}$ ⁽¹⁾	(V)	0.55
Supply voltage (AC and DC)	(V)	24 to 250
Operating limits		0.80 to 1.1 Us (0.85 to 1.1 Us to 12V)
Voltage drop	(V)	< 3
Maximum load current at :		
20°C	(A)	0.9
40°C	(A)	0.72
60°C	(A)	0.55
Minimum load for safe operation	(A)	> 10
Maximum current	(A)	10A per 40 ms
Leakage current at 220V	(mA)	< 5
Operational current		
AC-15	(A)	0.7
DC-13	(A)	0.9
Timing range (delay ON)	(s)	0.5 to 60 (± 6 s)
Rearrangement time	(ms)	< 100
Repeatability (accuracy) (%)		± 1
Ambient temperature		
storage	(°C)	-55 to +80
operation	(°C)	-5 to +60
Degree of protection		IP20
Mounting positions		Any
Terminals : 2 free cables		1 mm ² (AWG 17) 250 mm



Contact sequence

	Main contact (NO)	Main contact (NC)	Auxiliary contact (NO)	Auxiliary contact (NC)
Three-pole minicontactor				
MC...310...	0 2 3.5		0 2.3 3.5	
MC...301...	0 2 3.5			0 1.2 3.5
Four-pole minicontactor				
MC...400...	0 2 3.5			
MC...B00...	0 2 3.5	0 1.2 3.5		
MC...A00...		0 1.2 3.5		
Auxiliary contact block				
MAC...			0 2.1 3.5	0 1 3.5
MAR...			0 2.1 3.5	0 1 3.5

Terminal numbering in accordance with EN 50012

Final structure of the contactor	Auxiliary contactors		Possible basic contactors + Auxiliary contact blocks to be added
	Combination	Description	
Without auxiliary contact blocks			
		0 1	MC_A301A...
		1 0	MC_A310A...
Auxiliary contact blocks front mounted with two or four contacts			
		1 1	MC_A310A... + MACN211A
		2 1	MC_A310A... + MACN211A
		1 2	MC_A310A... + MACN202A
		3 1	MC_A310A... + MACN431A
		4 1	MC_A310A... + MACN431A
		2 2	MC_A310A... + MACN422A
		3 2	MC_A310A... + MACN422A
		1 3	MC_A310A... + MACN413A
		2 3	MC_A310A... + MACN413A
		1 2	MC_A310A... + MACL101A + MACL101A
Auxiliary contact blocks lateral mounted with one contact			
		1 1	MC_A310A... + MACL101A
		2 1	MC_A310A... + MACL101A + MACL110A
		1 2	MC_A310A... + MACL101A + MACL101A

3P and 4P minicontactors

A

B

C

D

E

F

G

H

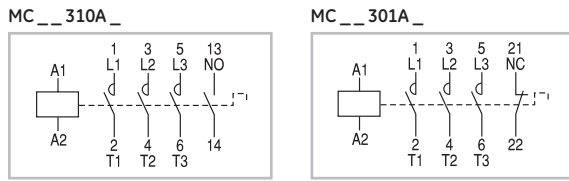
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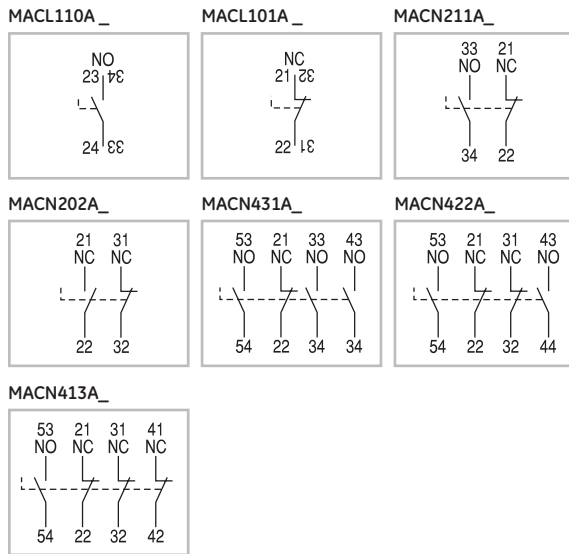


Terminal numbering

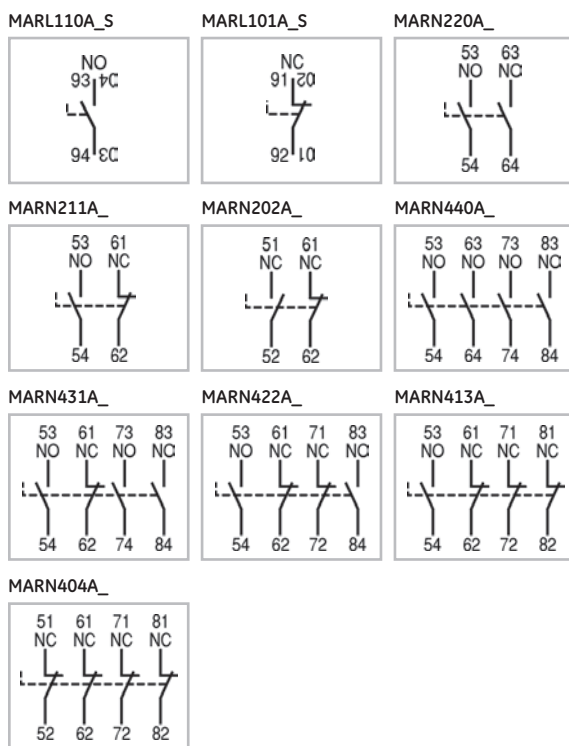
Basic three-pole contactors. (EN 50012)



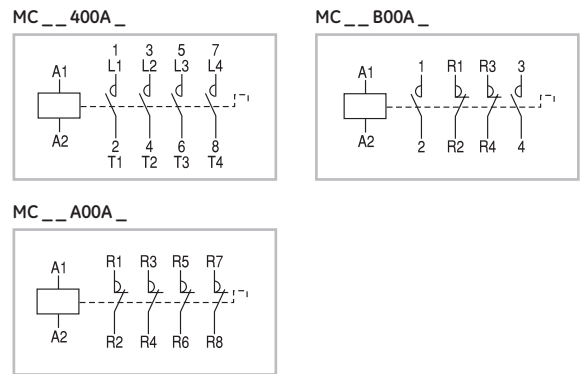
Instantaneous auxiliary contact blocks. (EN 50012)



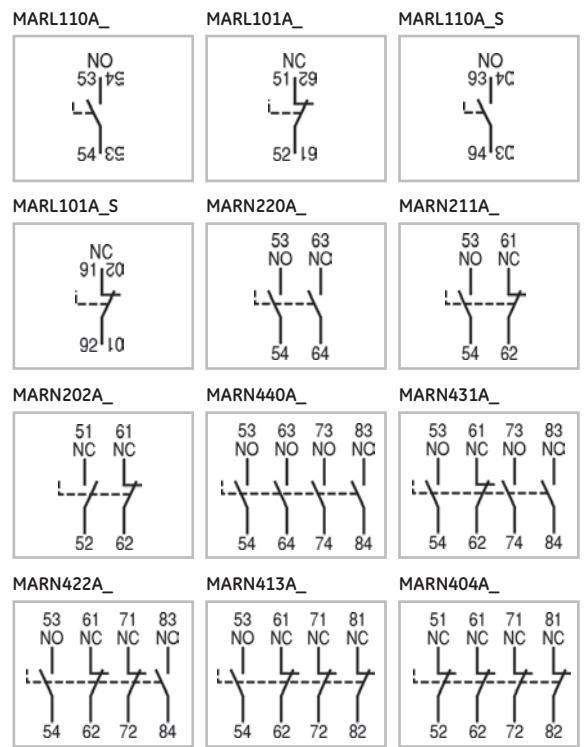
Instantaneous auxiliary contact blocks. (EN 50005)



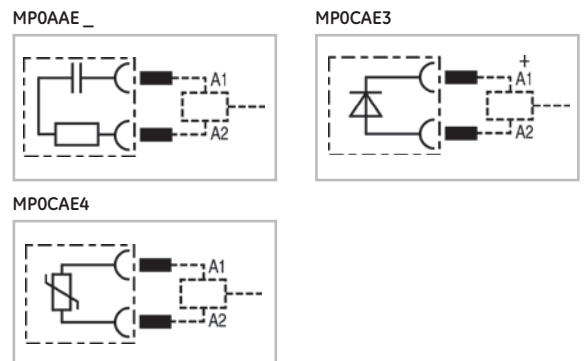
Base four-pole contactors. (EN 50005)



Instantaneous auxiliary contact blocks. (EN 50005)



Voltage suppressor block



Conformity to standards

IEC/EN 60947-1	EN 50005	UNE 20109
IEC/EN 60947-4-1	CENELEC HD419	BS 5424 & 775
IEC/EN 60947-5-1	NF C63-110	NEMA ICS 1
UL 508	ASE 1025	VDE 0660/102
CSA 22.2/14		

Approvals

cULus	RINA	CE
SETI	IMQ (up to Ith:32A)	
Lloyd's Register	Bureau Veritas	

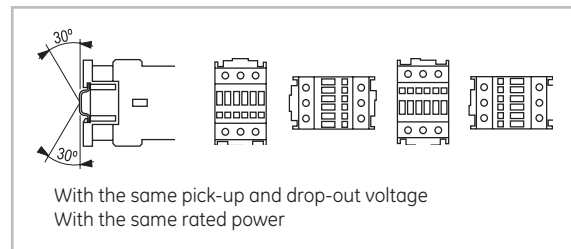
Ambient conditions

Storage temperature	-55°C to +80°C	
Operation temperature	-40°C to +60°C	
Altitude	up to 3000m Nominal values	
	from 3000 up to 4000m	90%le 80%Ue
	from 4000 up to 5000m	80%le 75%Ue

Climatic resistance (IEC 68-2)

Continuous tests 40 / 125 / 56	Cyclic test (6 cycles)
Cold (72h)	Humid heat
Temperature -40°C	First half-cycle (12h)
Dry heat (96h)	Low temperature +25°C
Temperature +125°C	Relative humidity 93%
Relative humidity < 50%	Second half-cycle (12h)
Humid heat (56h)	Low temperature +55°C
Temperature +40°C	Relative humidity 95%
Relative humidity 95%	

Mounting positions



Terminal capacity and tightening torque

		CL00 ... CL02	CL25	CL03 ... CL04	CL45	CL05 ... CL08	CL09 ... CL10
	Solid, stranded and finely stranded without end sleeve (mm²)	2 x 0.5 ... 2.5	2 x 0.5 ... 2.5	-	-	-	-
	Finely stranded with or without end sleeve (mm²)	2 x 1 ... 2.5	2 x 2.5 ... 10	-	-	-	-
	AWG wires	2 x 20 ... 12	2 x 20 ... 8	-	-	-	-
	Tightening torque (Nm)	1.6	2.2	-	-	-	-
	(Lb x in.)	15	20	-	-	-	-
	Solid, stranded and finely stranded without end sleeve (mm²)	-	-	0.75 ... 16	0.75 ... 16	1 ... 35	1.5 ... 50
	Finely stranded with end sleeve (mm²)	-	-	0.75 ... 16	0.75 ... 16	1 ... 35	1.5 ... 50
	Finely stranded w/o end sleeve (mm²)	-	-	1 ... 16	1 ... 16	1 ... 35	1.5 ... 50
	AWG wires	-	-	18 ... 6	18 ... 6	16 ... 2	16 ... 2
	Tightening torque (Nm)	-	-	1.4	1.8	4	5.6
(Lb x in.)	-	-	12	16	35	50	
	Solid (mm²)	-	-	0.75 ... 16	0.75 ... 16	1 ... 16	4 ... 35
	Stranded (mm²)	-	-	0.75 ... 16	0.75 ... 16	1 ... 25	4 ... 35
	Finely stranded w/o end sleeve (mm²)	-	-	0.75 ... 16	0.75 ... 16	1 ... 25	4 ... 35
	Finely stranded with end sleeve (mm²)	-	-	1 ... 16	1 ... 16	1 ... 25	4 ... 35
	AWG wires	-	-	18 ... 6	18 ... 6	16 ... 4	10 ... 1
Tightening torque (Nm)	-	-	1.4	1.8	4	5.6	
(Lb x in.)	-	-	12	16	35	50	
	Solid, stranded and finely stranded without end sleeve (mm²)	-	-	Max. 16	Max. 16	Max. 50 ... 4	Max. 50 ... 35
	Finely stranded w/o end sleeve (mm²)	-	-			Max. 25 ... 16	
	Finely stranded with end sleeve (mm²)	-	-			Max. 25 ... 16	
	AWG wires	-	-	Max. 6	Max. 6	Max. 25 ... 25	Max. 1
	Tightening torque (Nm)	-	-	1.4	1.8	4	5.6
(Lb x in.)	-	-	12	16	35	50	
	Ring terminals (Ø i)	3,6	4,2	4,2	4,2	6,2	6,2
	(acc. with IEC/EN 60947-1) (A)	8	10	10	10	12,5	12,5
	Tightening torque (Nm)	1,6	1,4	1,4	1,4	3	3
(Lb x in.)	15	12	12	12	26	26	

3P and 4P contactors

A

B

C

D

E

F

G

H

I

X



Power circuit

		CL00	CL01	CL02	CL25	CL03	CL04	CL45	CL05	CL06	CL07	CL08	CL09	CL10
Three pole version														
Rated thermal current I _{th} at θ ≤ 55°C (A)		25	25	32	45	45	60	60	-	90	110	110	140	140
Rated operational current I _e AC-3 (A)		9	12	18	25	25	32	40	-	50	65	80	95	105
Rated operational voltage U _e (V)		690	690	690	690	690	690	690	-	690	690	690	690	690
Four pole version (4NO and 2NO+2NC)														
Rated thermal current I _{th} at θ ≤ 55°C (A)		-	25	32	-	45	60	-	90	-	110	110	140	-
Rated operational voltage U _e (V)		-	690	690	-	690	690	-	690	-	690	690	690	-
Three and four pole version														
Rated insulation voltage U _i (V)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Maximum continuous current AC-1 (A)		25	25	32	45	45	60	60	90	90	110	110	140	140
Frequency limits (Hz)		25..400	25..400	25..400	25..400	25..400	25..400	25..400	25..400	25..400	25..400	25..400	25..400	25..400
Making capacity (RMS) (IEC 947) (A)		450	450	450	450	550	550	550	1000	1000	1000	1000	1280	1280
Breaking capacity (RMS) (IEC 947)														
U _e ≤ 400V (A)		250	250	250	350	450	450	450	920	920	920	920	1050	1050
U _e = 500V (A)		250	250	250	320	450	450	450	920	920	920	920	1050	1050
U _e = 690V (A)		130	130	130	170	205	205	205	780	780	780	780	950	950
Short-time current														
1 sec. (A)		455	455	570	630	1010	1010	1265	1580	1580	2530	2530	3300	3300
5 sec. (A)		205	205	254	280	450	450	450	565	710	1130	1130	1485	1485
10 sec. (A)		144	144	180	200	320	320	400	500	500	800	800	1050	1050
30 sec. (A)		85	85	104	115	185	185	230	290	290	460	460	600	600
1 min. (A)		60	60	74	80	130	130	165	205	205	325	325	430	430
3 min. (A)		35	35	46	50	90	90	100	120	120	185	185	250	250
Recovery time (min.)		10	10	10	10	10	10	10	10	10	10	10	10	10
Protec. against short-circuit with fuses without TOR														
Coordination type "1"														
gL/gG (A)		50	50	63	63	100	100	125	200	200	200	200	250	250
Coordination type "2"														
gL-gG (A)		25	35	35	50	63	63	80	100	100	125	125	160	200
Without welding														
gL-gG (A)		10	10	25	35	35	35	50	80	80	100	100	140	160
Impedance per pole (mΩ)		2.35	2.35	2.41	1.65	1.28	1.28	0.95	0.85	0.85	0.86	0.86	0.76	0.76
Power dissipation per pole														
AC-1 (W)		1.47	1.47	2.46	3.34	2.59	4.6	3.42	6.89	6.86	10.40	10.40	14.89	14.89
AC-3 (W)		0.19	0.34	0.78	1.03	0.80	1.31	1.52	1.36	2.12	3.63	5.5	6.86	8.37
Insulation resistance														
Between adjacent poles (MΩ)		>10	>10	>10	>10	>10	>10	>10	>10	>10	>10	>10	>10	>10
Between poles and earth (MΩ)		>10	>10	>10	>10	>10	>10	>10	>10	>10	>10	>10	>10	>10
Between input and output (MΩ)		>10	>10	>10	>10	>10	>10	>10	>10	>10	>10	>10	>10	>10



Control circuit

		CL00 ... CL25	CL03 ... CL45	CL05 ... CL08	CL09 ... CL10
Alternating current					
Rated insulation voltage U_i	(V)	1000	1000	1000	1000
Standard voltages U_s 50 Hz	(V)	24...690	24...690	24...690	24...690
Standard voltages U_s 60 Hz	(V)	24...600	24...600	24...600	24...600
Voltage operating limits monofrequency coils					
Operating	xUs	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1
Pick-up	xUs	0.6...0.8	0.65...0.8	0.65...0.8	0.65...0.8
Seal	xUs	0.35...0.55	0.4...0.6	0.4...0.6	0.4...0.6
Voltage operating limits 50/60 Hz coils					
Operating 50 Hz	xUs	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1
Operating 60 Hz	xUs	0.85...1.1	0.85...1.1	0.85...1.1	0.85...1.1
Pick-up 50 Hz	xUs	0.5...0.8	0.6...0.8	0.6...0.8	0.6...0.8
Pick-up 60 Hz	xUs	0.65...0.85	0.7...0.85	0.7...0.85	0.7...0.85
Seal 50 Hz	xUs	0.3...0.55	0.35...0.60	0.35...0.60	0.35...0.60
Seal 60 Hz	xUs	0.35...0.65	0.4...0.6	0.4...0.6	0.4...0.6
Consumption monofrequency coils					
Magnetic circuit closed	(VA)	6	9	15.5	15.5
Magnetic circuit opened (VA)		48	88	190	190
Consumption bifrequency coils					
Magnetic circuit closed (50 Hz/60 Hz)	(VA)	6.8 / 5.6	11.4 / 9.5	20 / 16.6	20 / 16.6
Magnetic circuit opened (50 Hz/60 Hz)	(VA)	53 / 44	120 / 100	245 / 204	245 / 204
Thermal power dissipation (50 Hz/60 Hz)	(W)	2.2 / 1.8	3.2 / 2.6	5.2 / 4.3	5.2 / 4.3
Power factor					
Magnetic circuit closed	cos φ	0.33	0.28	0.26	0.26
Magnetic circuit opened	cos φ	0.84	0.73	0.54	0.54
Opening and closing times					
Values between + 10 % U_s and - 20 % U_s					
Time on energisation (NO)	(ms)	6...20	7...25	9...35	9...35
Time on de-energisation (NO)	(ms)	6...13	5...25	9...15	9...15
Values at U_s					
Time on energisation (NO)	(ms)	8...20	10...19	15...30	15...30
Time on de-energisation (NO)	(ms)	6...13	5...25	9...15	9...15
Mechanical endurance					
Monofrequency coils	10 ⁶ ops.	15	15	15	15
Bifrequency coils (at 50 Hz)	10 ⁶ ops.	10	10	8	8
Maximum rate					
Monofrequency coils. No load	ops./h	9000	9000	9000	5000
AC-1 at rated power	ops./h	1200	1200	1200	1200
AC-2 at rated power	ops./h	1000	1000	1000	750
AC-3 at rated power	ops./h	1200	1200	1200	600
AC-4 at rated power	ops./h	360	360	200	200
Bifrequency coils. No load	ops./h	3600	3600	3600	3600

		Coils with electronic module		Coils with wide voltage range				
		CL00D ... CL25D	CL03D ... CL45D	CL05E ... CL08E	CL09E ... CL10E	CL00D..W ... CL25D..W	CL03D..W ... CL45D..W	CL05D..W ... CL10D..W
Direct current								
Rated insulation voltage U_i	(V)	1000	1000	1000	1000	1000	1000	1000
Standard voltages U_s	(V)	12...440	12...440	24...440	24...440	12...440	12...440	12...440
Operating limits								
Operating	xUs	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.7...1.3	0.7...1.3	0.7...1.3
Pick-up	xUs	0.45...0.65	0.45...0.65	0.70...0.80	0.70...0.80	0.45...0.55	0.45...0.55	0.45...0.55
Drop-out	xUs	0.15...0.3	0.15...0.3	0.4...0.6	0.4...0.6	0.15...0.3	0.15...0.3	0.15...0.3
Consumption								
Magnetic circuit closed	(W)	5.5	8	10	10	6.5	10.4	20
Magnetic circuit opened (W)		5.5	8	170	170	6.5	10.4	20
Opening and closing times								
Values between + 10 % U_s and - 20 % U_s								
Time on energisation (NO)	(ms)	35...65	35...70	60...80	60...80	26...55	30...65	64...133
Time on de-energisation (NO)	(ms)	6...15	40...65	40...50	40...50	6...15	5...10	20...23
Values at U_s								
Time on energisation (NO)	(ms)	35...45	40...55	50...60	50...60	35...45	40...55	75...95
Time on de-energisation (NO)	(ms)	7...12	30...65	55...60	55...60	7...12	6...8	20...22
Mechanical endurance								
No load	10 ⁶ ops.	15	15	12	12	15	15	12
Maximum rate								
No load	ops./h	3600	3600	2500	2500	3600	3600	3600
AC1 and AC3 at rated power	ops./h	1200	1200	1200	600	1200	1200	1200
AC4 at rated power	ops./h	360	360	200	200	360	360	200



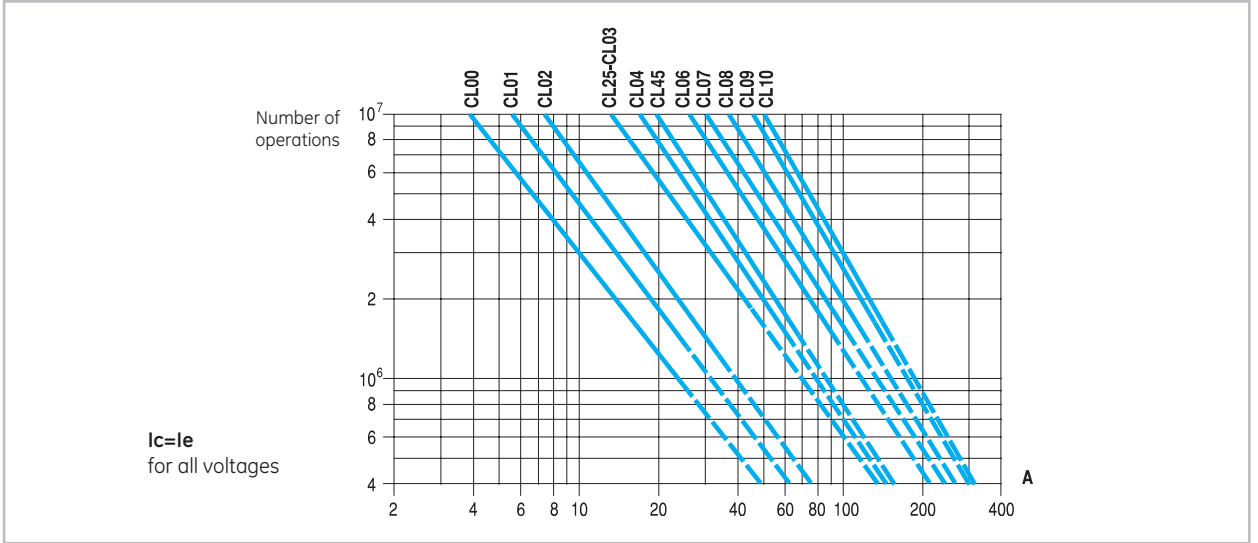
Electrical endurance

Mixed category AC4 / AC3

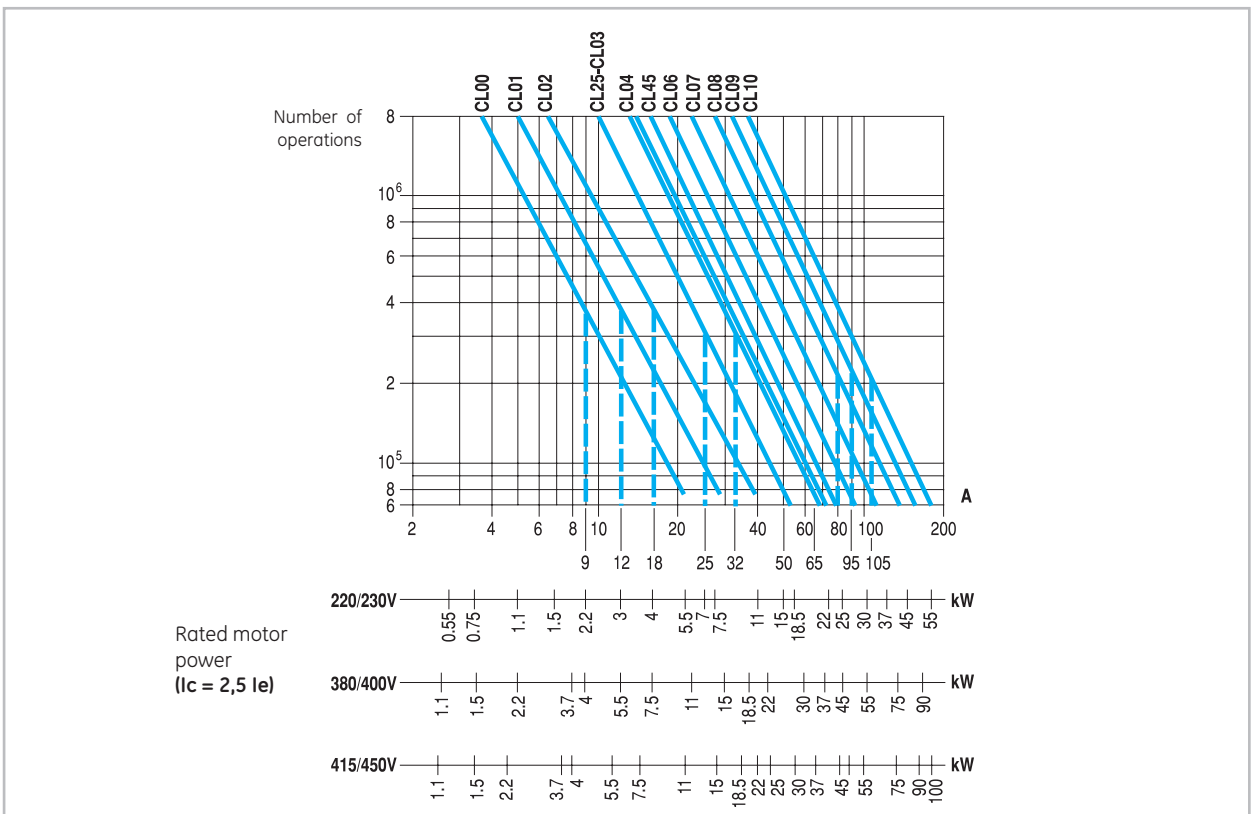
Electrical endurance for mixed category (AC-3/AC-4) is calculated with the following formula :

$$\text{Electrical endurance (AC-3/AC-4)} = \frac{\text{Electrical endurance (AC-3)}}{1 + \frac{\% \text{ oper AC-4}}{100}} \times \left(\frac{\text{Elec.endur. (AC-3)}}{\text{Elec.endur.(AC-4)}} - 1 \right)$$

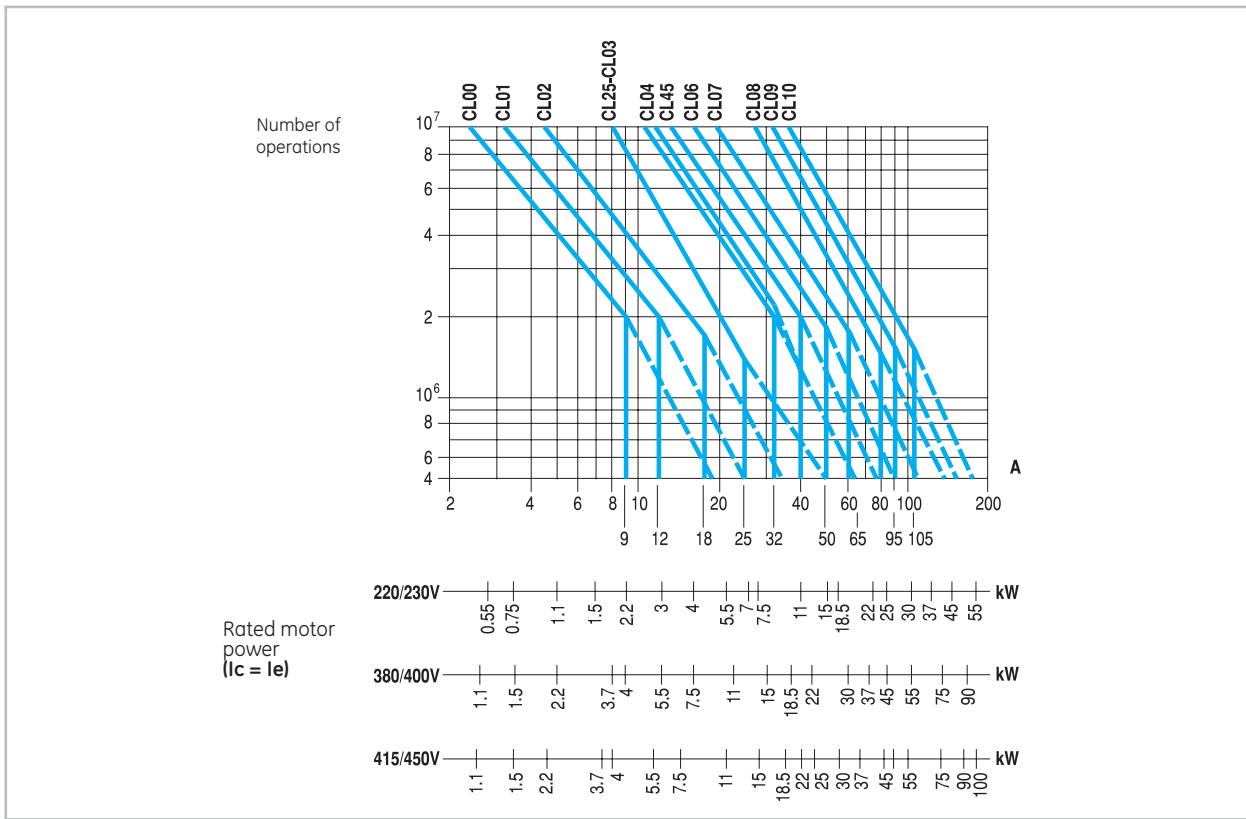
Category AC1



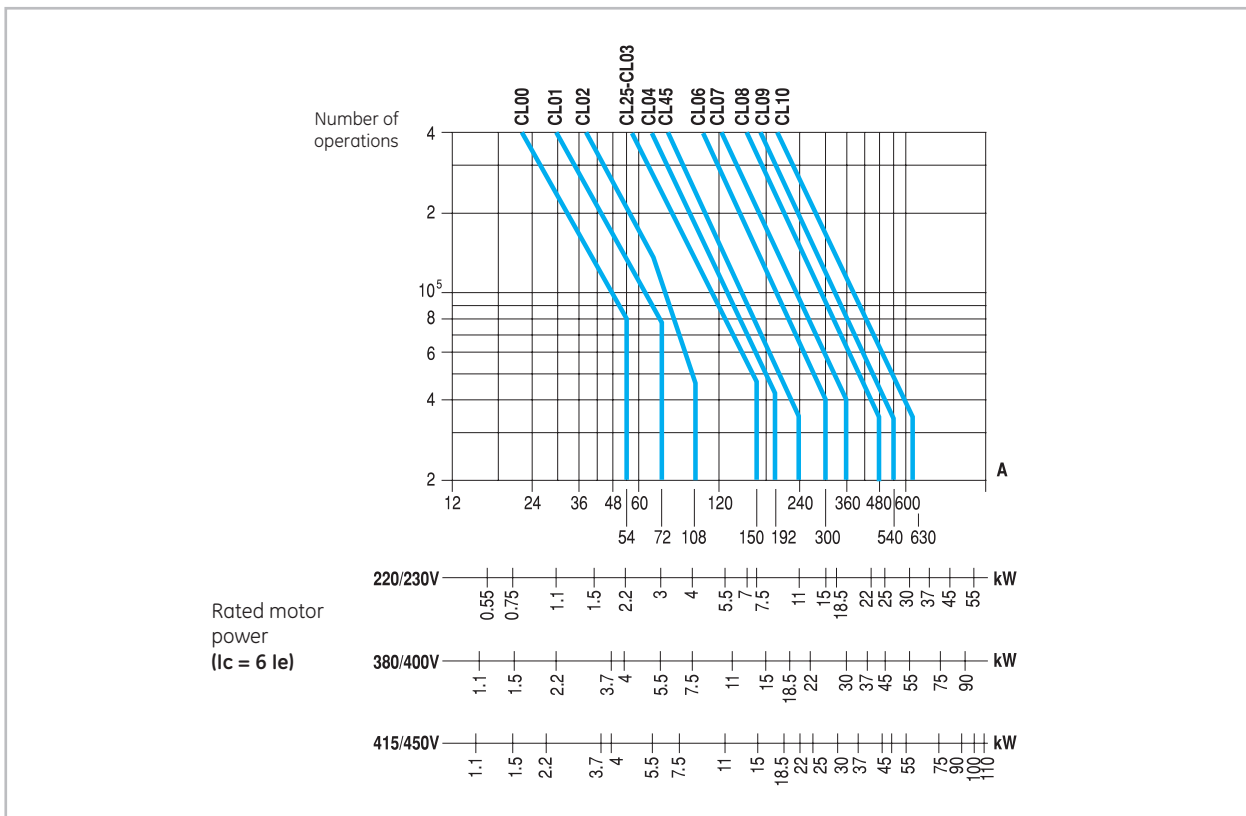
Category AC2



Category AC3



Category AC4



3P and 4P contactors

A

B

C

D

E

F

G

H

I

X



Internal auxiliary contacts

			CL00 ... CL02		CL03 ... CL04	
Rated insulation voltage U_i according to IEC 60947	(V)		1000		1000	
Rated thermal current I_{th} at $\theta \leq 55^\circ\text{C}$	(A)		20		20	
Making capacity (r.m.s.) acc. to IEC 60947						
AC-15	$U_e \leq 400\text{V}, 50/60\text{ Hz}$	(A)	250		250	
DC-13	$U_e \leq 220\text{V DC}$	(A)	250		250	
Breaking capacity (r.m.s.) acc.to IEC 60947						
AC-15	$U_e \leq 400\text{V}, 50/60\text{ Hz}$	(A)	250		250	
DC-13	$U_e \leq 220\text{V DC}$	(A)	2		2	
AC-15	Rated voltage and current U_e - I_e	according to IEC	110/120V-10A 400/380V-6A 500V-4A	220/230V-10A 415/450V-5A 690/660V-2A	110/120V-10A 400/380V-6A 500V-4A	230/220V-10A 415/450V-5A 690/660V-2A
		according to UL, CSA	A600		A600	
DC-13	Rated voltage and current U_e - I_e	according to IEC	24V-6A 110V-2A 440V-0.35A	48V-4A 220V-0.7A	24V-6A 110V-2A 440V-0.35A	48V-4A 220V-0.7A
		according to CSA	P600		P600	
Electrical endurance	ops.		10^6		10^6	
Minimum operational power (operational safety)			17V - 5mA		17V - 5mA	
Short-circuit protect.	Max.fuse class gI-gG without welding	(A)	10		10	
Insulation resistance	Between contacts	($m\Omega$)	> 10		> 10	
	Between contacts and earth	($m\Omega$)	> 10		> 10	
	Between input and output	($m\Omega$)	> 10		> 10	
Guaranteed no overlap between NO and NC contacts						
	Space	(mm)	1.3		2.6	
	Time	(ms)	1.5		1.5	
Impedance of the contacts	($m\Omega$)		1.28		1.28	

Auxiliary contact blocks

			Instantaneous BCLF..., BCRF..., BCLL..., BRLL...		Timed blocks BTLF..., BTRF...	
Rated insulation voltage U_i according to IEC 60947	(V)		1000		1000	
Rated thermal current I_{th} at $\theta \leq 55^\circ\text{C}$	(A)		10		10	
Making capacity (Ieff) according to IEC 60947						
AC-15	$U_e \leq 400\text{V}, 50/60\text{ Hz}$	(A)	90		90	
DC-13	$U_e \leq 220\text{V DC}$	(A)	90		90	
Breaking capacity (Ieff) according to IEC 60947						
AC-15	$U_e \leq 400\text{V}, 50/60\text{ Hz}$	(A)	60		60	
DC-13	$U_e \leq 220\text{V}, \text{DC}$	(A)	0.95		0.95	
AC-15	Rated voltage and current U_e - I_e	according to IEC	120/110V-6A 400/380V-4A 500V-2.5A	230/220V-6A 440/415V-3.5A 690/660V-1.5A	120/110V-6A 400/380V-4A 500V-2.5A	230/220V-6A 440/415V-3.5A 690/660V-1.5A
		according to UL, CSA	A600		A600	
DC-13	Rated voltage and current U_e - I_e	according to IEC	24V-4A 110V-0.7A 440V-0.15A	48V-2A 220V-0.3A	24V-4A 110V-0.7A 440V-0.15A	48V-2A 220V-0.3A
		according to UL, CSA	Q600		Q600	
Electrical endurance	10^6 ops.		1		1	
Mechanical endurance	10^6 ops.		10		5	
Minimum operational current (operational safety)			17V - 5mA		17V - 5mA	
Short-circuit protect.	Max.fuse class gI-gG without welding	(A)	10		10	
Insulation resistance	Between contacts	($m\Omega$)	> 10		> 10	
	Between contacts and earth	($m\Omega$)	> 10		> 10	
	Between input and output	($m\Omega$)	> 10		> 10	
Guaranteed no overlap between NO and NC contacts						
	Space	(mm)	1.3		1.3	
	Time	(ms)	1.5		5	
Impedance of the contacts	($m\Omega$)		1.28		1.28	
Timing (ambient temperature between -25°C and $+55^\circ\text{C}$)						
	Accuracy		-		$\pm 5\%$	
	Loss of accuracy 0.5×10^6 ops.		-		$+ 20\%$	
	Loss of accuracy per rise $^\circ\text{C}$ ($0 - 55^\circ\text{C}$)		-		$+ 0.75\%$ per $^\circ\text{C}$	

Mechanical latch blocks

	RMLF..	
Rated insulation voltage U_i	1000 V	
Standard voltages U_s : 50 to 60 Hz and DC	24...690 V	
Operating limits	0.75...1.1 x U_s	
Consumption for unlatching (auto cut-out)	24 to 72 V	210 W / VA
	110 to 440 V	130 W / VA
Electrical unlatching control ⁽¹⁾		
Minimum impulse	10 ms	
Maintained	auto cut-out by integral contact	
Manual unlatching control	by local push-button	
Electrical making control		
Minimum pulse	40 ms auto cut-out by integral contact	
Manual making control	by local push-button	
Auxiliary contact NC		
Utilisation AC-15 according to IEC	120V - 6A	500V - 1.5A
	230V/220V - 4A 400V/380V - 2.5A	690V/660V - 1A
according to UL/CSA	A600	
Utilisation DC-13 according to IEC	24V - 3A	220V - 0.3A
	48V - 1.5A	400V - 0.15A
	110V - 0.6A	
according to UL/CSA	Q600	
Mechanical endurance		
CL00...CL45	3 million (1200 ops./h)	
CL05...CL10	0.1 million (300 ops./h)	
Wiring diagram Alternating current		
Alternating current / Direct current		

(1) The contactor coil and the unlatch control must not be energised simultaneously

Terminal capacity

	Terminal: screw BCLF, BCLL, BTLF y RMLF	Terminal: ring terminal BCRF, BTRF
Solid	2 x 0.5 to 2.5 or 1 x 4	
Stranded and finely stranded without end sleeve	2 x 0.5 to 2.5 or 1 x 4	
Finely stranded with end sleeve	2 x 0.5 to 2.5 or 1 x 4	
AWG wires, solid and stranded	12 - 22 AWG 75°C	
Tightening torque	1.1 Nm / 10 Lb x in.	
	Ring terminal	3.6 min. 6.5 max.
	Tightening torque	0.8 Nm / 7 Lb x in.

Contact sequence

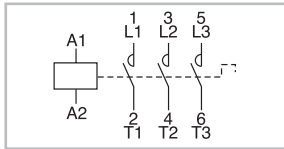
		Basic contactor	Auxiliary contact blocks Front mounted		Auxiliary contact blocks Lateral mounted		
			BCLF 10 BCRF 10	BCLF 01 BCRF 01	BCLL 20 BRLL 20	BCLL 11 BRLL 11	
Three pole contactors 3 NO	CL00... CL01... CL02...						
	CL25...						
	CL03... CL04...						
	CL45...						
	CL06...						
	CL07... CL08...						
	CL09...						
	CL10...						
	Four pole contactors 4 NO	CL01... CL02...					
		CL03... CL04...					
CL05...							
CL07...							
CL09...							
Four pole contactors 2 NO + 2 NC		CL01... CL02...					
	CL03... CL04...						
	CL05...						
	CL07... CL08...						



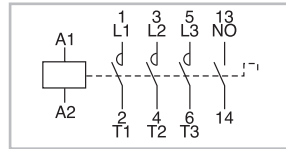
Terminal numbering

Three-pole and four-pole AC contactors

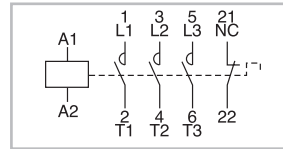
CL00A300 ... CL10A300 __
 CL25D300 ... CL45D300 __
 CL06E300 ... CL10E300 __



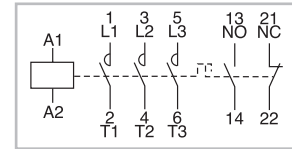
CL00_310 ... CL02_310 __
 CL03_310 ... CL04_310 __



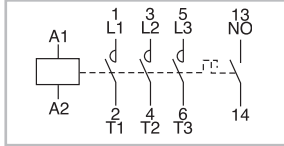
CL00_301 ... CL02_301 __
 CL03_301 ... CL04_301 __



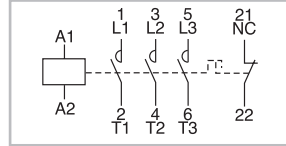
CL45A311 ... CL10A311 __



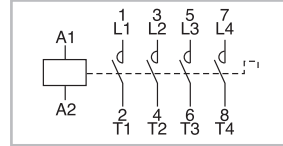
CL25_310 __



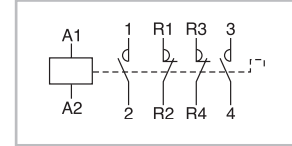
CL25_301 __



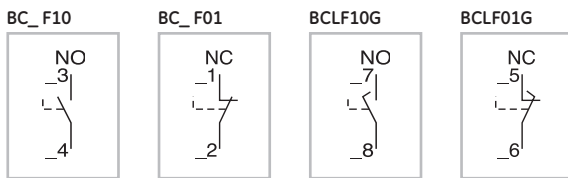
CL00A400 ... CL08A400 __
 CL01D400 ... CL04D400 __
 CL05E400 ... CL09E400 __



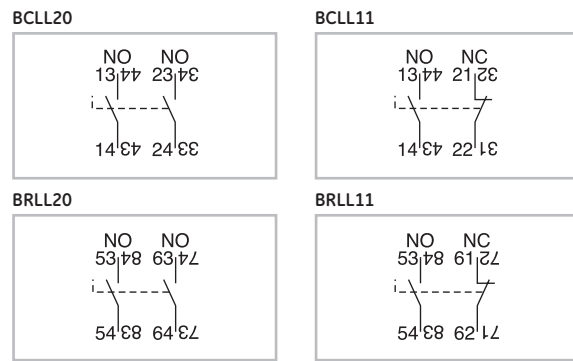
CL01AB00 ... CL08AB00 __
 CL01DB00 ... CL04DB00 __
 CL05EB00 ... CL08EB00 __



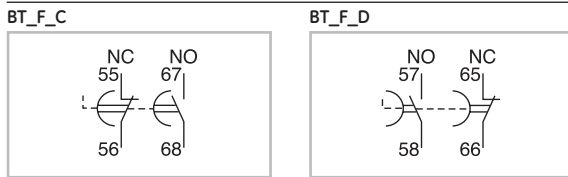
Auxiliary contact blocks. Front mounting



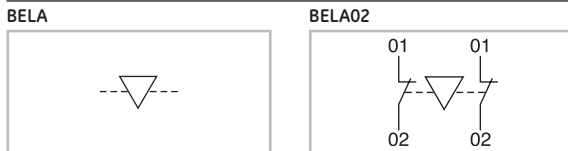
Auxiliary contact blocks. Lateral mounting



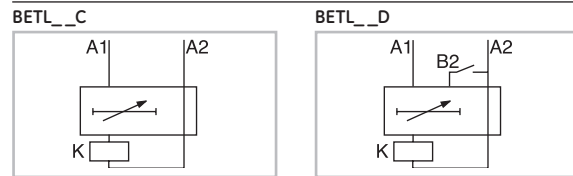
Pneumatic timer blocks



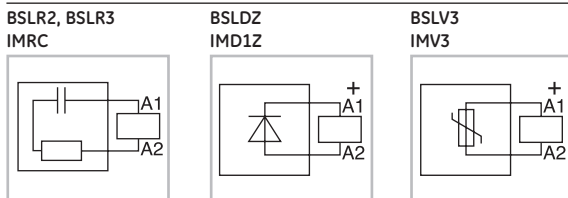
Mechanical and mechanical/electrical interlock



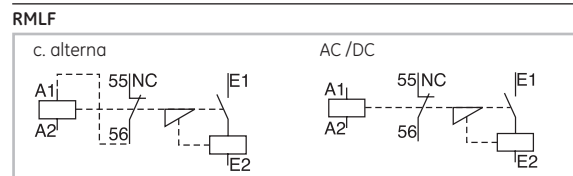
Electronic timer blocks



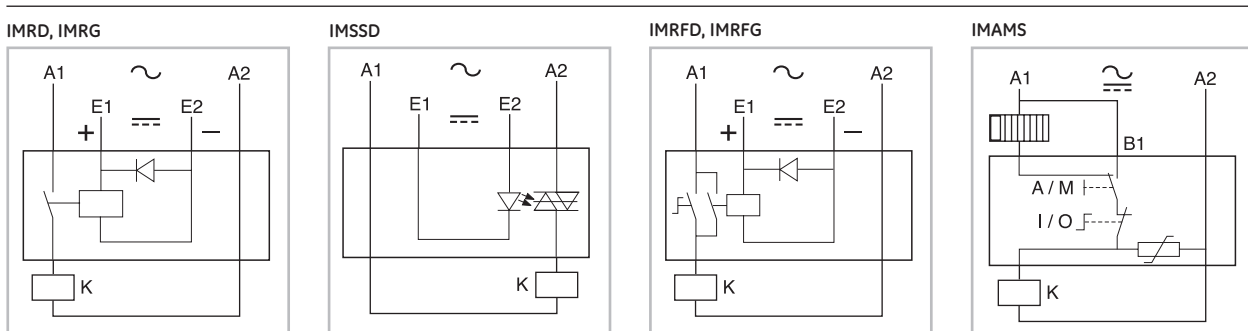
Voltage suppressor blocks



















Mechanical latch block



Interface modules



Terminal numbering according to EN 50012

		Auxiliary contacts		Possible basic contactors + Auxiliary contacts blocks to be added		
		Combination				
		Description				
Without auxiliary contact blocks						
	10E	1	0		CL00_310... - CL04_310...	
	01E	0	1		CL00_301... - CL04_301...	
Front mounting auxiliary contact blocks with one contact each						
	11E	1	1		CL00_310... - CL04_310... + BC_F01	
	21E	2	1		CL00_310... - CL04_310... + BC_F01 + BC_F10	
	12E	1	2		CL00_310... - CL04_310... + BC_F01 + BC_F01	
	31E	3	1		CL00_310... - CL04_310... + BC_F01 + BC_F10 + BC_F10	
	41E	4	1		CL00_310... - CL04_310... + BC_F01 + BC_F10 + BC_F10 + BC_F10	
	22E	2	2		CL00_310... - CL04_310... + BC_F01 + BC_F01 + BC_F10	
	32E	3	2		CL00_310... - CL04_310... + BC_F01 + BC_F01 + BC_F10 + BC_F10	
	13E	1	3		CL00_310... - CL04_310... + BC_F01 + BC_F01 + BC_F01	
	23E	2	3		CL00_310... - CL04_310... + BC_F01 + BC_F01 + BC_F01 + BC_F10	
Lateral mounting auxiliary contact blocks with two contacts each						
	11E	1	1		CL00_300... - CL45_300... + BCLL11	
	31E	3	1		CL00_300... - CL45_300... + BCLL11 + BCLL20	
	22E	2	2		CL00_300... - CL45_300... + BCLL11 + BCLL11	

The maximum number of auxiliary contacts is 4 for CL00 to CL25, 6 for CL03 -CL04 and 8 for CL45, CL06 to CL10. When using the pneumatic BTLF-block, these numbers are reduced to two, resp. four. (2 for CL00 to CL25, 4 for CL03 and CL04, etc.)

Terminal numbering according to EN 50012 (continued)

Diagram	Auxiliary contacts		Possible basic contactors + Auxiliary contacts blocks to be added
	Combination	Description	
Without auxiliary contact blocks			
			CL25_300... - CL45_300... CL06_300... - CL10_300...
Front mounting auxiliary contact blocks with one contact each			
	10E	1 0	CL25_300... - CL45_300... + BC_F10 CL06_300... - CL10_300... + BC_F10
	01E	0 1	CL25_300... - CL45_300... + BC_F01 CL06_300... - CL10_300... + BC_F01
	11E	1 1	CL25_300... - CL45_300... + BC_F10 + BC_F01 CL06_300... - CL10_300... + BC_F10 + BC_F01
	21E	2 1	CL25_300... - CL45_300... + BC_F10 + BC_F01 + BC_F10 CL06_300... - CL10_300... + BC_F10 + BC_F01 + BC_F10
	12E	1 2	CL25_300... - CL45_300... + BC_F10 + BC_F01 + BC_F01 CL06_300... - CL10_300... + BC_F10 + BC_F01 + BC_F01
	31E	3 1	CL25_300... - CL45_300... + BC_F10 + BC_F01 + BC_F10 + BC_F01 CL06_300... - CL10_300... + BC_F10 + BC_F01 + BC_F10 + BC_F01
	41E	4 1	CL06_300... - CL10_300... + BC_F10 + BC_F01 + BC_F10 + BC_F10 + BC_F10
	22E	2 2	CL25_300... - CL45_300... + BC_F10 + BC_F01 + BC_F01 + BC_F10 CL06_300... - CL10_300... + BC_F10 + BC_F01 + BC_F01 + BC_F10
	32E	3 2	CL06_300... - CL10_300... + BC_F10 + BC_F01 + BC_F01 + BC_F10 + BC_F10
	13E	1 3	CL25_300... - CL45_300... + BC_F10 + BC_F01 + BC_F01 + BC_F01 CL06_300... - CL10_300... + BC_F10 + BC_F01 + BC_F01 + BC_F01
	23E	2 3	CL06_300... - CL10_300... + BC_F10 + BC_F01 + BC_F01 + BC_F01 + BC_F10
Lateral mounting auxiliary contact blocks with two contacts each			
	11E	1 1	CL25_300... - CL45_300... + BCLL11 CL06_300... - CL10_300... + BCLL11
	31E	3 1	CL25_300... - CL45_300... + BCLL11 + BCLL20 CL06_300... - CL10_300... + BCLL11 + BCLL20
	22E	2 2	CL25_300... - CL45_300... + BCLL11 + BCLL11 CL06_300... - CL10_300... + BCLL11 + BCLL11

3P and 4P contactors

A

B

C

D

E

F

G

H

I

X



Conformity to standards

IEC/EN 60947-1	NF C 63-110	BS 5424 & 775
IEC/EN 60947-4-1	ASE 1025	NEMA ICS 1
CENELEC HD 419	CSA 22.2/14	VDE 0660/102
UL 508	UNE 20109	
EN 50005		

Approvals

cULus	RINA	CE
NOM	FI	
Lloyd's Register	Bureau Veritas	

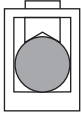
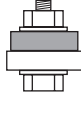
Ambient conditions

Storage temperature	-55°C to +80°C	
Operation temperature	-40°C to +60°C	
Altitude	up to 3000m	Nominal values
	from 3000 up to 4000m	90%le 80%Ue
	from 4000 up to 5000m	80%le 75%Ue

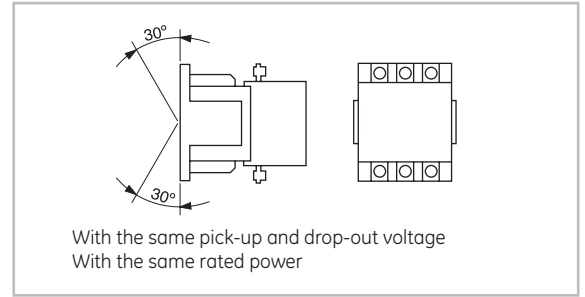
Climatic resistance (IEC 68-2)

Continuous tests 40 / 125 / 56		
Cold (72h)	Temperature	-40°C
	Dry heat (96h)	
	Temperature	+125°C
	Relative humidity	< 50%
Humid heat (56 days)	Temperature	+40°C
	Relative humidity	95%
Cyclical test		
First half-cycle (12h)	Low temperature	+25°C
	Relative humidity	93%
Second half-cycle (12h)	Low temperature	+55°C
	Relative humidity	95%
Number of consecutive cycles		6

Terminal capacity and tightening torque

		CK07B	CK75C CK08C	CK08B CK95B	CK10C	CK11C	CK12B	CK13B
	Solid (mm²)	1.5..95						
	Finely stranded w/end sleeve (mm²)	2..35						
	Finely stranded w/o end sleeve (mm²)	2..50						
	Stranded (mm²)	1.5..95						
	AWG wires (mm²)	16..00						
	Tightening torque (Nm)	8						
	(Lb x in)	70						
	Finely stranded w/end sleeve (mm²)		1 x 120 2 x 95	1 x 240 2 x 150	2 x 185	2 x 240	-	-
	AWG wires with end sleeve (mm²)		1 x 300 2 x 107	1 x 500 2 x 300	2 x 350	2 x 500	-	-
	Busbars		2 (25 x 5)	2 (25 x 5)	2 (35 x 10)	2 (35 x 10)	2 (35 x 10)	2 (60 x 10)
	Tightening torque (Nm)		8	23	31.5	31.5	31.5	31.5
	(Lb x in)		70	200	275	275	275	275

Mounting positions



Power circuit

			CK75C	CK08C	CK85B	CK09B	CK95B	CK10C	CK11C	CK12B	CK13B
Three pole contactors											
Rated thermal current I _{th} at θ ≤ 40°C	(A)		250	250	315	315	450	600	700	1000	1250
Rated operational current I _e AC-3	(A)		150	185	205	250	309	420	550	700	825
Rated operational voltage U _e	(V)		1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage U _i	(V)		1000	1000	1000	1000	1000	1000	1000	1000	1000
Maximum continuous current AC-1	(A)		250	250	315	315	450	600	700	1000	1250
Frequency limits	(Hz)		25...400	25...400	25...400	25...400	25...400	25...400	25...400	25...400	25...400
Making capacity (RMS) (IEC 947)	(A)		1850	2200	2500	2500	3700	6500	6500	8400	8250
Breaking capacity (RMS) (IEC 947)											
U _e ≤ 400V	(A)		1600	1850	2000	3500	3500	5600	5600	7300	6600
U _e = 500V	(A)		1600	1850	2000	3500	3500	5600	5600	7000	6600
U _e = 690V	(A)		1000	1200	1660	2200	2200	5000	5000	6700	6000
U _e = 1000V	(A)		350	350	850	1100	1100	3000	3000	3500	3500
Short-time current											
	1 sec.	(A)	2500	2500	4000	5500	5500	7500	7500	9700	11600
	5 sec.	(A)	2500	2500	3200	3500	3500	5200	5200	7700	8800
	10 sec.	(A)	2300	2300	2400	2500	2500	4000	4000	6100	7350
	30 sec.	(A)	1250	1250	1400	1600	1600	2800	2800	4400	5300
	1 min.	(A)	900	900	1000	1200	1200	1800	1800	3500	4500
	3 min.	(A)	600	600	750	900	900	1200	1200	2300	2800
Short-time current	(min.)		10	10	10	10	10	10	10	10	10
Protec. against short-circuit with fuses without TOR											
Coord. type "1"	gL/gG	(A)	355	355	500	500	630	1250	1250	1250	2x800
Coord. type "2"	gL/gG	(A)	250	250	315	400	500	630	800	1000	1250
Without welding	gL/gG	(A)	200	200	250	315	425	500	630	800	1000
Impedance per pole	(mΩ)		0.30	0.30	0.28	0.28	0.28	0.15	0.13	0.14	0.11
Power dissipation	AC-1	(W)	19	19	27.7	27.7	56.7	54.3	63.7	140	171.8
per pole	AC-3	(W)	6.8	10.3	11.7	17.5	26.7	26.5	45.3	68.6	74.8
Insulation resistance											
Between adjacent poles	(mΩ)		> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10
Between poles and earth	(mΩ)		> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10
Between input and output	(mΩ)		> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10	> 10
			CK07B	CK08B		CK09B	CK95B	CK10C	CK11C	CK12B	CK13B
Four pole contactors											
Rated thermal current I _{th} at θ ≤ 40°C	(A)		200	325		400	500	600	700	1000	1250
Rated operational voltage U _e	(V)		690	1000		1000	1000	1000	1000	1000	1000
Rated insulation voltage U _i	(V)		1000	1000		1000	1000	1000	1000	1000	1000
Maximum continuous current AC-1	(A)		200	325		400	500	600	700	1000	1250
Frequency limits	(Hz)		25...400	25...4000		25...400	25...400	25...400	25...400	25...400	25...400
Making capacity (RMS) (IEC 947)	(A)		1150	1850		2500	3700	6500	6500	6700	8250
Breaking capacity (RMS) (IEC 947)											
U _e ≤ 400V	(A)		950	1600		3500	3500	5600	5600	6700	6600
U _e = 500V	(A)		950	1600		3500	3500	5600	5600	6700	6600
U _e = 690V	(A)		800	1000		2200	2200	3500	3500	6000	6000
U _e = 1000V	(A)		-	350		1100	1100	2000	2000	3500	3500
Short-time current											
	1 sec.	(A)	2100	2500		5500	5500	7500	7500	9700	11600
	5 sec.	(A)	1500	2500		3500	3500	5200	5200	7700	8800
	10 sec.	(A)	1150	2300		2500	2500	4000	4000	6100	7350
	30 sec.	(A)	750	1250		1600	1600	2800	2800	4400	5300
	1 min.	(A)	550	900		1200	1200	1800	1800	3500	4500
	3 min.	(A)	350	600		900	900	1200	1200	2300	2800
Recovery time	min.		10	10		10	10	10	10	10	10
Short-circuit protection with fuse without TOR											
Coord. type "1"	gL/gG	(A)	315	500		500	630	1250	1250	1250	2x800
Coord. type "2"	gL/gG	(A)	250	400		400	500	630	800	1000	1250
Without welding	gL/gG	(A)	200	315		315	425	500	630	800	1000
Impedance per pole	(mΩ)		0.45	0.32		0.28	0.28	0.15	0.13	0.14	0.11
Power dissipation per pole											
AC-1	(W)		18	33.8		44.8	56.7	61.2	68.6	140	171.8
Insulation resistance											
Between adjacent poles	(mΩ)		> 10	> 10		> 10	> 10	> 10	> 10	> 10	> 10
Between poles and earth	(mΩ)		> 10	> 10		> 10	> 10	> 10	> 10	> 10	> 10
Between input and output	(mΩ)		> 10	> 10		> 10	> 10	> 10	> 10	> 10	> 10



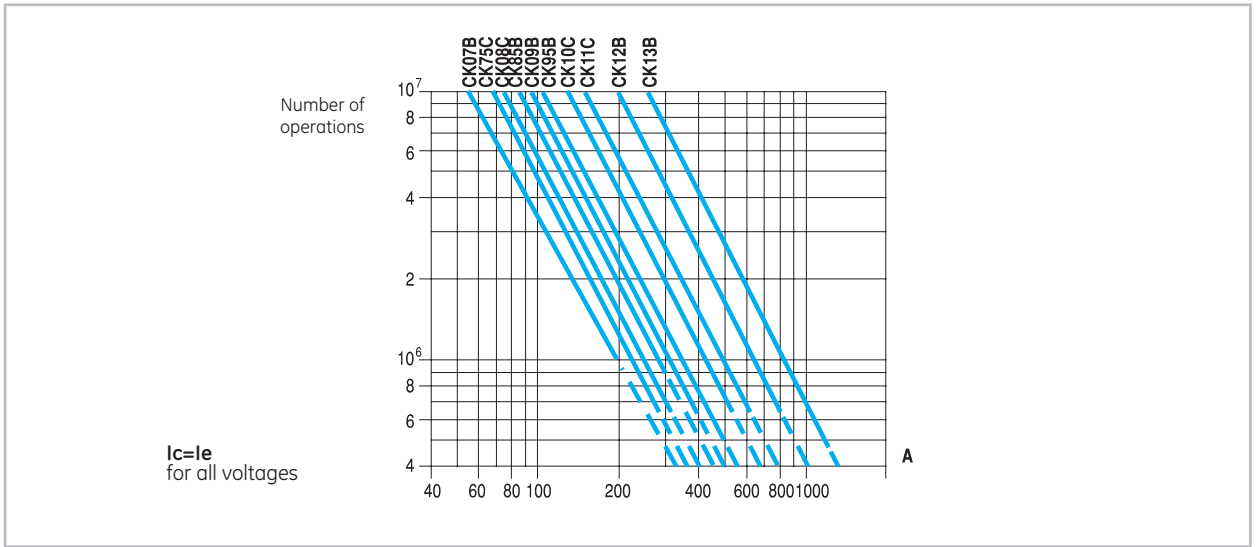
Electrical endurance

Mixed category AC4 / AC3

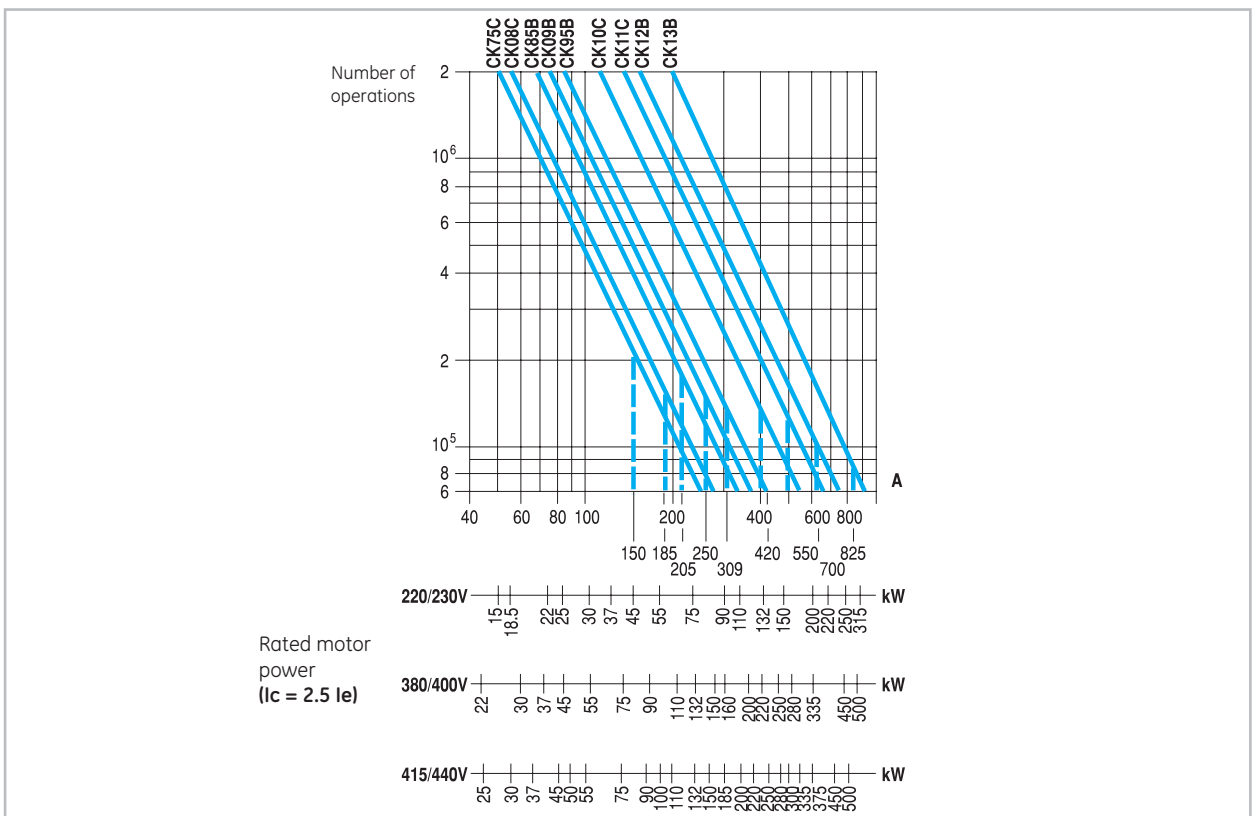
Electrical endurance for mixed category (AC-3/AC-4) is calculated with the following formula:

$$\text{Electrical endurance (AC-3/AC-4)} = \frac{\text{Electrical endurance (AC-3)}}{1 + \frac{\% \text{ oper AC-4}}{100} \times \left(\frac{\text{Elec.endur. (AC-3)}}{\text{Elec.endur. (AC-4)}} - 1 \right)}$$

Category AC1

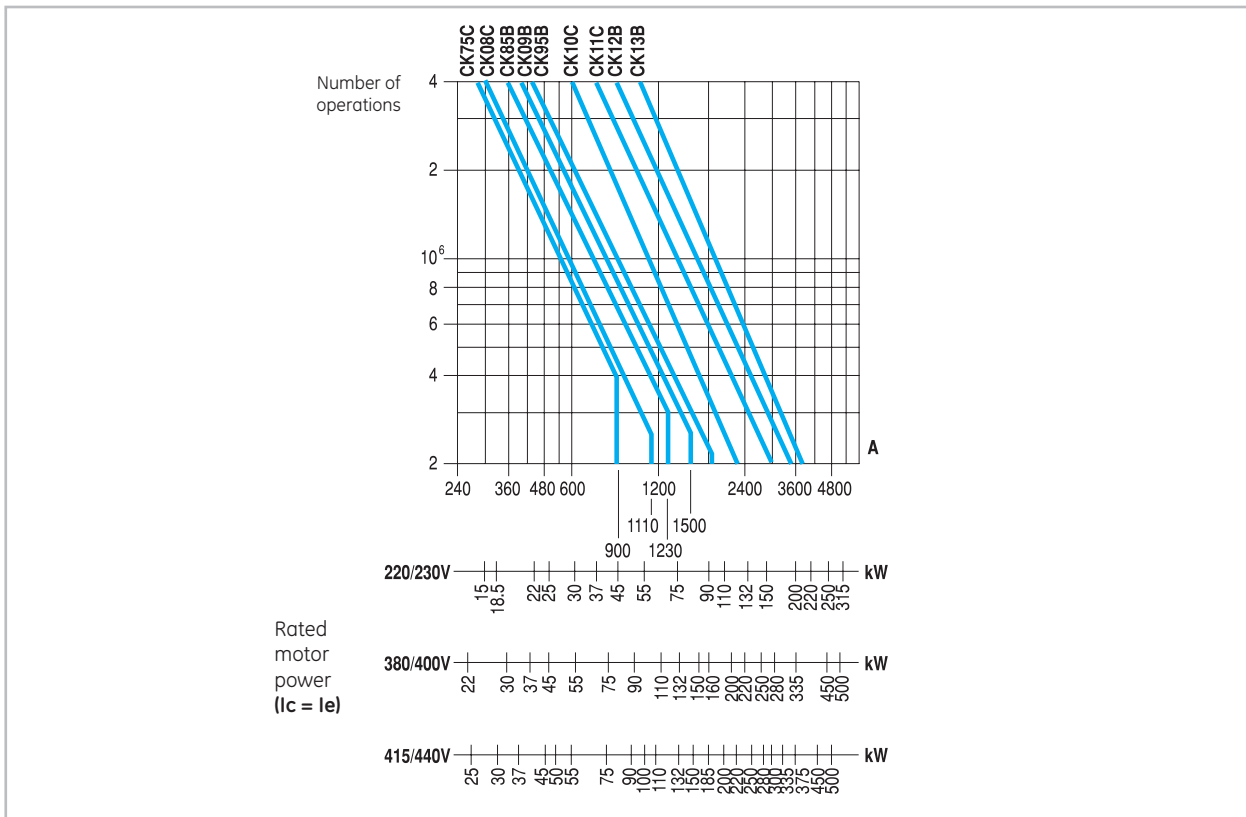


Category AC2

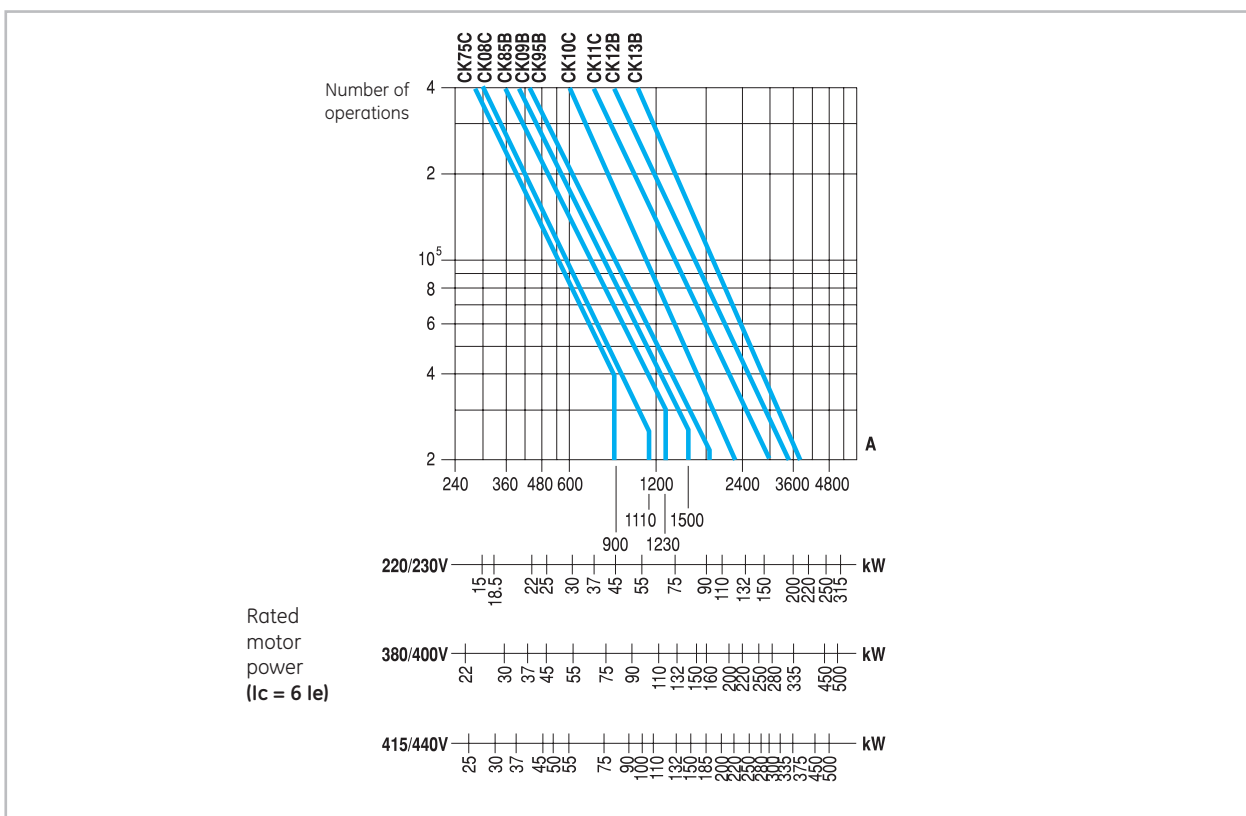


Electrical endurance (continued)

Category AC3



Category AC4



3P and 4P contactors

A

B

C

D

E

F

G

H

I

X



Three pole contactors. Control circuit

Alternating current

		CK75CA	CK08CA	CK85BA CK85BE	CK09BE	CK95BE	CK10CE	CK11CE	CK12BE	CK13BA
Rated insulation voltage U_i	(V)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Standard voltages U_s (50/60 Hz)	(V)	24...690	24...690	24...690	24...690	24...690	24...690	24...690	24...690	24...440
Operating limits										
Switch-on	x U_s	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1
Switch-off	x U_s	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6	0.25...0.55
Consumption. Monofrequency coils										
Magnetic circuit closed	CK...A (VA)	42	42	46	-	-	-	-	-	6
Magnetic circuit open	CK...E (VA)	-	-	20	20	20	23	23	25	-
Power dissipation	CK...A (W)	500	500	830	-	-	-	-	-	2760
	CK...E (W)	-	-	425	425	425	680	680	750	-
Consumption. Bifrequency coils										
Magnetic circuit closed (CK...A)	50Hz (VA)	46	46	60	-	-	-	-	-	-
	60Hz (VA)	38.3	38.3	50	-	-	-	-	-	-
Magnetic circuit open (CK...A)	50Hz (VA)	568	568	1082	-	-	-	-	-	-
	60Hz (VA)	473	473	901	-	-	-	-	-	-
Power dissipation (CK...A)	50Hz (W)	23	23	22.2	-	-	-	-	-	-
	60Hz (W)	19.1	19.1	18.5	-	-	-	-	-	-
Power factor										
Magnetic circuit closed	CK...A (cos φ)	0.4	0.4	0.37	-	-	-	-	-	approx. 1
	CK...E (cos φ)	-	-	-	-	-	-	-	-	-
Magnetic circuit open	CK...A (cos φ)	0.6	0.6	0.6	-	-	-	-	-	approx. 1
	CK...E (cos φ)	-	-	-	-	-	-	-	-	-
Opening and closing times at U_s										
Making time at excitation (NO)	(ms)	20...25	20...25	36...40	60...70	60...70	80...90	80...90	70...80	50...55
Breaking time at de-energisation (NO)	(ms)	10...13	10...13	10...15	13...17	13...17	40...50	40...50	70...80	115...130
Mechanical endurance										
Maximum rate	10^6 ops	10	10	10	10	10	10	10	10	3
No load	ops/h	2400	2400	2400	1200	1200	900	900	900	600
AC-1/AC-3 at rated power	ops/h	600	600	600	600	600	300	300	300	120
AC-2 at rated power	ops/h	250	250	250	250	250	200	200	200	120
AC-4 at rated power	ops/h	150	150	150	150	150	120	120	120	120

Direct current

		CK75CE	CK08CE	CK85BE	CK09BE	CK95BE	CK10CE	CK11CE	CK12BE
Rated insulation voltage U_i	(V)	1000	1000	1000	1000	1000	1000	1000	1000
Standard voltages U_s (50/60 Hz)	(V)	24...500	24...500	24...500	24...500	24...500	24...500	24...500	24...500
Operating limits									
Switch-on	x U_s	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1
Switch-off	x U_s	0.4...0.6	0.4...0.6	0.35...0.5	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6
Consumption									
Magnetic circuit closed	(W)	2	2	3.5	3.5	3.5	4	4	4.5
Magnetic circuit open	(W)	135	135	350	350	350	405	405	650
Opening and closing times at U_s									
Making time at excitation (NO contacts)	(ms)	60...70	60...70	60...70	60...70	60...70	80...90	80...90	70...80
Breaking time at de-energisation (NO contacts)	(ms)	13...17	13...17	13...17	13...17	13...17	40...50	40...50	40...50
Mechanical endurance									
Maximum rate	10^6 ops.	10	10	10	10	10	10	10	10
No load	ops/h	1200	1200	1200	1200	1200	900	900	900
AC-3 at rated power	ops/h	600	600	600	600	600	300	300	300
AC-4 at rated power	ops/h	150	150	150	150	150	120	120	120



Four pole contactors. Control circuit

Alternating current

		CK07BA CK07BE	CK08BA CK08BE	CK09BE	CK95BE	CK10CE	CK11CE	CK12BE	CK13BA
Rated insulation voltage U_i	(V)	1000	1000	1000	1000	1000	1000	1000	1000
Standard voltages U_s (50/60 Hz)	(V)	24...690	24...690	24...690	24...690	24...690	24...690	24...690	110...440
Operating limits									
Switch-on	xUs	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1
Switch-off	xUs	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6	0.25...0.55
Consumption. Monofrequency coils									
Magnetic circuit closed	CK...A (VA)	46	130	-	-	-	-	-	6
	CK...E (VA)	20	25	25	25	23	23	25	-
Magnetic circuit open	CK...A (VA)	830	2860	-	-	-	-	-	2760
	CK...E (VA)	425	750	750	750	680	680	750	-
Power dissipation	CK...A (W)	17	53	-	-	-	-	-	5
	CK...E (W)	3.5	4.5	4.5	4.5	4	4	4.5	-
Consumption. Bifrequency coils									
Magnetic circuit closed (CK...A)	50Hz (VA)	60	159.3	-	-	-	-	-	-
	60Hz (VA)	50	132.7	-	-	-	-	-	-
Magnetic circuit open (CK...A)	50Hz (VA)	1082	3509	-	-	-	-	-	-
	60Hz (VA)	901	2924	-	-	-	-	-	-
Power dissipation (CK...A)	50Hz (W)	22.2	65.3	-	-	-	-	-	-
	60Hz (W)	18.5	54.4	-	-	-	-	-	-
Power factor									
Magnetic circuit closed	CK...A (cos φ)	0.37	0.37	-	-	-	-	-	approx. 1
	CK...E (cos φ)	-	-	-	-	-	-	-	-
Magnetic circuit open	CK...A (cos φ)	0.6	0.6	-	-	-	-	-	approx. 1
	CK...E (cos φ)	-	-	-	-	-	-	-	-
Opening and closing times at Us									
Making time at excitation (NO)	(ms)	36...40	60...70	70...80	70...80	110...115	80...90	110...115	50...55
Breaking time at de-energisation (NO)	(ms)	10...15	13...17	70...80	70...80	70...80	40...50	70...80	70...80
Mechanical endurance	10^6 ops.	10	10	10	10	10	10	10	3
Maximum rate									
No load	ops/h	2400	900	900	900	900	900	900	600
AC-1/AC-3 at rated power	ops/h	600	600	600	600	300	300	300	120

Direct current

		CK07BE	CK08BE	CK08BE	CK95BE	CK10CE	CK11CE	CK12BE
Rated insulation voltage U_i	(V)	1000	1000	1000	1000	1000	1000	1000
Standard voltages U_s	(V)	24...500	24...500	24...500	24...500	24...500	24...500	24...500
Operating limits								
Switch-on	xUs	0.75...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1
Switch-off	xUs	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6	0.4...0.6
Consumption.								
Magnetic circuit closed	(W)	3.5	4.5	4.5	4.5	4.5	4.5	4.5
Magnetic circuit open	(W)	350	650	650	650	650	650	650
Opening and closing times at Us								
Making time at excitation (NO contacts)	(ms)	60...70	70...80	70...80	70...80	80...90	80...90	110...115
Breaking time at de-energisation (NO contacts)	(ms)	13...17	70...80	70...80	70...80	40...50	40...50	70...80
Mechanical endurance	10^6 ops.	10	10	10	10	10	10	10
Maximum rate								
No load	ops/h	1200	900	900	900	900	900	900
AC-3 at rated power	ops/h	600	600	600	600	600	300	300

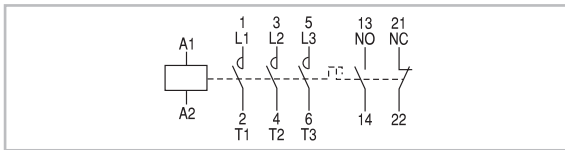
Contact sequence

		Basic contactor	Auxiliary contact blocks Lateral mounted	
			BCLL 20 BRLL 20	BCLL 11 BRLL 11
Three-pole contactors 3 NO	CK75C... CK08C...			
	CK85B... CK09B... CK95B...			
	CK10C... CK11C...			
	CK12B... CK13B...			
	CK07B...			
	CK08B... CK09B... CK95B...			
	CK10C... CK11C...			
	CK12B... CK13B...			

Numbering of the terminals

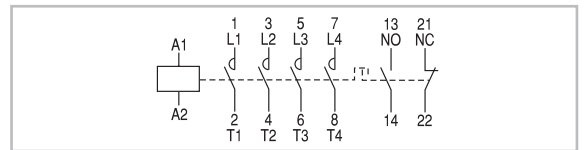
Three pole contactors

CK75C__3_... CK13B__3_



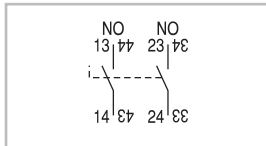
Four pole contactors

CK07B__4_... CK13B__4_

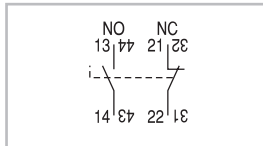


Auxiliary contact blocks. Lateral mounting

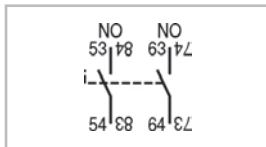
BCLL20



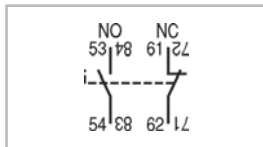
BCLL11



BRLL20

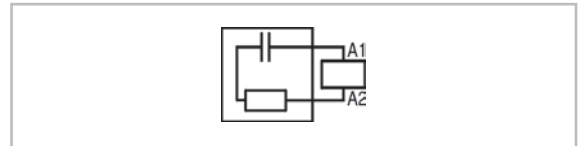


BRLL11



Voltage suppressor block

K/RC...



Mechanical interlock

BEKV, BEKVA1, BEKVS1, BEKVH



Notes

Grid area for notes.

3P and 4P contactors

A

B

C

D

E

F

G

H

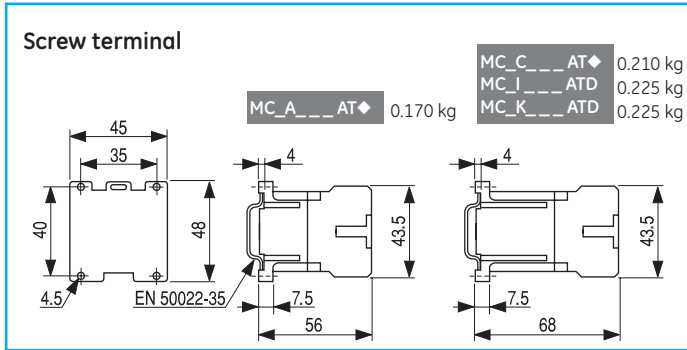
I

X

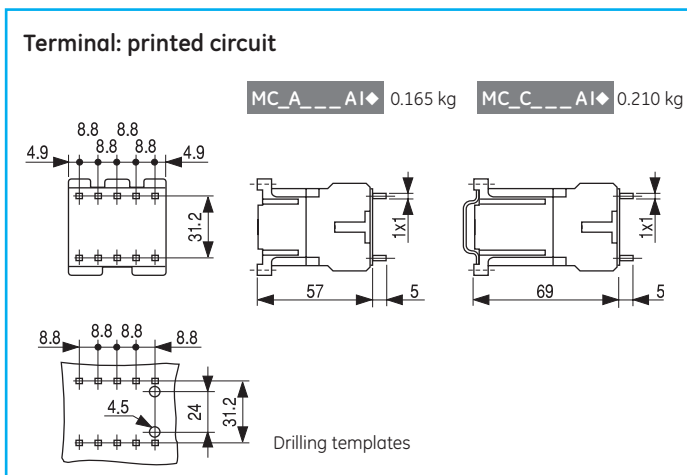
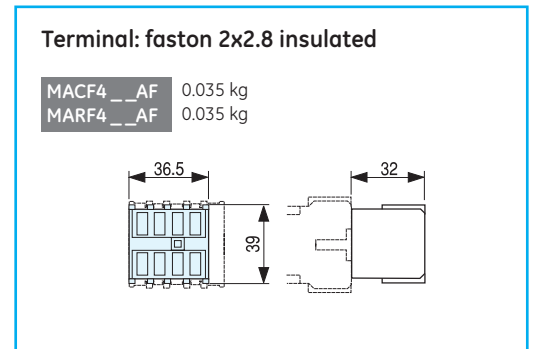
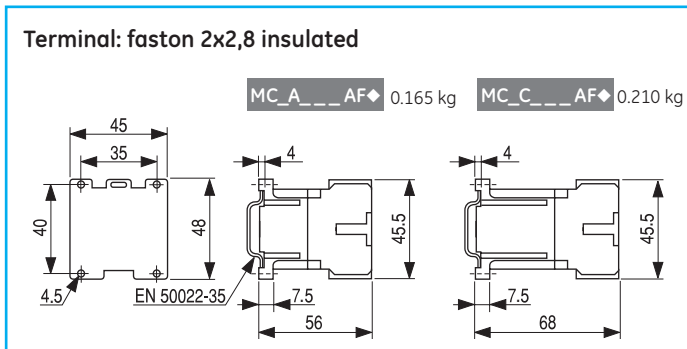
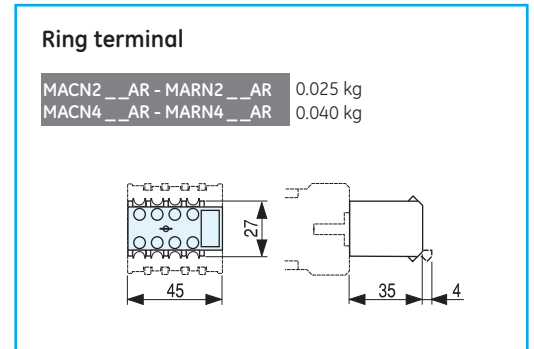
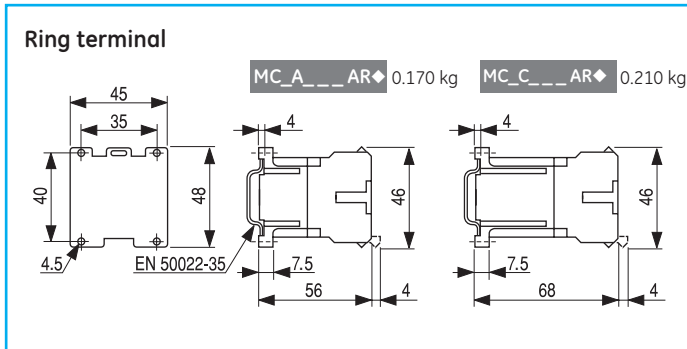
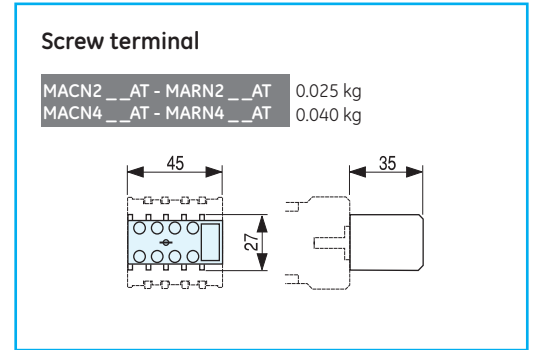


Dimensional drawings

Three and four pole minicontactors



Auxiliary contact block. Lateral mounting



Contactors

A

B

C

D

E

F

G

H

I

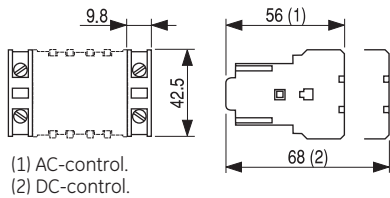
X



Auxiliary contact blocks. Lateral mounting

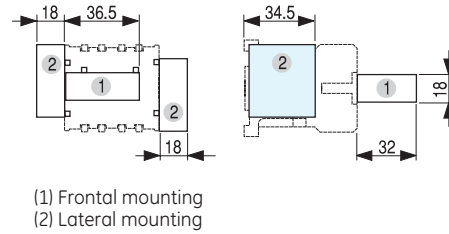
Screw terminal

MACL__AT 0.013 kg
MARL__ATS 0.013 kg



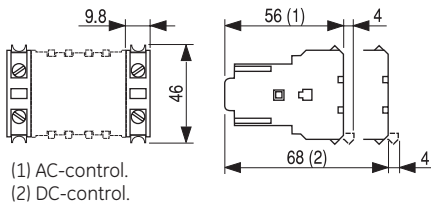
Electronic timer block

MREBC_0AC2 0.040 kg



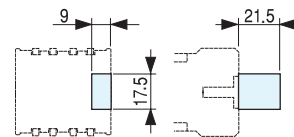
Ring terminal

MACL__AR 0.013 kg
MARL__ARS 0.013 kg



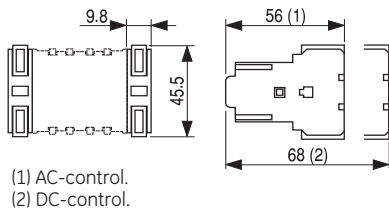
Voltage suppressor block

MP0A_AE 0.010 kg
MPOC_AE3 0.010 kg



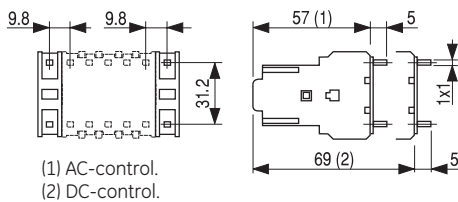
Terminal: faston 2x2.8 insulated

MACL__AF 0.009 kg
MARL__AFS 0.009 kg



Terminal: printed circuit

MACL__AI 0.009 kg
MARL__AIS 0.009 kg

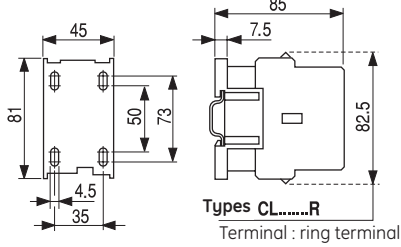


Dimensional drawings. Three pole contactors

Alternating current

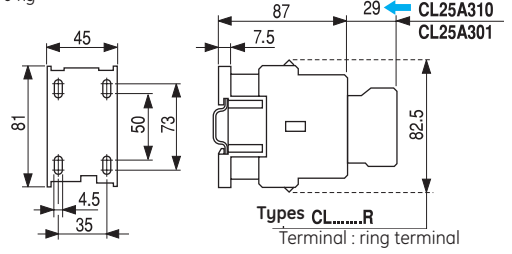
CL00A3..., CL01A3..., CL02A3...

0.280 kg 0.280 kg 0.280 kg



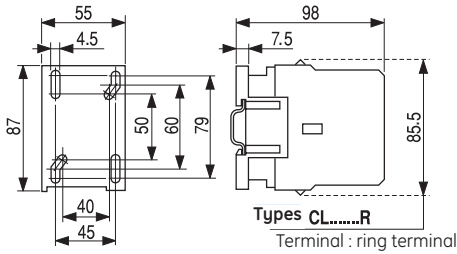
CL25A3...

0.270 kg



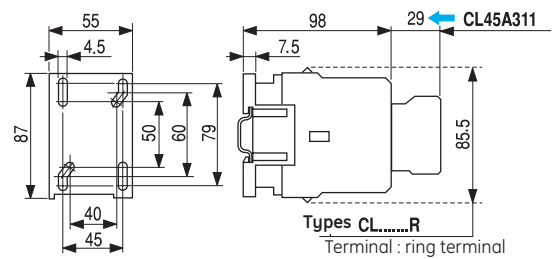
CL03A3..., CL04A3...

0.490 kg 0.500 kg



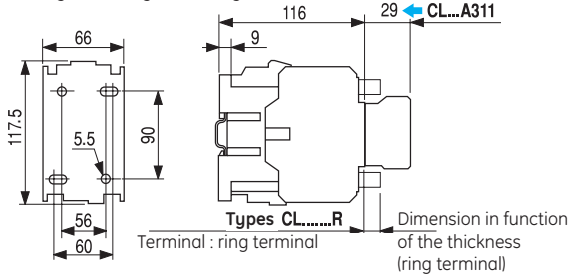
CL45A3...

0.520 kg



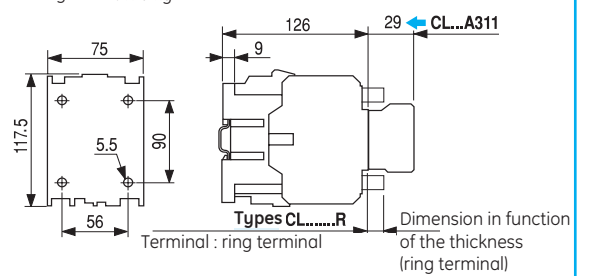
CL06A3..., CL07A3..., CL08A3...

1.105 kg 1.120 kg 1.130 kg



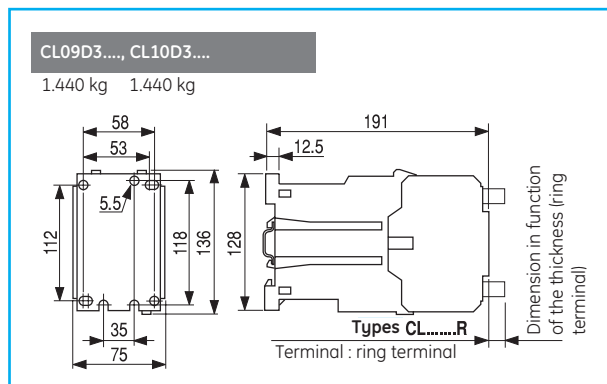
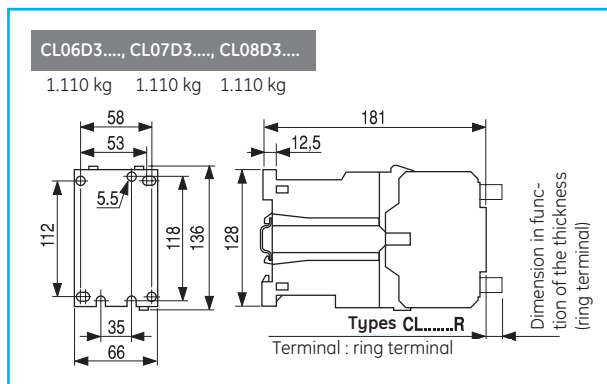
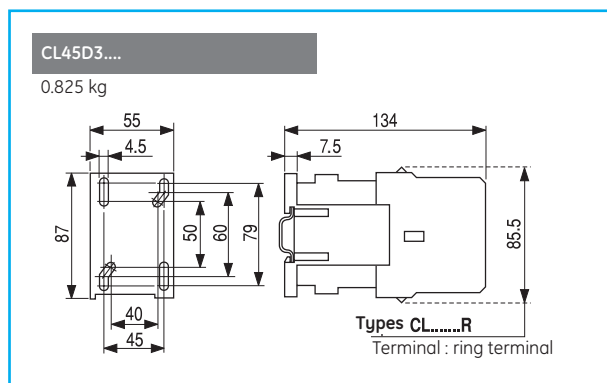
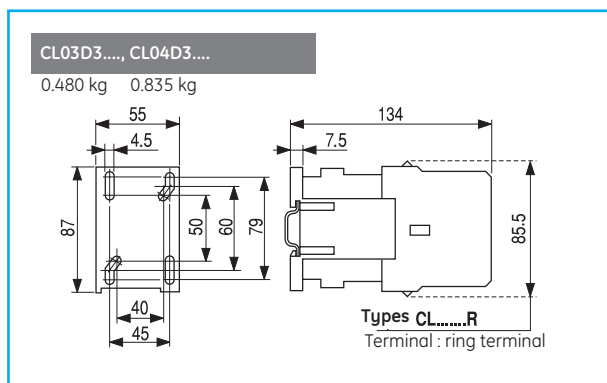
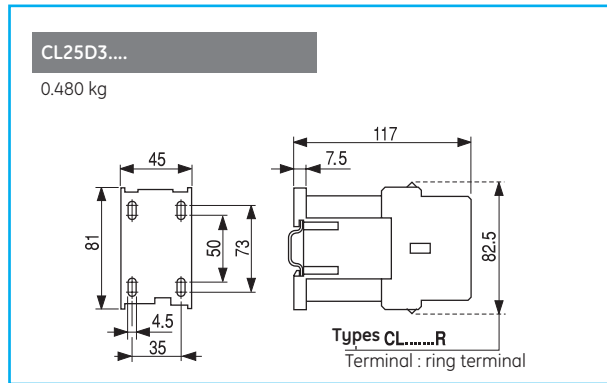
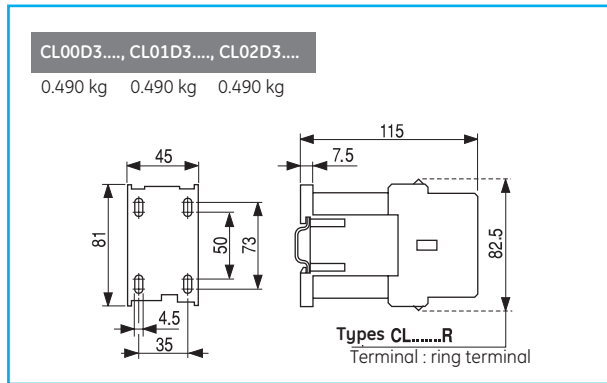
CL09A3..., CL10A3...

1.450 kg 1.470 kg

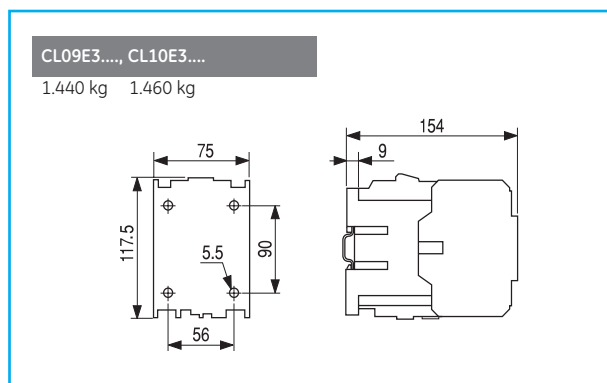
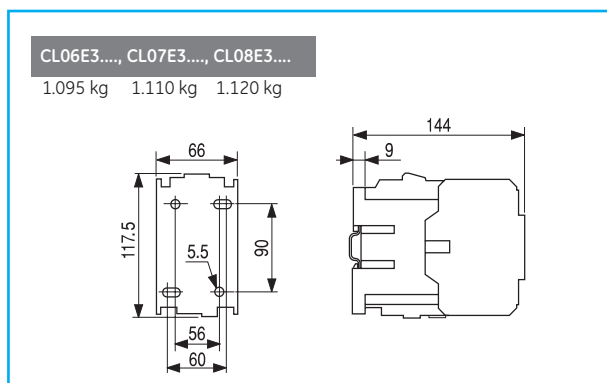


Three pole contactors

Direct current

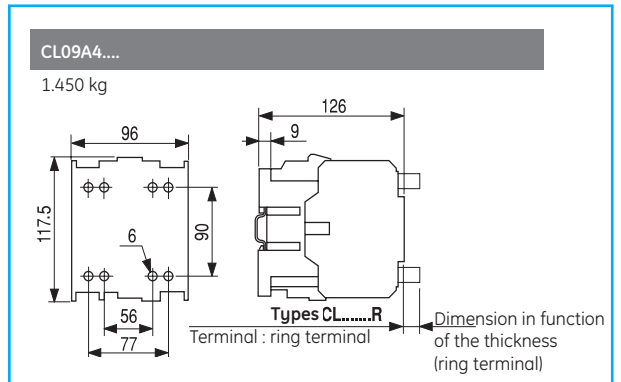
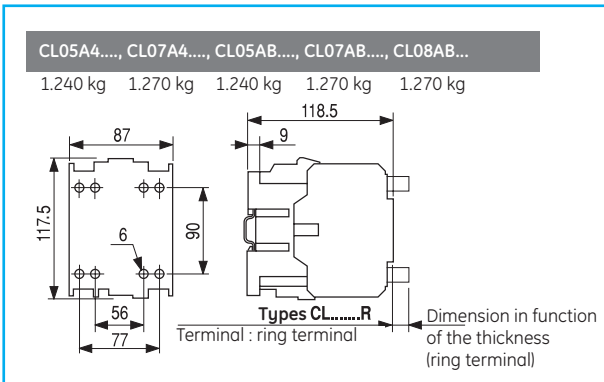
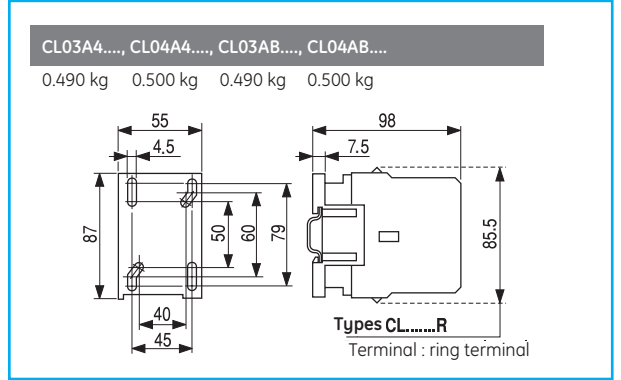
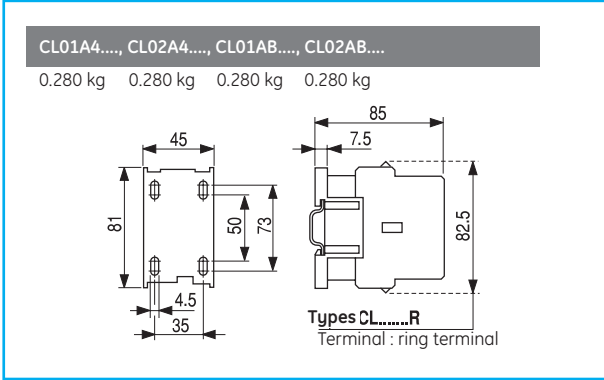


Coil with electronic module

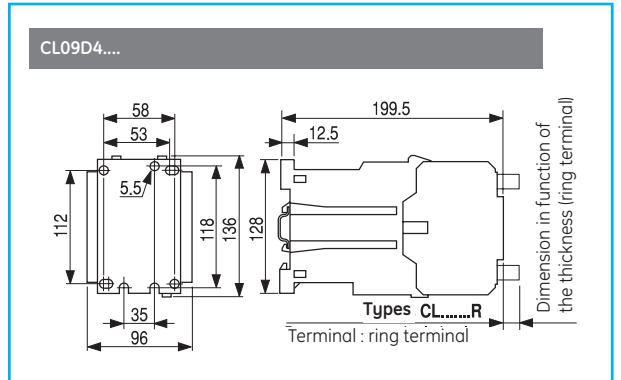
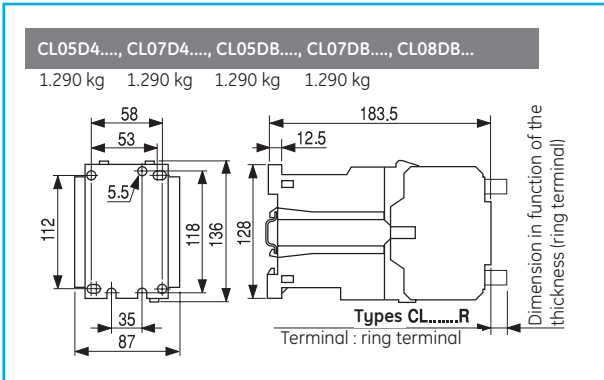
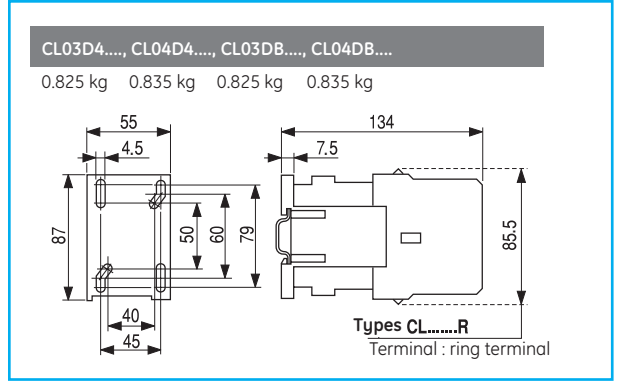
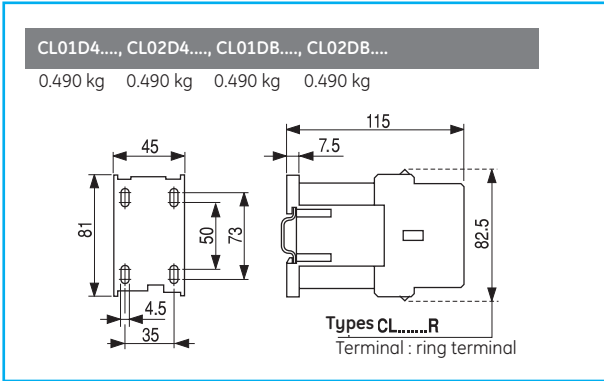


Dimensional drawings. Four pole contactors

Alternating current

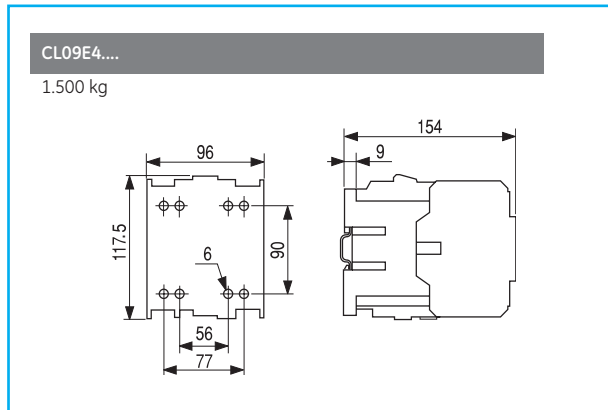
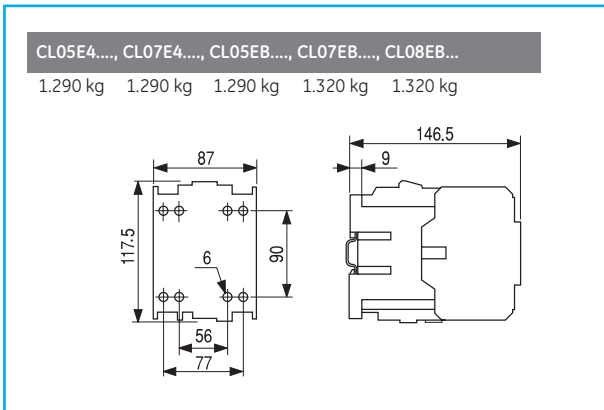


Direct current



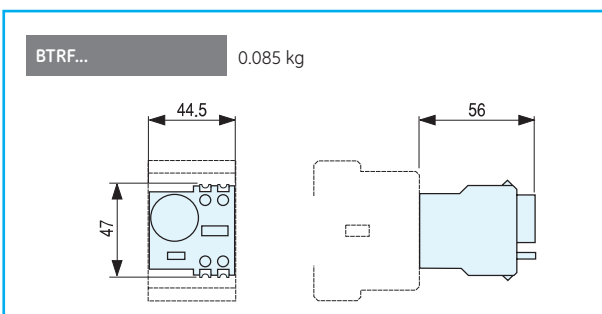
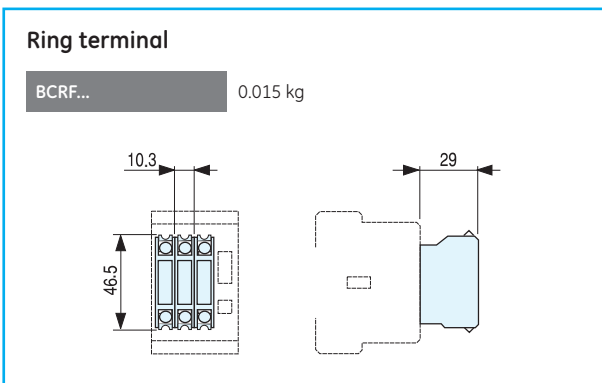
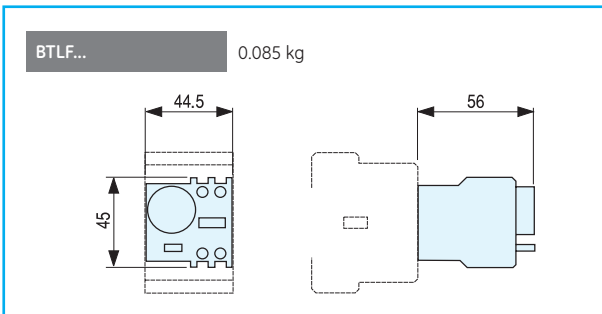
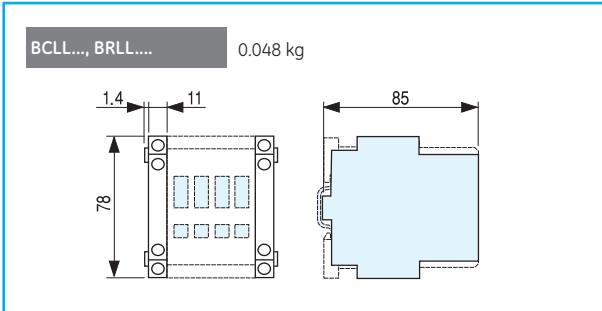
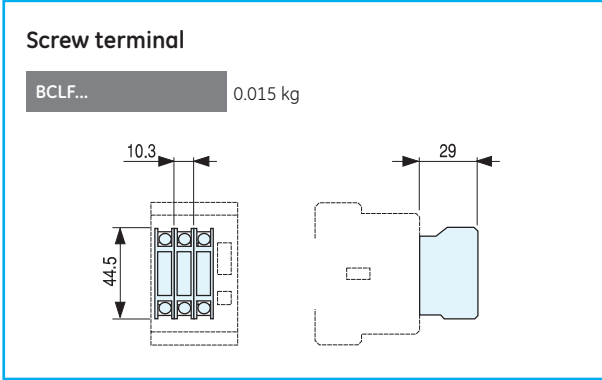
Four pole contactors

Coil with electronic module

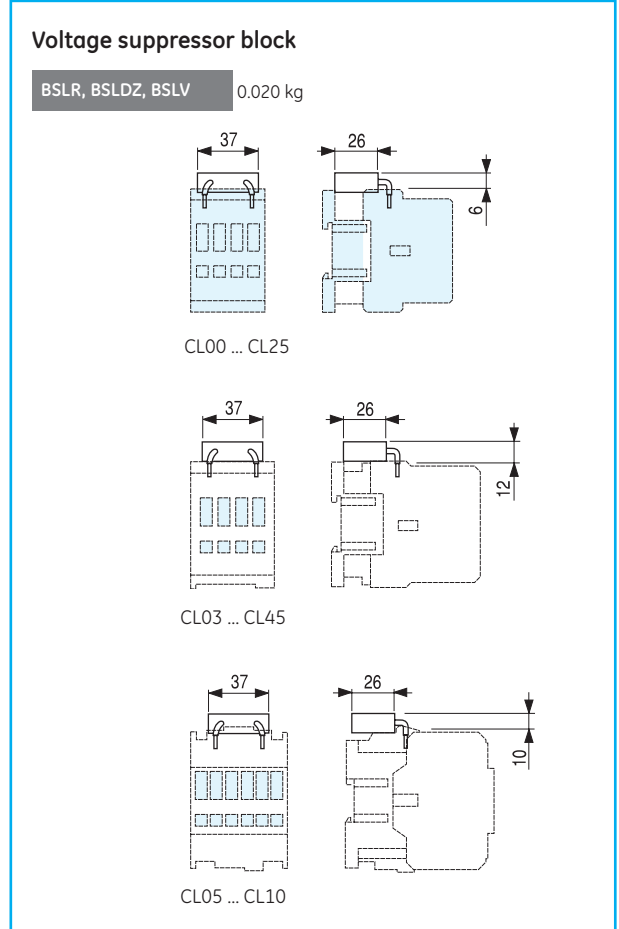


Dimensional drawings

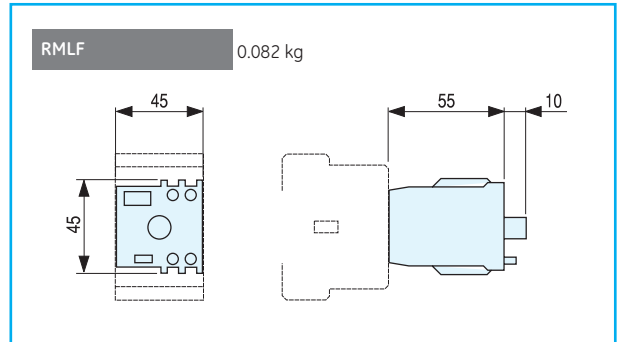
Auxiliary contact blocks



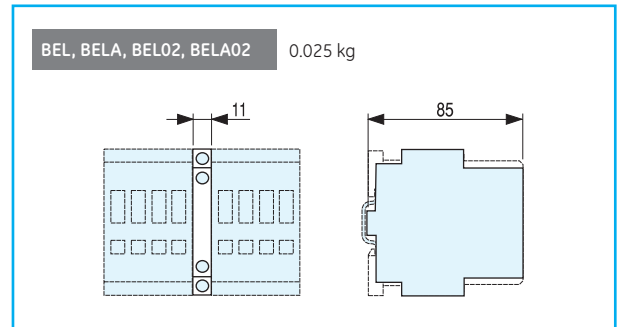
Accessories



Mechanical latch block

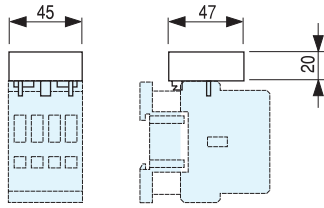


Mechanical / mechanical-electrical interlock

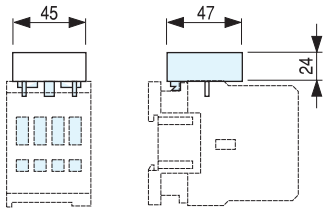


Electronic timer block

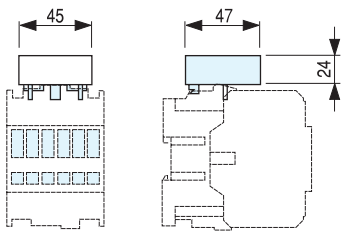
BETL02, BETL45 0.040 kg



CL00 ... CL25



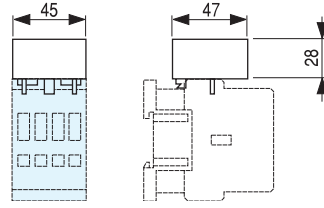
CL03 ... CL45



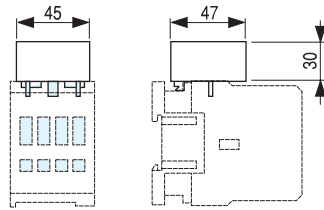
CL05 ... CL10

Interface modules

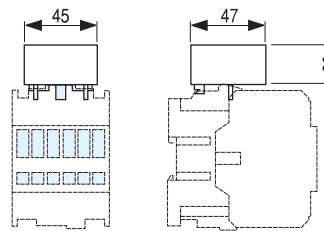
IMR..., IMRF..., IMSSD, IMAMS 0.020 kg



CL00 ... CL25



CL03 ... CL45



CL05 ... CL10

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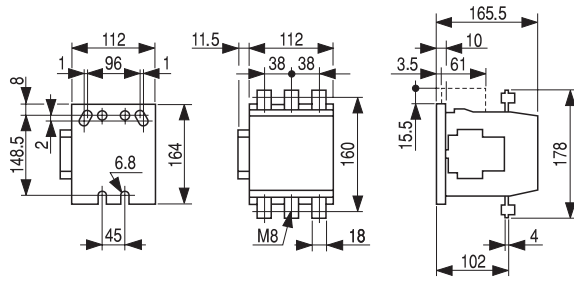
I

X

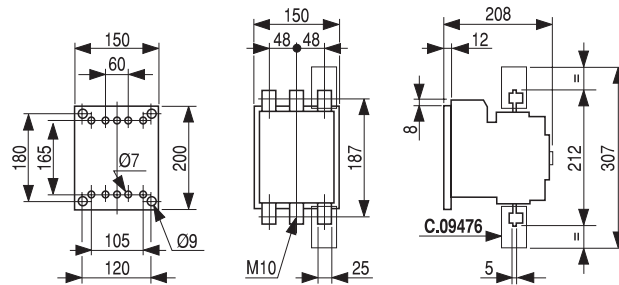
Dimensional drawings

Three pole contactors

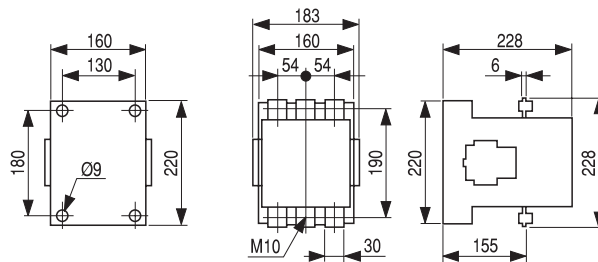
CK75C 3.500 kg
CK08C 3.500 kg



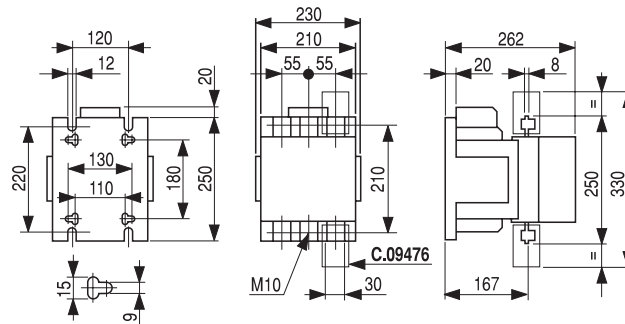
CK85B 6.100 kg
CK09B 6.200 kg
CK95B 6.300 kg



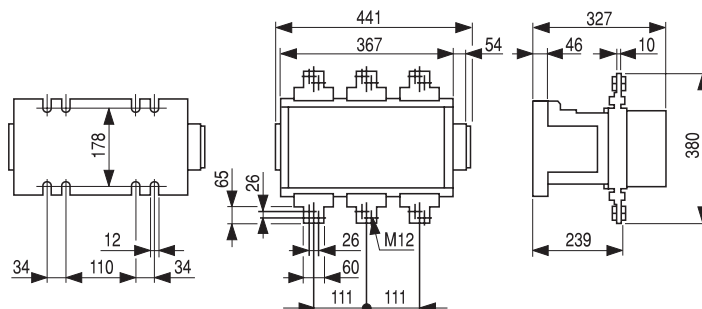
CK10C 11.00 kg
CK11C 11.00 kg



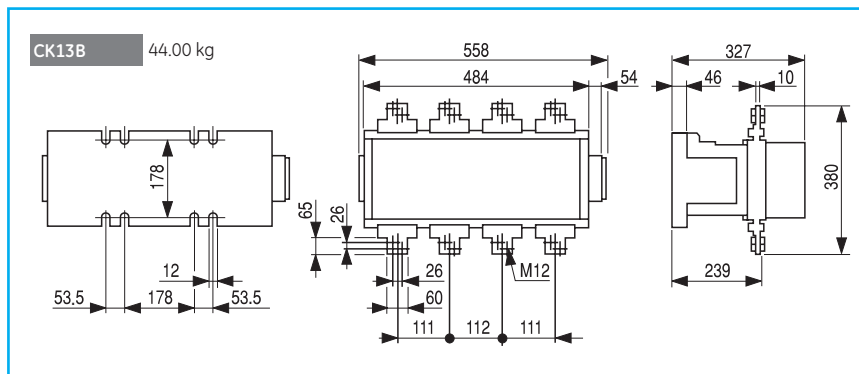
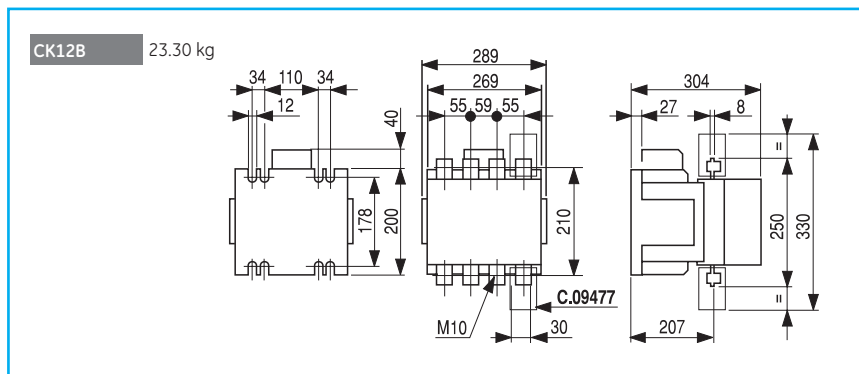
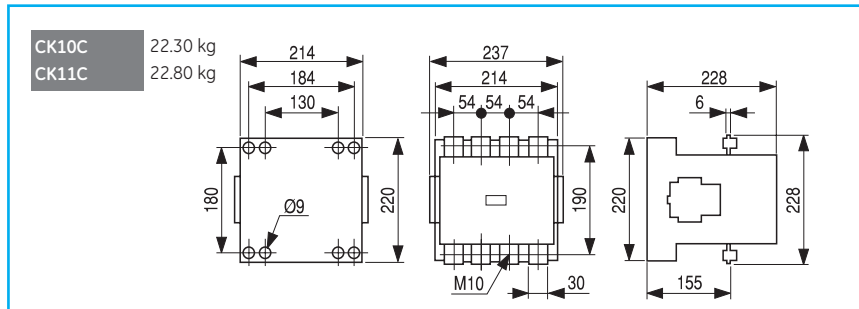
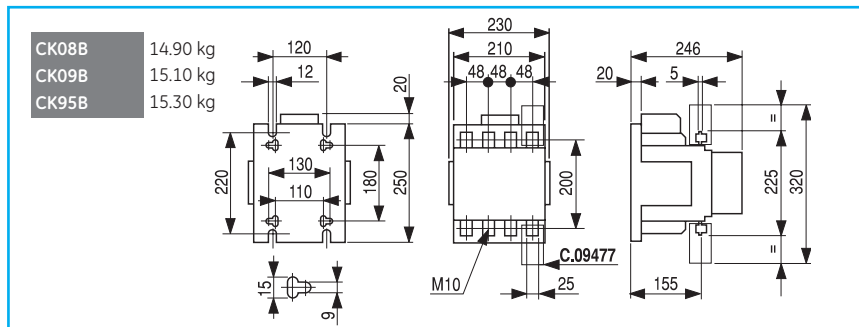
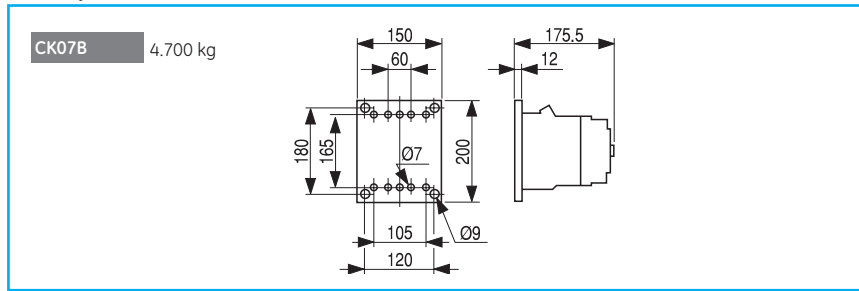
CK12B 18.00 kg



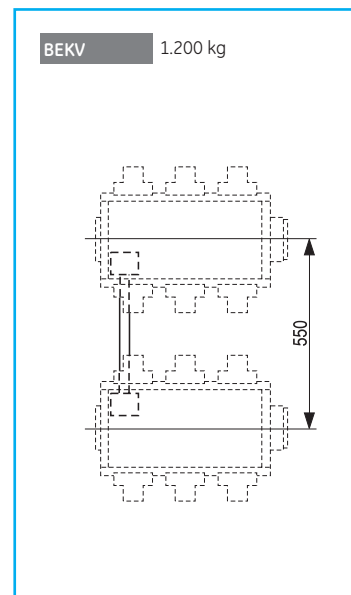
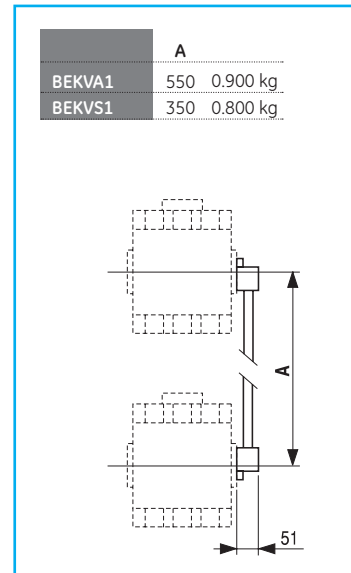
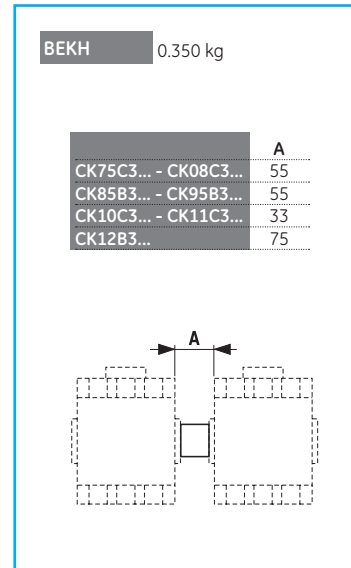
CK13B 35.00 kg

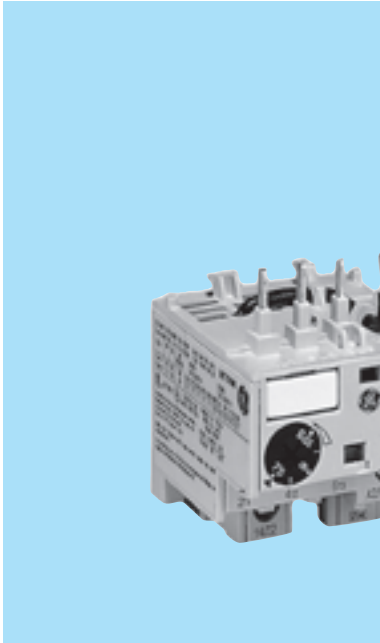


Four pole contactors



Mechanical interlock





Thermal overload relays for minicontactors from 0.11 to 14A

- Control circuit up to 690V
- Power circuit up to 690V
- Three-pole differential (phase unbalance protection)
- Automatic ambient temperature compensation between -25°C and +60°C
- Choice of manual or automatic reset
- Direct connection to contactor or independent mounting using accessories.
- Screw and Ring terminal versions
- Terminals protected against accidental contact in accordance with VDE 0106 T.100 and VBG4.
- Terminal numbering in accordance with EN 50005
- Degree of protection IP20 (EN 60529)
- Additional auxiliary contact block 1NO (with manual reset only)

Standards

IEC/EN 60947-4-1	CSA 22.2/14
IEC/EN 60947-5-1	NI C 63-650
UNE 115	VDE 0660
NFC 63-650	UL 508

Approvals



General characteristics

- Thermal protection against balanced overload.
- Three-pole differential (phase unbalance protection).
- Automatic ambient temperature compensation.
- Front mounted selector for choosing utilisation current.
- Reset button, 2 positions :
Manual(H) and Automatic(A) by turning the blue selector.
- Stop push button, independent of reset (red).
- Manual trip lever (tripping test).
- Tripping indicator (0-1).
- To facilitate wiring arrangements terminal 96 fits directly onto coil terminal (A2) and terminal 14/22 fits directly onto the feedback auxiliary contact.

Order codes ● pg. C.61
 Technical data ● pg. C.68
 Dimensions ● pg. C.69

Thermal overload relays for minicontactors



For use with:	Setting range (regulation)		Fuse				Terminal: screw		Terminal: ring terminal		Pack
			aM		gL		Cat. no.	Ref. no.	Cat. no.	Ref. no.	
			Type 2	Type 1	Type 2	Type 1					
	min. A	max. A	A	A	A	A					
MC0...	0.11	0.17	0.5	0.5	0.5	0.5	MT03A	101000	MT03RA	103540	10
MC1...	0.17	0.26	0.85	1	1	1	MT03B	101001	MT03RB	103541	10
MC2...	0.26	0.43	1	2	2	4	MT03C	101002	MT03RC	103542	10
	0.43	0.65	1	4	2	8	MT03D	101003	MT03RD	103543	10
	0.65	1	2	6	4	12	MT03E	101004	MT03RE	103544	10
	0.85	1.3	2	6	4	12	MT03F	101005	MT03RF	103545	10
	1.1	1.6	2	10	4	16	MT03G	101006	MT03RG	103546	10
	1.35	2	4	10	6	16	MT03H	101007	MT03RH	103547	10
	1.7	2.4	4	16	6	25	MT03I	101008	MT03RI	103548	10
	2.2	3.2	4	20	6	32	MT03J	101009	MT03RJ	103549	10
	2.5	4	4	20	6	32	MT03R	101015			10
	3	4.7	6	20	10	32	MT03K	101010	MT03RK	103550	10
	4	6.3	10	32	16	50	MT03L	101011	MT03RL	103551	10
	5.5	8	12	50	20	63	MT03M	101012	MT03RM	103552	10
	7.5	10.5	16	50	25	80	MT03N	101013	MT03RN	103553	10
	10	14	20	32	32	100	MT03P	101014	MT03RP	103554	10

Accessories



Input terminals

Terminal	Cat. no.	Ref. no.	Pack
Screw	MVE0T	101020	5
Ring terminal	MVE0R	103562	5



Base

For separate mounting onto standard EN 50022-35 profile	MVB0T	101021	5
---	-------	--------	---



Auxiliary contact block

Frontal fixing to the relay With trip indicator (0-I) One block per relay and only for manual reset	Screw	MATV10AT	101022	10
	Ring terminal	MATV10AR	103563	10

Identification

Sheets of labels (sheets of 260 labels each)	EAT 260	100548	1
Labeling plate base (50 pieces in one pack)	SPR	100549	1

Order codes

A

B

C

D

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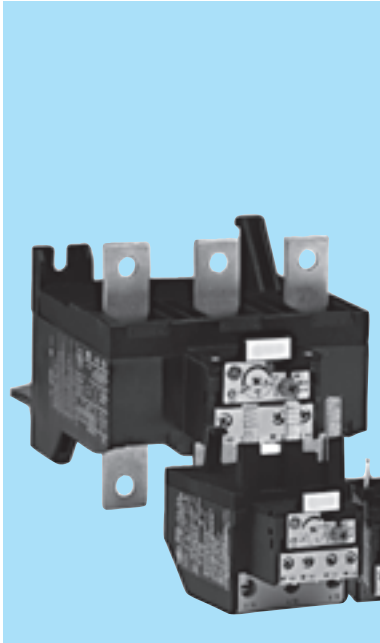
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Thermal overload relays for contactors from 0.16 to 850A

- Control circuit up to 690V AC
- Power circuit:
 - RT1, RT12: up to 690V
 - RT2, RT22, RT3, RT32, RT4/4L, RT5/5L & RT6/6L: up to 1000V
- Thermal protection against normal overloads.
- Three pole differential (phase unbalance protection).
- Protection against long starting times.
- Automatic ambient temperature compensation between - 25°C y + 60°C.
- Front mounted test button.
- Trip indication.
- Independent auxiliary contacts with double rupture (1NO + 1NC).
- Function selector:
 - Manual RESET
 - Manual RESET and STOP
 - Automatic RESET with STOP
 - Automatic RESET without STOP

Standards

IEC/EN 60947-4-1	CSA 22.2/14
IEC/EN 60947-5-1	NI C 63-650
UNE 115	VDE 0660
NFC 63-650	UL 508
CEI 17-50	

Approvals



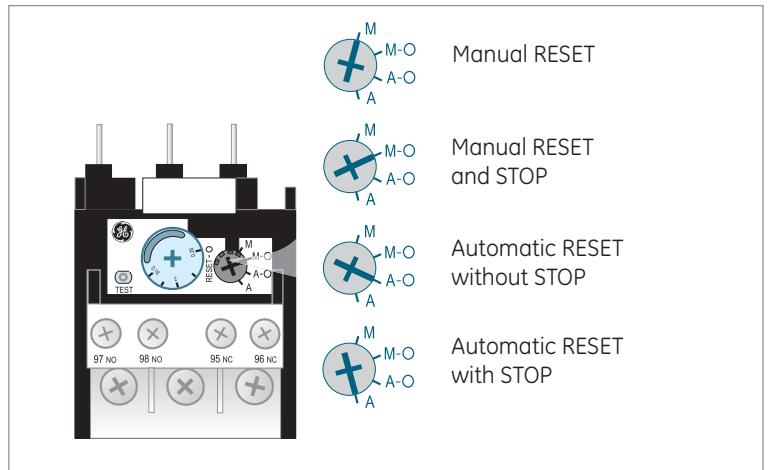
Lloyd's Register



Bureau Veritas



RINA



Order codes ● pg. C.63
 Technical data ● pg. C.70
 Dimensions ● pg. C.74



Thermal overload relays for contactors



	For use with:	Setting range (regulation)		Fuses ⁽¹⁾		Srew terminal		Ring terminal		Pack	
				aM	gL - gG						
		min. A	max. A	A	A	Cat. no.	Ref. no.	Cat. no.	Ref. no.		
Class 10A	CL00	0.16	0.26	2	2	RT1B	113700	RT1RB	114087	5	
	CL01	0.25	0.41	2	2	RT1C	113701	RT1RC	114088	5	
	CL02	0.4	0.65	2	2	RT1D	113702	RT1RD	114089	5	
	CL25	0.65	1.1	2	4	RT1F	113703	RT1RF	114090	5	
	CL03	1.0	1.5	4	6	RT1G	113704	RT1RG	114091	5	
	CL04	1.3	1.9	4	6	RT1H	113705	RT1RH	114092	5	
	CL45	1.8	2.7	6	10	RT1J	113706	RT1RJ	114093	5	
		2.5	4.0	8	16	RT1K	113707	RT1RK	114094	5	
		4.0	6.3	12	20	RT1L	113708	RT1RL	114095	5	
		5.5	8.5	16	20	RT1M	113709	RT1RM	114096	5	
		8.0	12.0	20	25	RT1N	113710	RT1RN	114097	5	
		10.0	16.0	25	35	RT1P	113711	RT1RP	114098	5	
		14.5	18.0	32	50	RT1S	113712	RT1RS	114099	5	
		17.5	22.0	40	50	RT1T	113713	RT1RT	114100	5	
		21.0	26.0	40	63	RT1U	113714	RT1RU	114101	5	
		25.0	32.0	50	80	RT1V	113715	RT1RV	114102	5	
		30.0	40.0	63	100	RT1W	113716	RT1RW	114103	5	
	Class 10	CL05	11.5	15.0	32	35	RT2A	113717	RT2RA	114104	1
CL06		14.5	19.0	40	50	RT2B	113718	RT2RB	114105	1	
CL07		18.5	25.0	50	63	RT2C	113719	RT2RC	114106	1	
CL08		24.0	32.0	63	100	RT2D	113720	RT2RD	114107	1	
CL09		30.0	43.0	80	125	RT2E	113721	RT2RE	114108	1	
CL10		42.0	55.0	100	160	RT2G	113722	RT2RG	114109	1	
		54.0	65.0	125	160	RT2H	113723	RT2RH	114110	1	
		64.0	82.0	125	200	RT2J	113724	RT2RJ	114111	1	
		78.0	97.0	125	200	RT2L	113725	RT2RL	114112	1	
		90.0	110	160	250	RT2M	113726	RT2RM	114113	1	
Class 20	CL00	0.4	0.65	2	2	RT12D	139138	RT12RD	114060	5	
	CL01	0.65	1.1	2	4	RT12F	139139	RT12RF	114061	5	
	CL02	1	1.5	4	6	RT12G	139140	RT12RG	114062	5	
	CL25	1.3	1.9	4	6	RT12H	139141	RT12RH	114063	5	
	CL03	1.8	2.7	8	10	RT12J	139142	RT12RJ	114159	5	
	CL04	2.5	4.1	8	16	RT12K	113640	RT12RK	114114	5	
	CL45	4	6.3	12	20	RT12L	113641	RT12RL	114115	5	
		5.5	8.5	16	20	RT12M	113642	RT12RM	114116	5	
		8	12	20	35	RT12N	113643	RT12RN	114117	5	
		10	16	25	35	RT12P	113644	RT12RP	114118	5	
		14.5	18	32	50	RT12S	113645	RT12RS	114119	5	
		17.5	22	40	50	RT12T	113646	RT12RT	114120	5	
		21	26	40	63	RT12U	113647	RT12RU	114121	5	
		25	32	50	80	RT12V	113648	RT12RV	114122	5	
		30	40	63	100	RT12W	113649	RT12RW	114123	5	
		CL05	24	32	63	80	RT22D	113650	RT22RD	114124	1
		CL06	30	43	80	100	RT22E	113651	RT22RE	114125	1
		CL07	42	55	100	160	RT22G	113652	RT22RG	114126	1
		CL08	54	65	125	160	RT22H	113653	RT22RH	114127	1
		CL09	64	82	125	200	RT22J	113654	RT22RJ	114128	1
		CL10	78	97	125	200	RT22L	113655	RT22RL	114129	1
			90	110	160	250	RT22M	113656	RT22RM	114130	1

(1) Most suitable fuse in accordance with IEC 60947-4-1.

Order codes

A

B

C

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Thermal overload relays for contactors

	For use with:	Setting range (regulation)		Fuses ⁽¹⁾		Cat.no. (Screw terminal)	Ref. no.	Pack	
		min.	max.	aM	gL - gG				
		A	A	A	A				
	Class 10 Direct mounting	CK75	55	80	125	200	RT3B	113727	1
		CK08	63	90	125	200	RT3C	113728	1
			90	120	160	250	RT3D	113729	1
			110	140	200	315	RT3E	113730	1
			140	190	250	355	RT3F	113731	1
		CK85	120	190	250	315	RT4N	113732	1
		CK09	175	280	315	400	RT4P	113733	1
		CK95 ⁽²⁾	200	310	400	500	RT4R	113734	1
		CK10	120	190	250	315	RT5A	113750	1
		CK11	175	280	315	400	RT5B	113751	1
		CK12 ⁽³⁾	250	400	500	630	RT5C	113752	1
			315	500	630	800	RT5D	113753	1
			430	700	800	1000	RT5E	113754	1
		CK13 ⁽⁴⁾	500	850	100	1250	RT6A	113760	1
Class 20	Direct mounting	CK75	63	90	125	200	RT32C	113657	1
		CK08	90	120	160	250	RT32D	113658	1
			110	140	200	315	RT32E	113659	1
			140	190	250	355	RT32F	113660	1
Class 30	Mounting with screws	CL...	2.5	4	10	16	RT4LA	113735	1
		CK...	4	6.5	12	20	RT4LB	113736	1
			5.5	8.5	16	25	RT4LC	113737	1
			7.5	11	20	32	RT4LD	113738	1
			10	16	25	40	RT4LE	113739	1
			12.5	20	32	50	RT4LF	113740	1
			17	27	50	80	RT4LG	113741	1
			26	40	80	125	RT4LH	113742	1
			32	52	100	160	RT4LJ	113743	1
			45	70	125	160	RT4LK	113744	1
			60	90	160	200	RT4LL	113745	1
			80	125	200	250	RT4LM	113746	1
			CK85	120	190	250	315	RT4LN	113747
		CK09	175	280	315	400	RT4LP	113748	1
		CK95 ⁽²⁾	200	310	400	500	RT4LR	113749	1
		CK10	120	190	250	315	RT5LA	113755	1
		CK11	175	280	315	400	RT5LB	113756	1
		CK12 ⁽³⁾	250	400	500	630	RT5LC	113757	1
			315	500	630	800	RT5LD	113758	1
		430	700	800	1000	RT5LE	113759	1	
	CK13 ⁽⁴⁾	500	850	1000	1250	RT6LA	113761	1	

(1) Most suitable fuse in accordance with IEC 60947-4-1.




(2) Fitting direct to the contactor.

(3) Fitting direct to the contactor: by means of a coupling and connection set.

Separate mounting: with screws on DIN rail / with cable connection.

(4) RT6A = RT1 with right setting range plus RTXP, independent mounting base adaptor, to be utilised with current transformer connected by passing cable chosen by customer. Current transformer data on request.

Accessories

			Cat. no.	Ref. no.	Pack
 <p>Base for separate mounting</p>	DIN EN50022-35				
	RT1		RTXP	105170	1
	RT2		RT2XP	113764	1
<hr/>					
<p>Setting range cover protection</p>	RT...		RTX3	113762	1
<hr/>					
 <p>Push-button with flexible cable</p>	for distance RESET				
	RT1... - RT6... (front)	0.5 meters	RTXS	113855	1
	RT1... - RT6... (front)	1 meters	RTXSL	113856	1
	RT1..., RT2..., RT4..., RT5..., RT6... (back)		RTXBS	108864	1
<hr/>					
<p>Terminal protection</p>	for RT3 or CK75C/CK08C				
	Thermal overload relay	1 pole IPxxB	PTPCK75	103747	1
	Connection contactor-relay	3 poles	RT3PXX3P	110565	1
<hr/>					
 <p>Remote electrical reset</p>	RT1... - RT6...		RTXRR ♦		1

Available coil voltages (V)

	♦	B	D	G	J	N	U	X
AC/DC		12	24	48	110	220	380	440
					240	415	480	

Order codes

A

B

C

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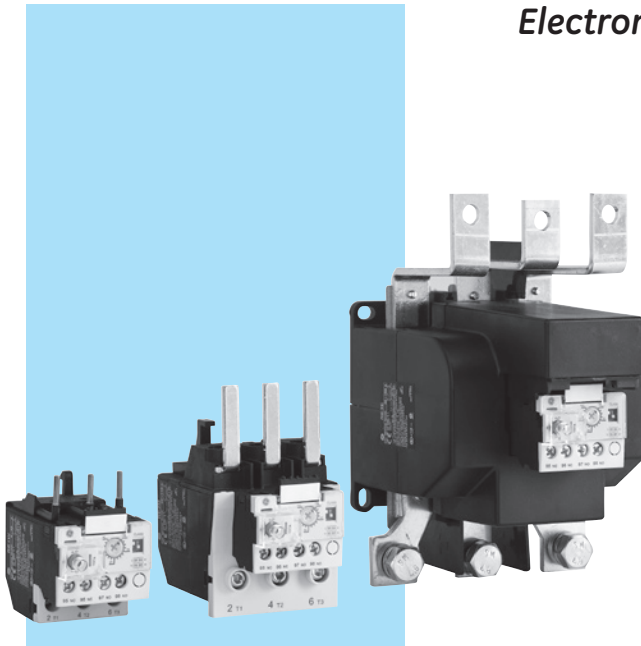
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Electronic overload relay



Approvals



Product features

➤ Your benefits

Lower power consumption	➤ Saving space into cabinet
Great accuracy	➤ Better motor protection
Full reliability	➤ Low risk to burn motor
Phase unbalance protection	➤ Better motor protection and current control
Direct fitting to contactors Series CL	➤ Compact starter
Interchangeable with thermal overload relay	➤ No need to redesign existing cabinet
Multiple trip class selection	➤ One device cover for start time motor
Manual / Auto reset	➤ One device for two solutions




Main characteristics

- Setting range from 0.1 up to 150A
- Self powered
- Thermal memory
- Phase loss protection
- Phase unbalance protection
- Direct fitting to contactors Series CL
- Interchangeable with thermal overload relay
- Multiple trip class selection
- Manual / Auto reset
- Increased flexibility, less order codes, less stock
- Tripp class: 5 - 10 - 20 - 30


Order codes ● pg. C.67
 Technical data ● pg. C.76
 Dimensions ● pg. C.78



Electronic overload relay for contactors

	Suitable for	Setting range (A)		Fuses (A) ⁽¹⁾	Cat. no.	Ref. no.	Pack.
		Min.	Max.	gL - gG			
 Frame 1	CL00...CL45	0,1	0,5	2	RE1D	101866	5
		0,4	2	4	RE1H	101867	5
		1,0	5	10	RE1K	101868	5
		1,6	8	20	RE1M	101869	5
		6,4	32	63	RE1S	101870	5
		9,0	45	80	RE1W	101871	5
		 Frame 2	CL05...CL10	15	75	125	RE2H
22	110			125	RE2M	101873	1
 Frame 3	CK75-CK08	30	150	250	RE3E	101874	1

Accessories

		Cat. no.	Ref. no.	Pack.
 Independent mounting base adaptor	Frame 1	RE1XP	247302	1
	Frame 2	RE2XP	247303	1

(1) Most suitable fuse in accordance with IEC 60947-4-1, see coordination table on pg. C.76.

Order codes

A

B

C

D

E

F

G

H

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X



Technical data

General

- Thermal protection against balanced overload.
- Three-pole differential (phase unbalance protection).
- Automatic ambient temperature compensation.
- Front mounted selector for choosing utilisation current.
- Reset button, 2 positions :
Manual(H) and Automatic(A) by turning the blue selector.
- Stop push button, independent of reset (red).
- Manual trip lever (tripping test).
- Tripping indicator (0-1).
- To facilitate wiring arrangements terminal 96 fits directly onto coil terminal (A2) and terminal 14/22 fits directly onto the feedback auxiliary contact.

Conformity to standards

IEC 60947-4	CEI 17-50	VDE660
UNE 115	NI C63-650	UL508
NFC63-650		

Approvals

UL	CSA	SEMKO
SETI	NEMKO	CE

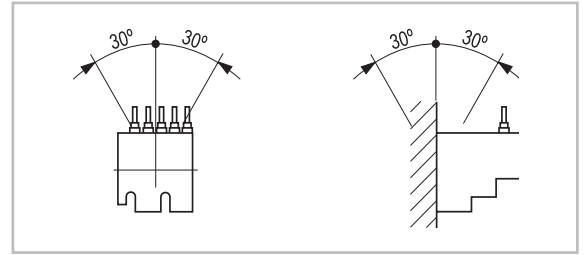
Ambient conditions

Storage temperature	-55°C to +80°C	
Operation temperature	-25°C to +60°C	
Altitude	up to 3000m	Nominal values
	from 3000 to 4000m	90%le 80%Ue
	from 4000 to 5000m	80%le 75%Ue
Degree of protection	IP20	
Protection treatment	Tropical finish	

Climatic resistance

Continuous tests 40 / 125 / 56		
Cold (72h)	Temperature	-40°C
	Dry heat (96h)	
	Temperature	+125°C
	Relative humidity	< 50%
Humid heat (56 days)	Temperature	+40°C
	Relative humidity	95%
Cyclical tests		
First half-cycle (12h)	Low temperature	+25°C
	Relative humidity	93%
Second half-cycle (12h)	Low temperature	+55°C
	Relative humidity	95%
Number of consecutive cycles	6	

Mounting positions



Main circuit (poles)

		MT0...
Rated insulation voltage (Ui) according to IEC 947	(V)	750
Frequency	(Hz)	0..400
Power dissipation per pole	(W)	min. 1 / max. 2.5
Terminal capacity		
Screw M 3.5 (pozidrive head) safety flange		
Maximum capacity :		
Solid	(Ø mm)	2 x 2 wires
Stranded without end sleeve	(mm²)	2 wires Ø 2.5
Stranded with end sleeve		
pen (2 end sleeves)	(mm²)	2 wires Ø 0.75
pen (1 end sleeve)	(mm²)	2 wires Ø 1
		1 wires Ø 2.5
Tightening torque	(Nm)	0.8

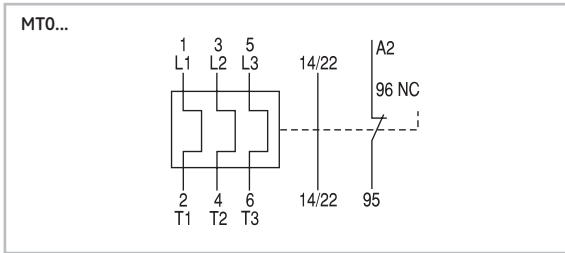
Control circuit (incorporated auxiliary contact)

		MT0...
Rated insulation voltage (Ui) according to IEC 947	(V)	750
Rated thermal current (Ith) $\theta \leq 60^\circ\text{C}$	(A)	10
Tripping currents		
AC-15	Ue-le (V-A)	223-3, 380-2, 500-1
DC-13	Ue-le (V-A)	60-0.5, 110-0.2, 220-0.1
Short-circuit protection (max.glass gL fuse - w/h welding)	(A)	6
Number and type of contacts		

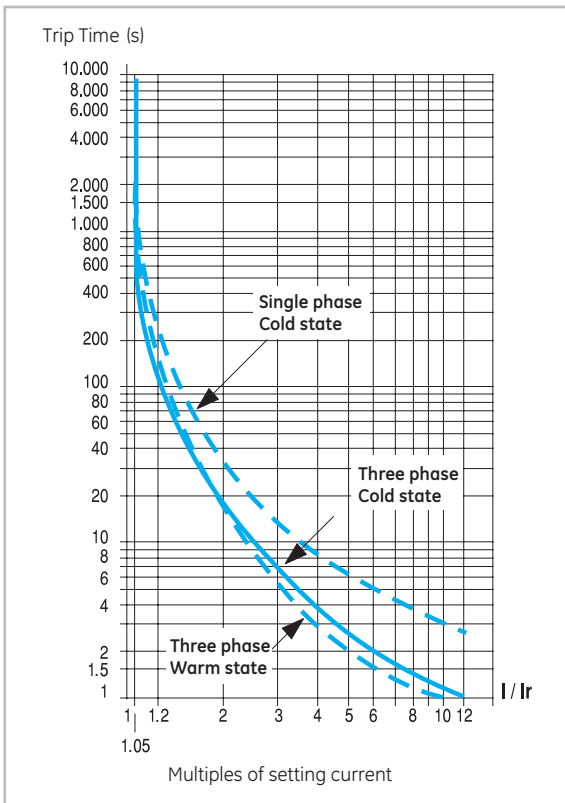
Control circuit (auxiliary contact block)

		MATV10AT
Rated insulation voltage (Ui) according to IEC 947	(V)	750
Rated thermal current (Ith) $\theta \leq 60^\circ\text{C}$	(A)	10
Tripping currents		
AC-15	Ue-le (V-A)	223-1, 380-0.5
DC-13	Ue-le (V-A)	60-0.1, 110-0.5
Short-circuit protection (max.glass gL fuse - w/h welding)	(A)	6
Number and type of contacts		

Numbering of the terminals

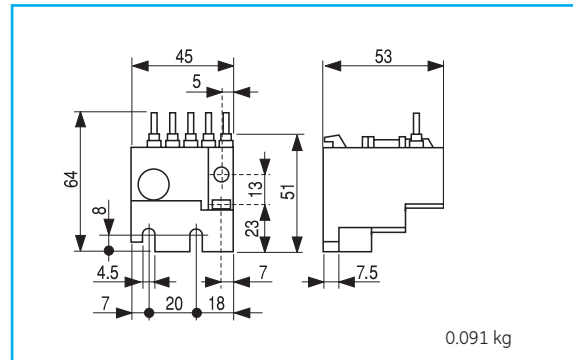


Tripping curves

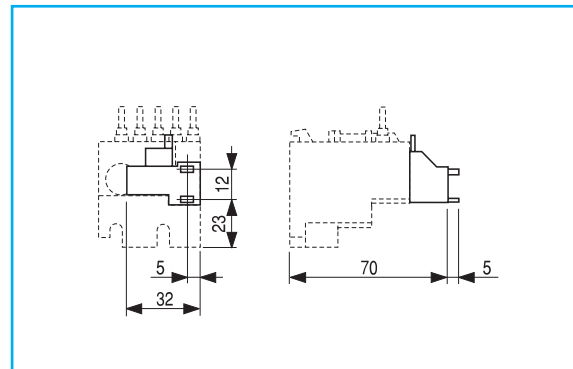


Dimensional drawings

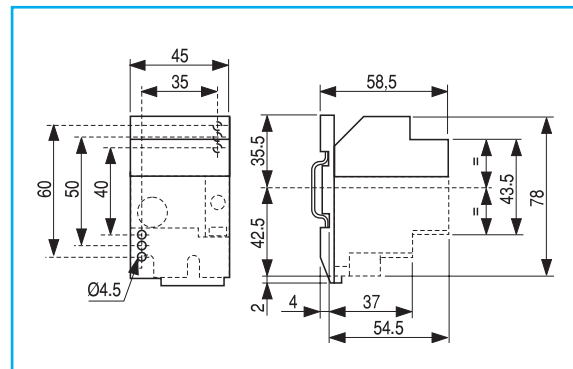
Thermal overload relay



Thermal overload relay + aux. contact block (front mounting)



Independent mounting of the thermal overload relay



Technical data

		RT1...	RT2...	RT3...	RT4.../ 4L...	RT5.../ 5L...	RT6.../ 6L...
General							
Class		10A / 20	10 / 20	10 / 20	10 / 30	10 / 30	10 / 30
Setting range	(A)	0.16 ... 40	11.5 ... 110	55 ... 190	2.5 ... 310	120 ... 700	500 ... 850
Suitable for		CL00...CL45	CL05...CL10	CK75...CK08	CL,CK	CK10...CK12	CK13
Main circuit							
Rated insulation voltage	(V)	690	1000	1000	1000	1000	1000
(IEC947-4) Ui							
Frequency limits	(Hz)	0...400	0...400	0...400	50...60	50...60	50...60
Terminal capacity							
Clamp terminal - solid	(mm ²)	16	50	120	-	-	-
Clamp terminal - flexible	(mm ²)	10	50	120	-	-	-
Flat terminal	(mm)	-	-	25 x 5	-	-	80 x 10
Passing by hole (wire) through C.T. core	(mm ²)	-	-	-	-	400	-
Passing by hole (bar) through C.T. core	(mm)	-	-	-	30 x 10	30 x 10	-
Tightening torque	(Nm)	2.5	4.5	6.5	23	31.5	-
Control circuit							
Rated insulation voltage	(V)	690					
(IEC60947-4) Ui							
Rated thermal current I _{th}	(A)	10					
Operation current							
AC-15 - Ue-Ie	(V - A)	110/120 - 3 ; 220/240 - 2 ; 380/415 - 1 ; 480/500 - 0.8 ; 660/690 - 0.3					
DC-13 - Ue-Ie	(V - A)	24 - 2 ; 48 - 1.4 ; 110 - 0.6 ; 250 - 0.3 ; 440 - 0.1					
Utilisation according UL and CSA							
Protective fuse type gL	(A)	B600 - Q600					
Terminal capacity	(mm ²)	2.5					
Tightening capacity	(Nm)	0.8					

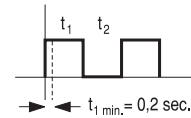
Conformity to standards

IEC/EN 60947-4-1	NFC 63-650	NI C 63-650
IEC/EN 60947-5-1	CEI 17-50	VDE 0660
UNE 115	CSA 22.2/14	UL 508

Remote electrical reset

Power consumption		
AC	(VA)	100
DC	(W)	100

Coils not suitable for continuous operating duty



- t₁ = 1 sec. ♦ t₂ = 30 sec.
 - t₁ = 5 sec. ♦ t₂ = 90 sec.
 - t₁ = 10 sec. ♦ t₂ = 180 sec.
- (t₁ = ON time t₂ = OFF time)

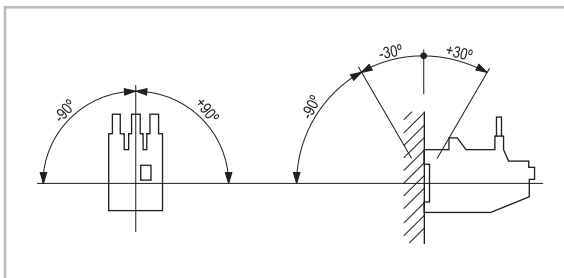
Approvals

cULus	RINA	CE
Lloyd's Register	Bureau Veritas	

Ambient conditions

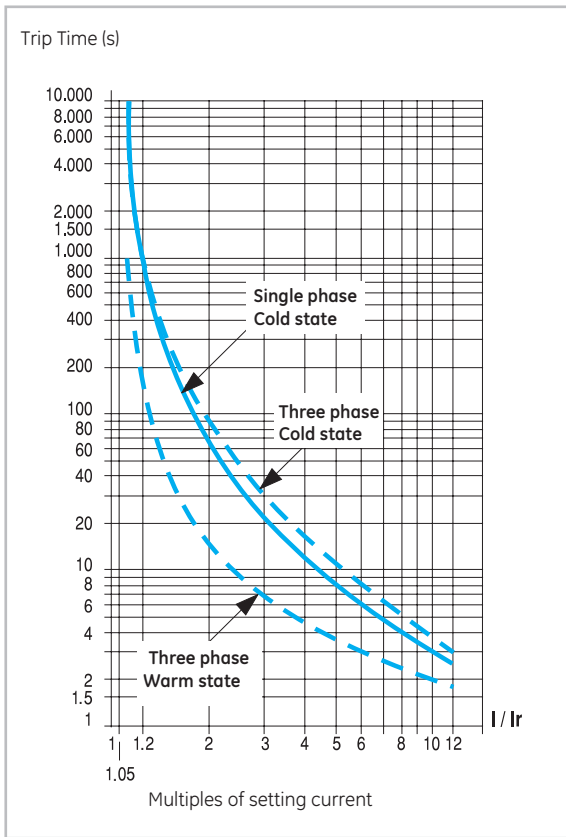
Storage temperature	-40°C to +70°C
Operation temperature (compensated)	-25°C to +60°C
Altitude	up to 3000m
	w/o any changes in characteristics
Relative humidity	98%
Protection treatment	Tropical finish

Mounting positions

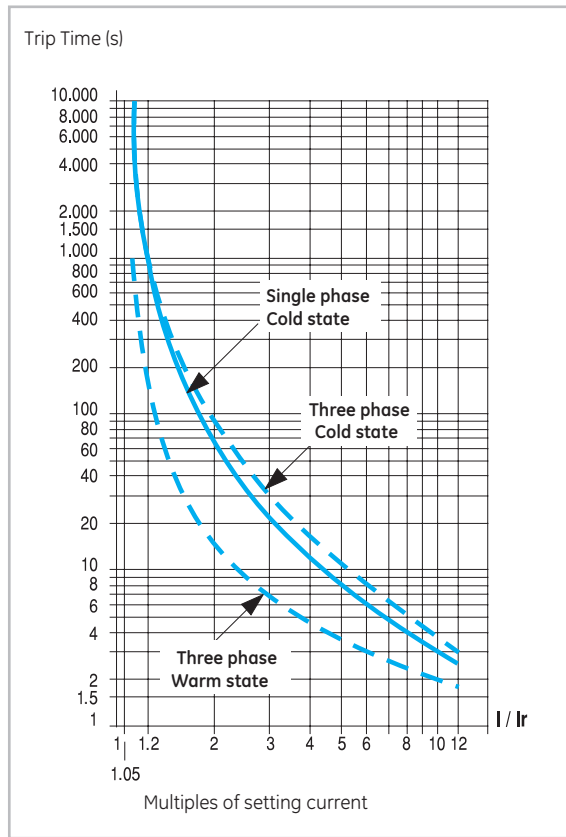


Tripping curves

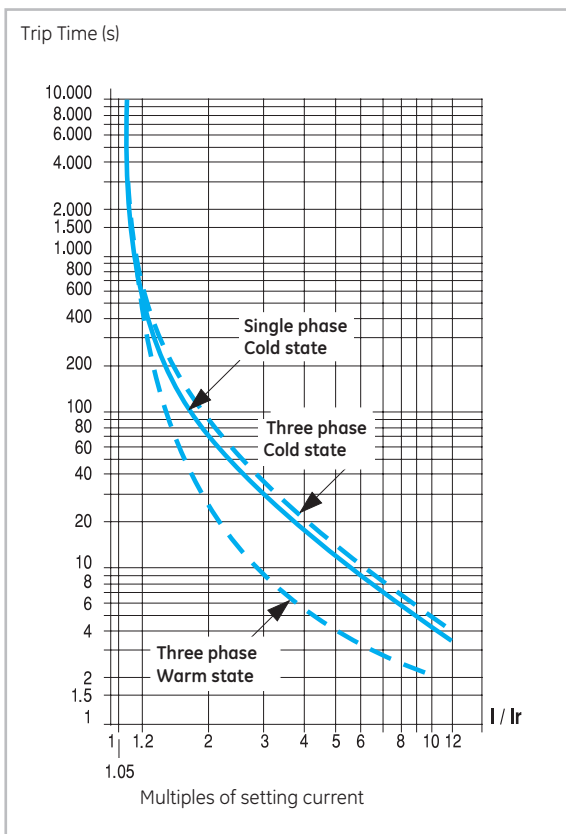
RT1 Class 10A



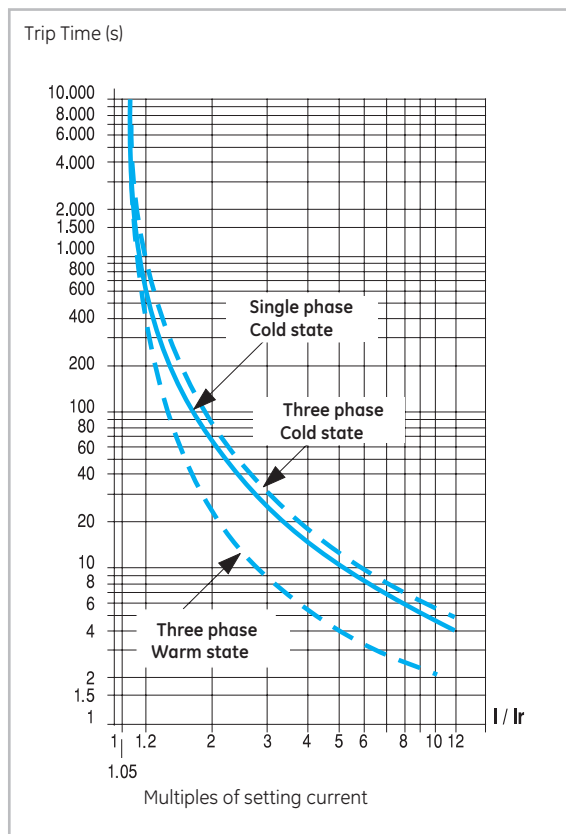
RT2 Class 10



RT12 Class 20



RT22 Class 20



Technical data

A

B

C

D

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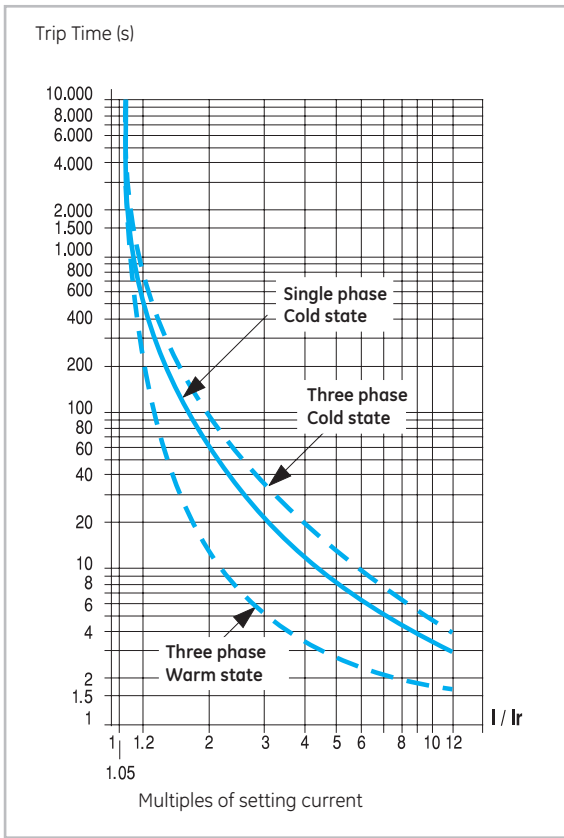
I

X

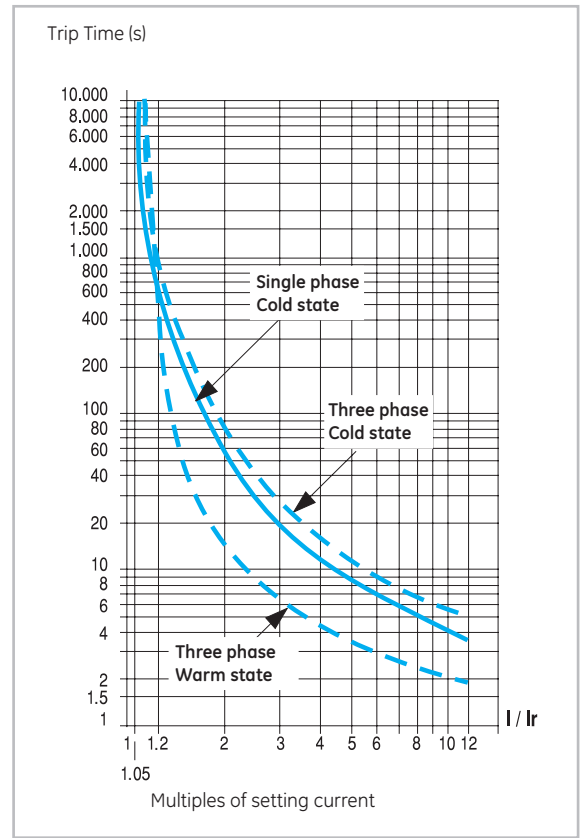


Tripping curves

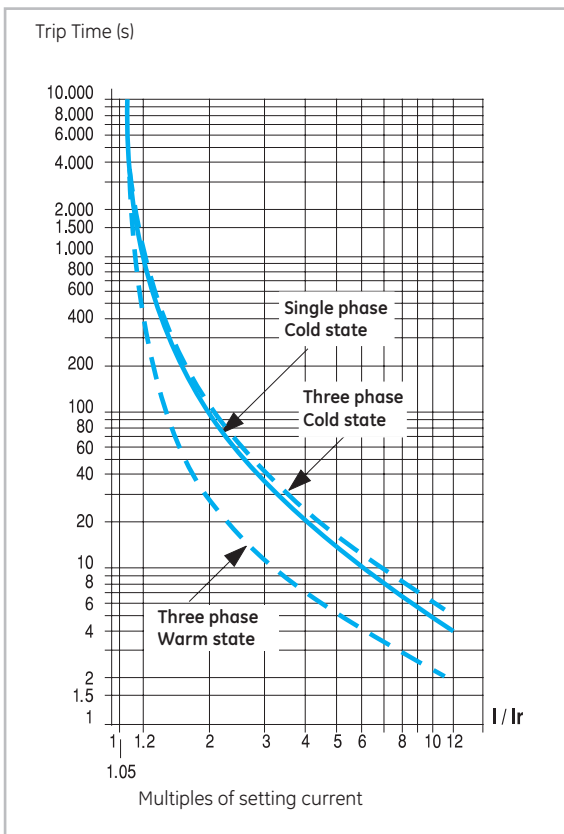
RT3 Class 10



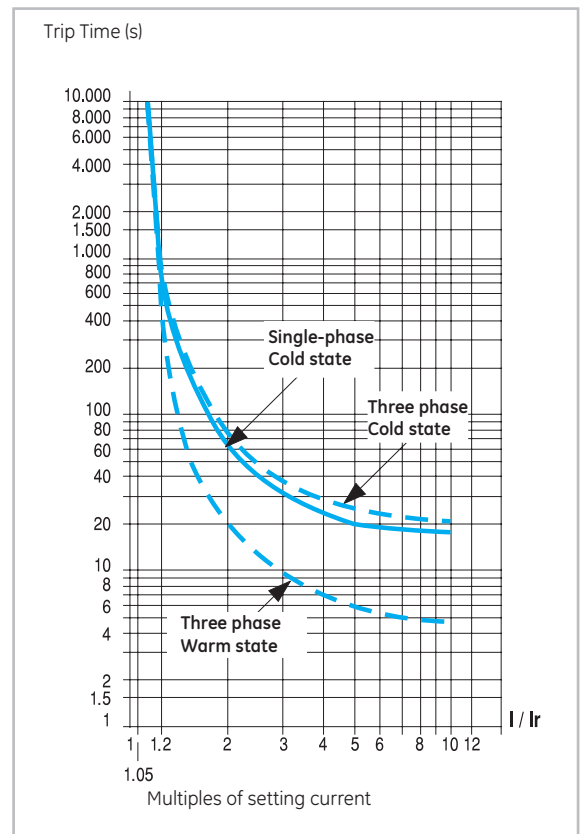
RT4 Class 10



RT32 Class 20

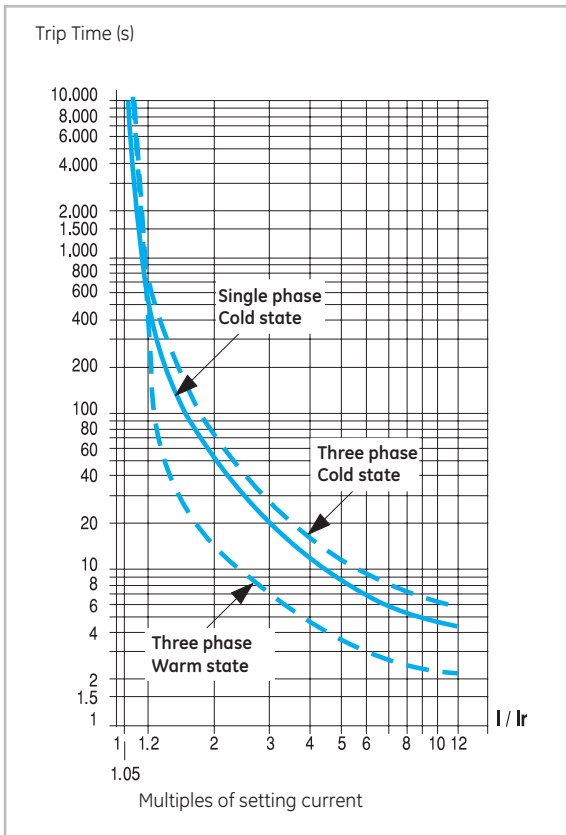


RT4L Class 30

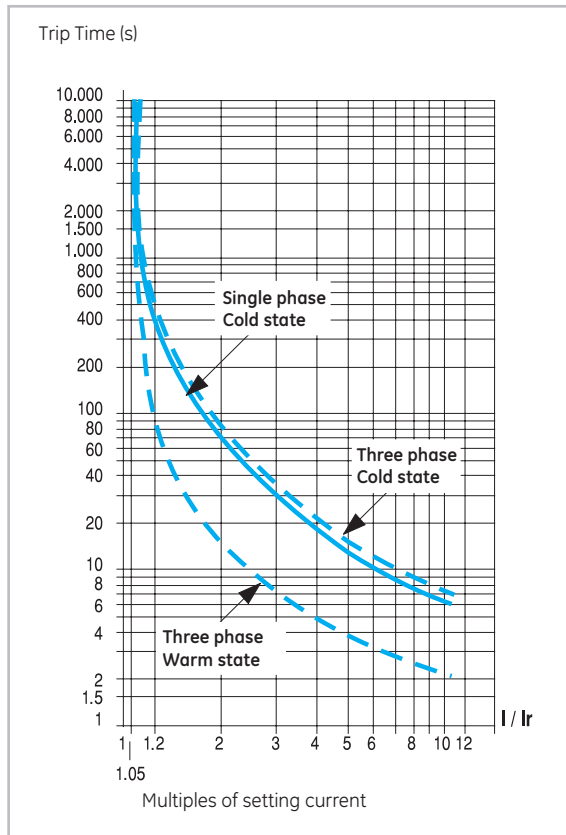


Tripping curves

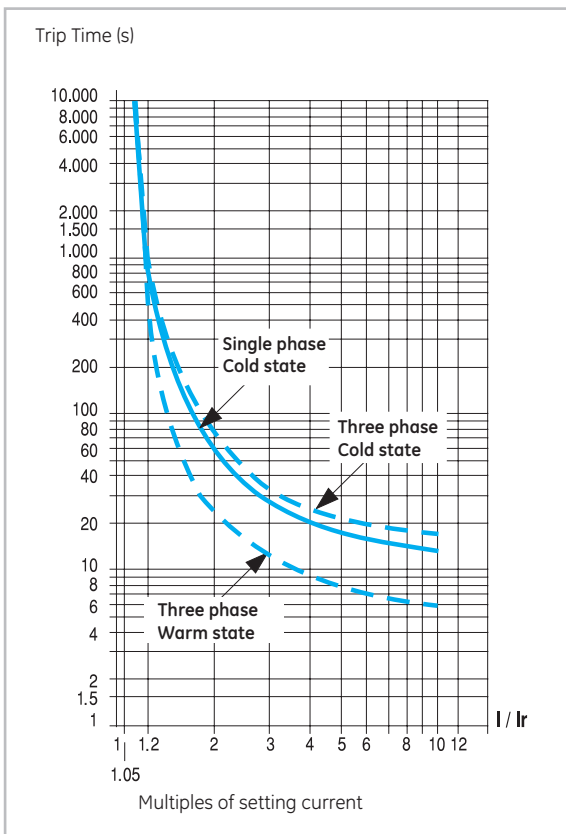
RT5 Class 10



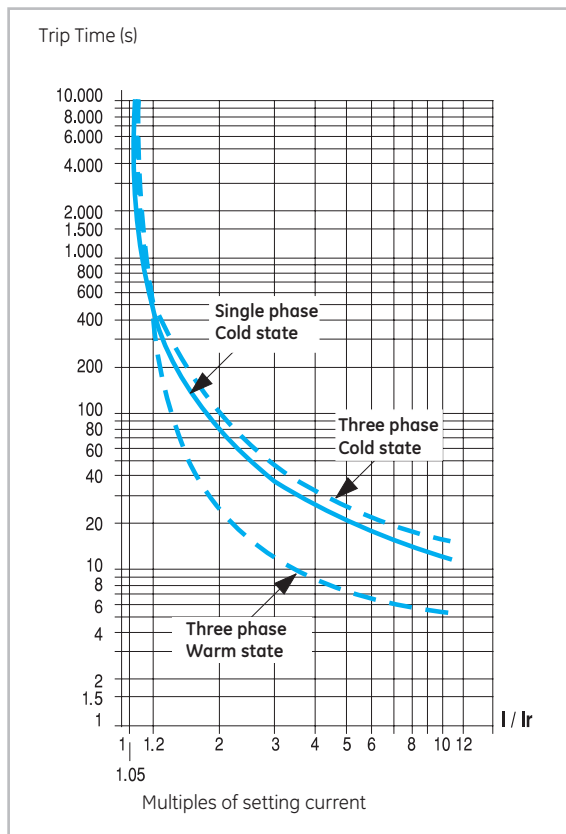
RT6 Class 10



RT5L Class 30



RT6L Class 30



Technical data

A

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G

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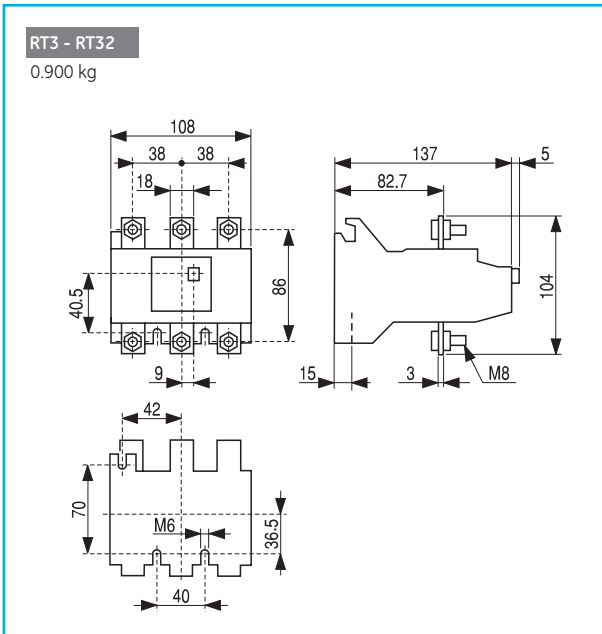
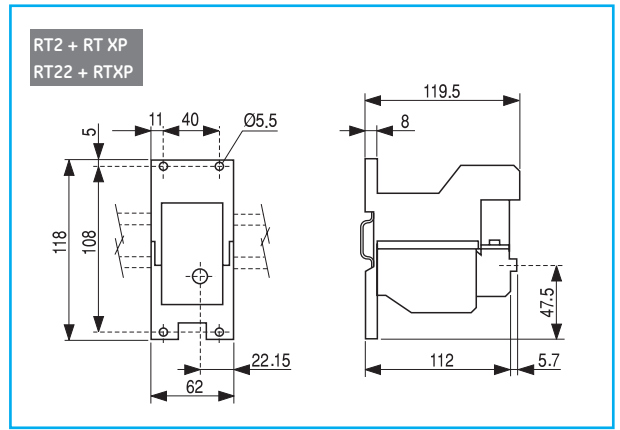
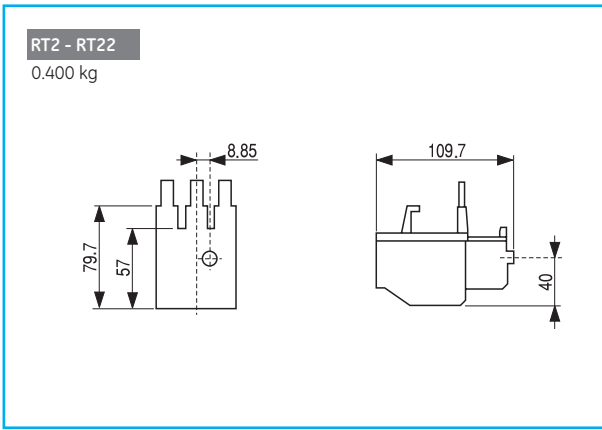
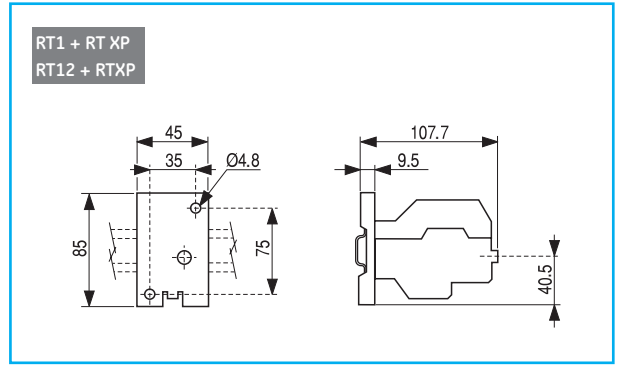
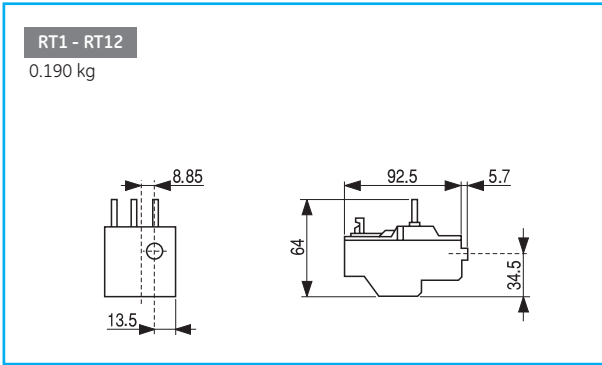
I

X



Dimensional drawings

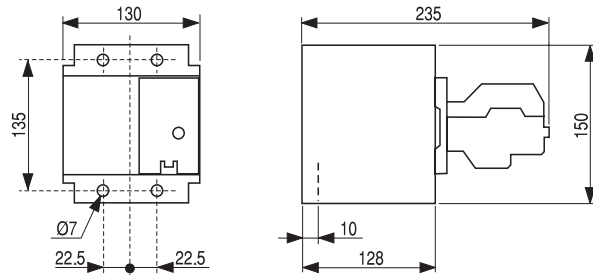
Thermal overload relay for contactors



Thermal overload relay for contactors

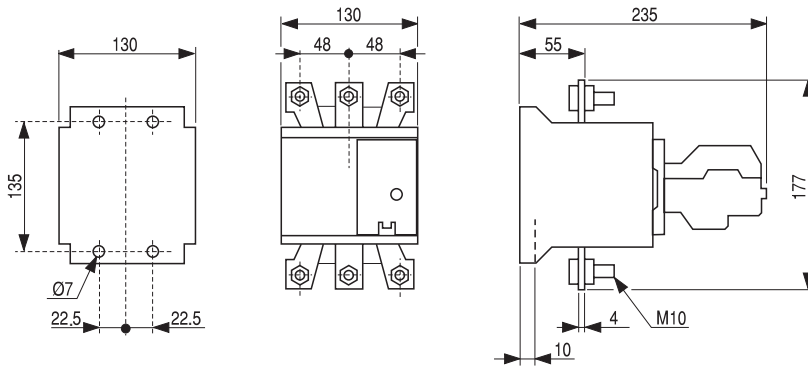
RT4LA...RT4LM

2.400 kg



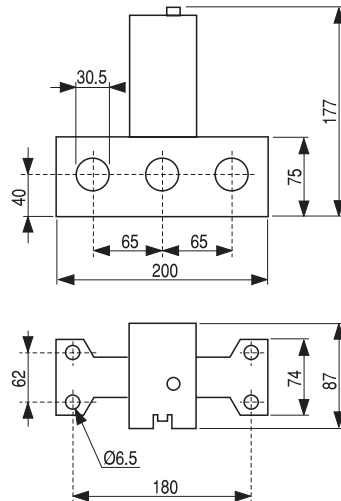
RT4/4LN...RT4/4LR

2.400 kg

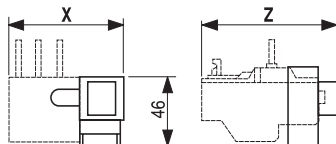


RT5 / 5L

0.875 kg



Remote electrical reset



RTXRR + ...	X	Z
RT1	75	110
RT2	84	121
RT3	108	153
RT4	150	240
RT5	200	196

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Coordination tables

Coordination Type 2 - 65kA at 380/400V and 415V - 50/60Hz

Rated power (kW)	MOTOR ⁽¹⁾		Cat. no. #	BREAKER			CONTACTOR Series	OVERLOAD RELAY		WIRE	
	Rated current			Rated current In (A)	Magnetic setting 1m Pick-up ±20% Im (A)	Magnetic current (A)		Series	Setting range (A)	Smallest wire Cu (PVC) ⁽²⁾ (mm ²)	Min frontal safety (mm)
	380/400V (A)	415V									
0.06	0.23	0.21	GPS1MHAB	0.25	-	3.3	CLOO	RE1D	0.1-0.5	1	20
0.09	0.34	0.31	GPS1MHAC	0.4	-	5.2	CLOO	RE1D	0.1-0.5	1	20
0.12	0.44	0.4	GPS1MHAD	0.63	-	8.2	CLOO	RE1D	0.1-0.5	1	20
0.18	0.65	0.63	GPS1MHA E	1	-	13	CLOO	RE1H	0.4-2.0	1	20
0.25	0.9	0.8	GPS1MHA E	1	-	13	CLOO	RE1H	0.4-2.0	1	20
0.37	1.25	1.1	GPS1MHAF	1.6	-	20.8	CLOO	RE1H	0.4-2.0	1	20
0.55	1.6	1.5	GPS1MHAF	1.6	-	20.8	CLOO	RE1H	0.4-2.0	1	20
0.75	2	1.9	GPS1MHAG	2.5	-	32.5	CLOO	RE1K	1.5-5.0	1	20
1.1	2.6	2.5	GPS1MHAH	4	-	52	CL25	RE1K	1.5-5.0	1	20
1.5	3.5	3.4	GPS1MHAH	4	-	52	CL25	RE1K	1.5-5.0	1	20
2.2	5	4.5	GPS1MHAJ	6.3	-	81.9	CL25	RE1K	1.5-5.0	1	20
3	7	6.5	GPS1MHA K	10	-	130	CL25	RE1M	1.6-8.0	1.5	20
4	9	8	GPS1MHA K	10	-	130	CL25	RE1S	6.4-32.0	1.5	20
5.5	12	11	GPS1MHAL	13	-	169	CL25	RE1S	6.4-32.0	2.5	20
7.5	-	14	GPS1MHAM	16	-	208	CL25	RE1S	6.4-32.0	2.5	20
8.8	16	-	GPS1MHAM	16	-	208	CL25	RE1S	6.4-32.0	2.5	20
11	22.5	21	GPS1MHAP	25	-	325	CL25	RE1S	6.4-32.0	4	20
15	30	28	GPS1MHAR	32	-	416	CL04	RE1S	6.4-32.0	6	20
11	22.5	21	GPS2MHAR	25	-	325	CL04	RE1S	6.4-32.0	4	20
15	30	28	GPS2MHAP	32	-	416	CL04	RE1S	6.4-32.0	6	20
18.5	37	35	GPS2MHAS	40	-	520	CL45	RE1W	9.0-45.0	10	20
22	-	40	GPS2MHAT	50	-	650	CL06	RE2H	15.0-75.0	10	25
-	44	--	GPS2MHAT	50	-	650	CL06	RE2H	15.0-75.0	10	25
30	60	55	GPS2MHAU	63	-	819	CL07	RE2H	15.0-75.0	16	25
35	65	60	FDH36MC080GD	80	900-1300	1100	CL08	RE2H	15.0-75.0	25	25
45	85	80	FDH36MC100GD	100	1000-1500	1400	CL09	RE2M	22.0-110.0	25	30
55	-	100	FDH36MC100GD	100	1000-1500	1400	CL10	RE2M	22.0-110.0	25	30
55	105	-	FEH36MC125JF	125	1250-1875	1250	CL10	RE2M	22.0-110.0	25	30
75	138	135	FEH36MC200KF	200	2250-3350	2800	CK75	RE3E	30.0-150.0	50	40

Coordination Type 2 - 100kA at 500 - 525V - 50/60Hz

Rated power kW	MOTOR ⁽¹⁾		gL/gG Fuses		EOL			CONTACTOR		WIRE	
	Rated current 500V (A)	Rated current 525V (A)	In (A)	Size	Series	Type	Setting range (A)	Series	PAC3 (kW)	Seco min	Safety clearance (mm)
0.06	0.17	0.16	2	000	RE1	D	0.1-0.5	CLOO	5.5	1	20
0.03	0.24	0.22	2	000	RE1	D	0.1-0.5	CLOO	5.5	1	20
0.12	0.33	0.3	2	000	RE1	D	0.1-0.5	CLOO	5.5	1	20
0.18	0.48	0.46	2	000	RE1	D	0.1-0.5	CLOO	5.5	1	20
0.25	0.66	0.64	2	000	RE1	H	0.4-2.0	CLOO	5.5	1	20
0.37	0.3	0.85	4	000	RE1	H	0.4-2.0	CLOO	5.5	1	20
0.55	1.2	1.15	4	000	RE1	H	0.4-2.0	CLOO	5.5	1	20
0.75	1.5	1.45	4	000	RE1	H	0.4-2.0	CLOO	5.5	1	20
1.1	2.1	1.3	6	000	RE1	K	1.5-5.0	CLOO	5.5	1	20
1.5	2.8	2.6	10	000	RE1	K	1.5-5.0	CLOO	5.5	1	20
1.1	2.1	1.3	6	000	RE1	K	1.5-5.0	CL01	7.5	1	20
1.5	2.8	2.6	10	000	RE1	K	1.5-5.0	CL01	7.5	1	20
2.2	3.3	3.6	10	000	RE1	K	1.5-5.0	CL01	7.5	1	20
1.5	2.8	2.6	10	000	RE1	K	1.5-5.0	CL25	15	1	20
2.2	3.3	3.6	10	000	RE1	K	1.5-5.0	CL25	15	1	20
3	5.3	5	16	000	RE1	M	1.6-8.0	CL25	15	1	20
4	6.8	6.5	20	000	RE1	M	1.6-8.0	CL25	15	1	20
5.5	3.1	8.6	25	000	RE1	S	6.4-32.0	CL25	15	1.5	20
7.5	12	11.4	32	000	RE1	S	6.4-32.0	CL25	15	2.5	20
10	15.5	14.8	40	000	RE1	S	6.4-32.0	CL25	15	2.5	20
11	17.6	17	40	000	RE1	S	6.4-32.0	CL25	15	2.5	20
15	23	22	50	000	RE1	S	6.4-32.0	CL04	18.5	4	20
18.5	28.5	27	63	000	RE1	S	6.4-32.0	CL04	18.5	6	20
4	6.8	6.5	20	000	RE1	M	1.6-8.0	CL45	25	1.5	20
5.5	3.1	8.6	25	000	RE1	S	6.4-32.0	CL45	25	2.5	20
7.5	12	11.4	32	000	RE1	S	6.4-32.0	CL45	25	2.5	20
11	17.6	17	40	000	RE1	S	6.4-32.0	CL45	25	2.5	20
15	23	22	50	000	RE1	S	6.4-32.0	CL45	25	4	20
18.5	28.5	27	63	000	RE1	W	3.0-45.0	CL45	25	5	20
22	33	31.5	80	000	RE1	H	15.0-75.0	CL45	25	5	20
18.5	28.5	27	63	000	RE2	H	15.0-75.0	CL06	30	5	25
22	33	31.5	80	000	RE2	H	15.0-75.0	CL06	30	5	25
30	45	43	80	000	RE2	H	15.0-75.0	CL06	30	10	25
37	53	52	100	000	RE2	H	15.0-75.0	CL07	40	10	25
40	53	56	100	000	RE2	H	15.0-75.0	CL08	45	16	25
45	65	62	125	00	RE2	H	15.0-75.0	CL09	55	16	30
55	80	76	125	00	RE2	M	22.0-110.0	CL10	65	25	30
75	105	100	160	01/1	RE3	E	30.0-150.0	CK75	100	35/25	40
30	130	124	250	01/1	RE3	E	30.0-150.0	CK08	110	50	40

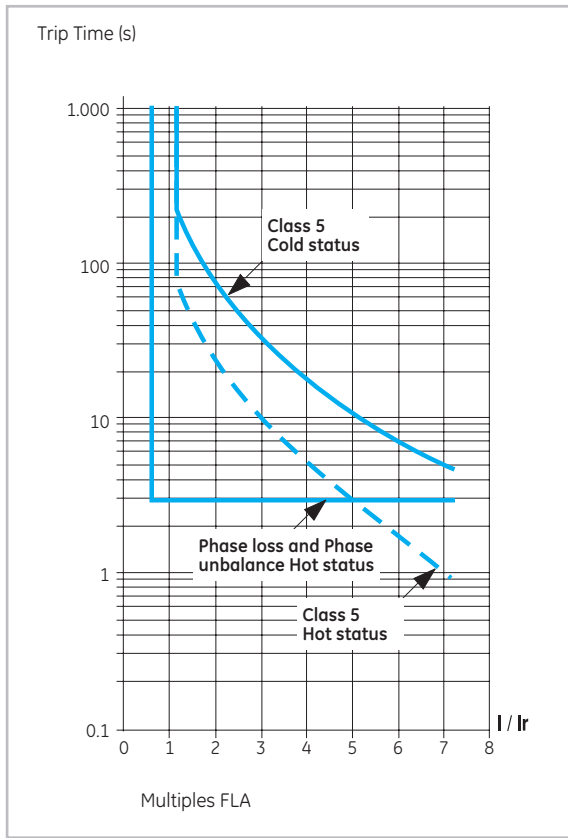
(1) Current are relevant to four pole motors not having special characteristics of torque.

(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 if it is different.

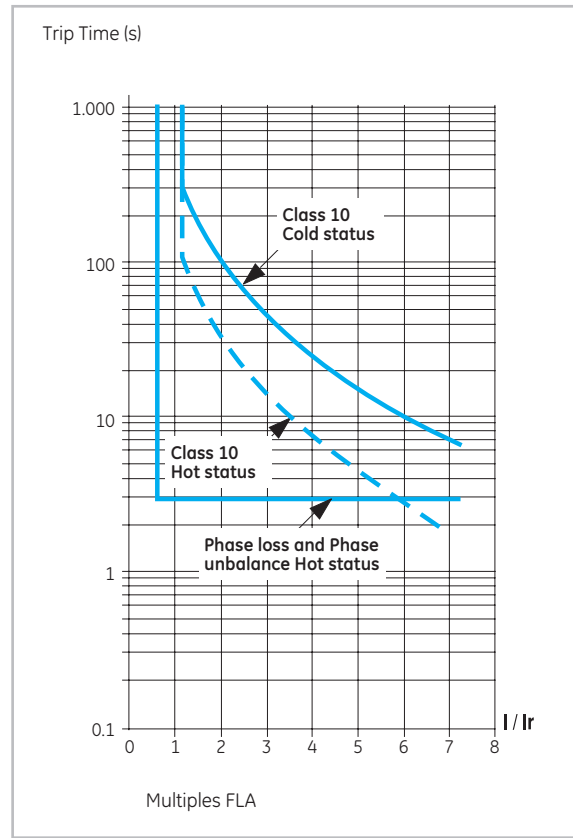


Tripping curves

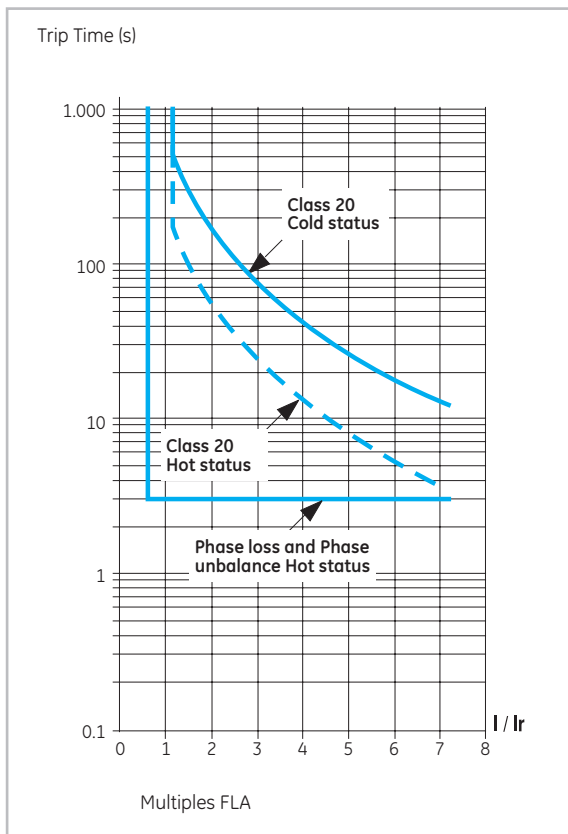
Class 5



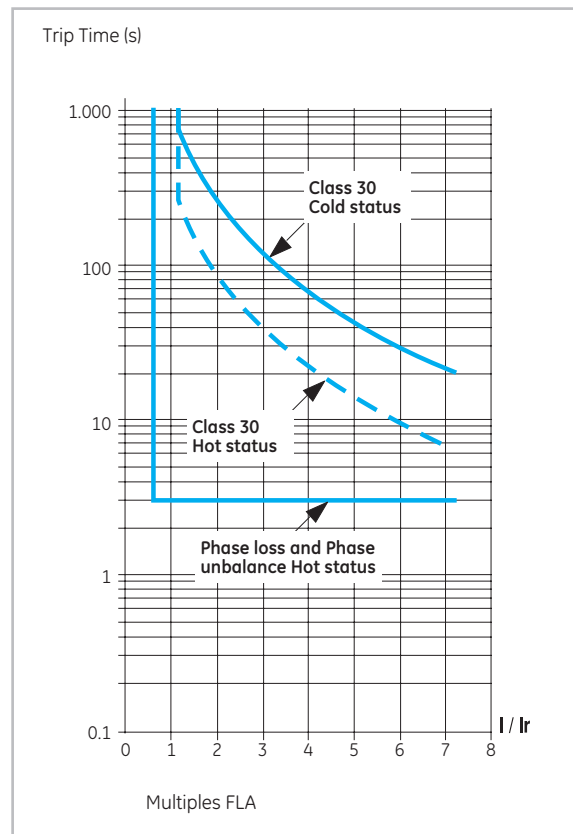
Class 10



Class 20



Class 30



Technical data

A

B

C

D

E

F

G

H

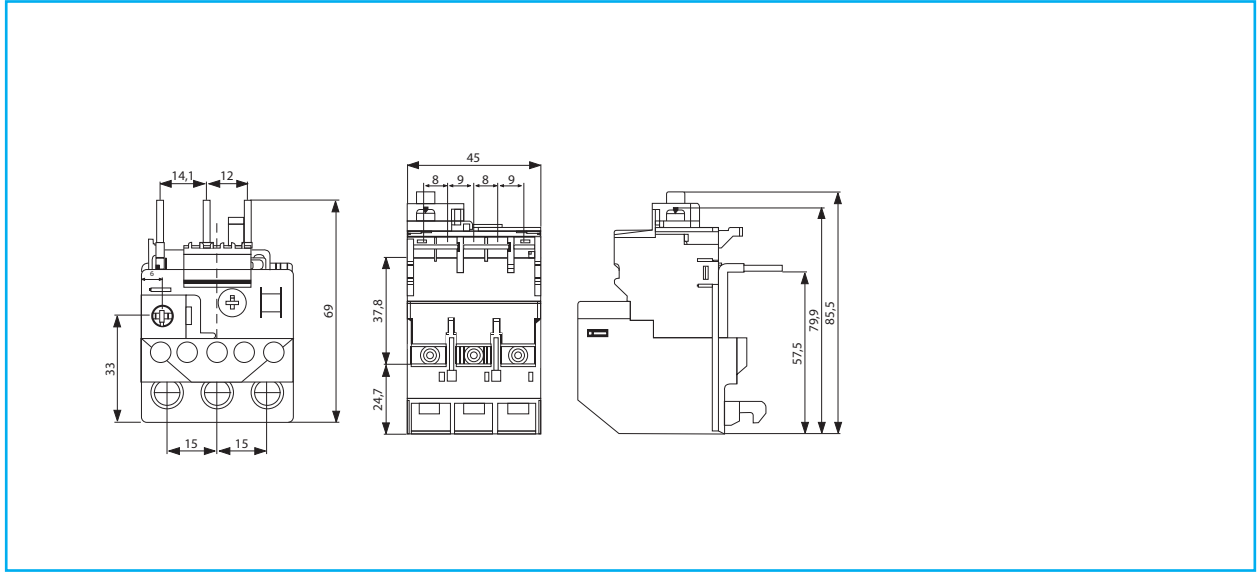
I

X

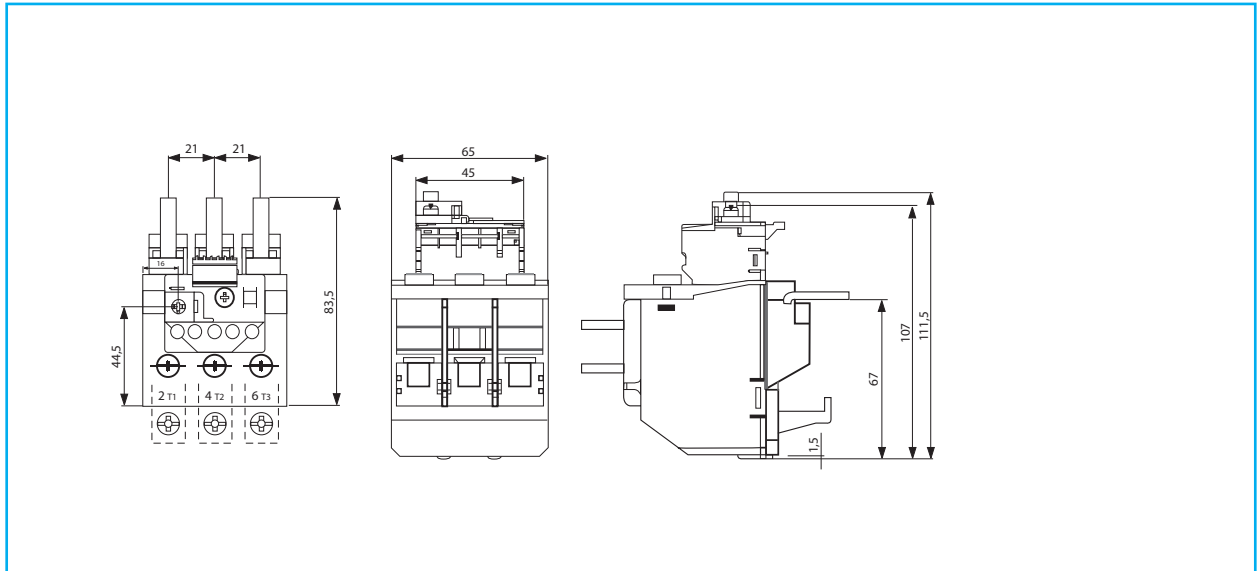


Dimensional drawings

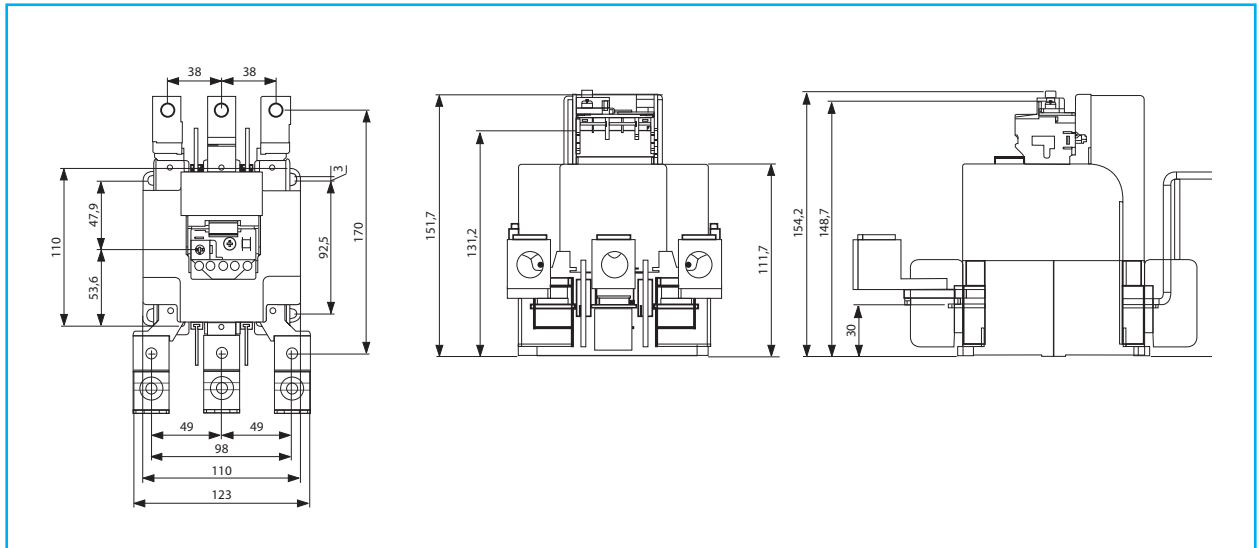
Frame 1



Frame 2



Frame 3



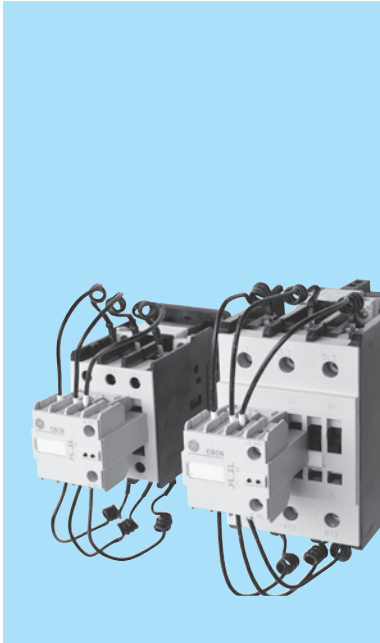
Notes

Grid area for notes.

Dimensions

A
B
C
D
E
F
G
H
I
X





Contactors for capacitors switching

With built-in resistance to switch three phase capacitor banks

“CSCN” contactors incorporate a front block with three early-make auxiliary contacts together with 6 quick discharge resistors (two per phase) through which the capacitors are switched to the network, reducing the current peak. Once the resistors have damped the current peak, the main contacts short-circuit the resistors, carrying the uninterrupted current. A few milliseconds later the early-make auxiliary contact closes to guarantee that all current flows through the main contacts.

Standards / Marking

IEC/EN 60947-1	CENELEC HD 419
IEC/EN 60947-4-1	VDE 0660/102
IEC/EN 60947-5-1	NFC 63-110
EN 50005	ASE 1025
UL 508	UNE 20109
CSA C22.2/14	

Approvals



Standard voltages

To complete the catalogue number, replace the symbol ♦ by the code corresponding to the voltage and frequency of the control circuit, other voltages on request.

Alternating current (V). Dual-frequency

♦	1	2	3	4	5	6	7	8	9
50/60Hz	24	42	110	120	220	230	240	440	48
			115						



Alternating current (V)

♦	E	K	L	N	T	U	W	Y	Z
50Hz	32	127		220		380	415	500	660
				230		400			690
60Hz			208	277	380	480	460	600	

Order codes ● pg. C.81
 Technical data ● pg. C.82
 Dimensional drawings ● pg. C.84



Contactors for capacitors switching

Ith	Ambient temperature										Fuse gl - gG	Contacts		Cat. no. ⁽¹⁾	Pack	
	$\theta \leq 55^{\circ}\text{C}$					$\theta \leq 70^{\circ}\text{C}$.3 .1	.4 .2			
	230V 240V kvar	400V kvar	415V kvar	500V kvar	660V 690V kvar	230V 240V kvar	400V kvar	415V kvar	500V kvar	660V 690V kvar						
	25	7.5	12.5	13	16	15	3.7	7.5	8	9.5	10	25	2	0	CSCN12A320 ♦	1
													1	1	CSCN12A311 ♦	1
													0	2	CSCN12A302 ♦	1
	32	10	16.7	17	21	20	5	10	11	12.5	12.5	35	2	0	CSCN16A320 ♦	1
													1	1	CSCN16A311 ♦	1
													0	2	CSCN16A302 ♦	1
	45	12.5	20	21	25	25	7.5	12.5	13	16	15	40	1	0	CSCN20A310 ♦	1
													0	1	CSCN20A301 ♦	1
													2	1	CSCN20A321 ♦	1
													1	2	CSCN20A312 ♦	1
	45	15	25	26	31	30	10	15	16	18	20	50	1	0	CSCN25A310 ♦	1
													0	1	CSCN25A301 ♦	1
												2	1	CSCN25A321 ♦	1	
												1	2	CSCN25A312 ♦	1	
60	20	30	31	38	35	16	22	23	27	25	63	1	0	CSCN30A310 ♦	1	
												0	1	CSCN30A301 ♦	1	
												2	1	CSCN30A321 ♦	1	
												1	2	CSCN30A312 ♦	1	
90	25	45	47	56	55	20	35	36	44	40	80	1	0	CSCN45A310 ♦	1	
												0	1	CSCN45A301 ♦	1	
												2	0	CSCN45A320 ♦	1	
												1	1	CSCN45A311 ♦	1	
												1	2	CSCN45A312 ♦	1	
110	35	55	57	69	65	30	45	47	56	50	125	1	0	CSCN55A310 ♦	1	
												0	1	CSCN55A301 ♦	1	
												2	0	CSCN55A320 ♦	1	
												1	1	CSCN55A311 ♦	1	
												1	2	CSCN55A312 ♦	1	
140	45	70	73	88	85	35	60	62	75	70	160	1	0	CSCN70A310 ♦	1	
												0	1	CSCN70A301 ♦	1	
												2	0	CSCN70A320 ♦	1	
												1	1	CSCN70A311 ♦	1	
												1	2	CSCN70A312 ♦	1	
	Spare coils															
	For series CSCN12 ... CSCN25												LB1A ♦	5		
	For series CSCN30												LB3A ♦	5		
For series CSCN45 ... CSCN70												LB4A ♦	5			

(1) To complete the reference, replace ♦ by the code corresponding to the voltage and frequency of the control circuit. (see pg. C.80)

Order codes

A

B

C

D

E

F

G

H

I

X



Technical data

Technical characteristics

		CSCN12	CSCN16	CSCN20	CSCN25	CSCN30	CSCN45	CSCN55	CSCN70
Main circuit (poles)									
Rated operational voltage	(V)	690	690	690	690	690	690	690	690
Rated insulation voltage according to IEC947	(V)	1000	1000	1000	1000	1000	1000	1000	1000
Rated thermal current	(A)	25	32	45	45	60	90	110	140
Max. power utilization at 55°C	230/240V (kvar)	7,5	10	12,5	15	20	25	35	45
	380/400V (kvar)	12,5	16,7	20	25	30	45	55	70
	660/690V (kvar)	15	20	25	30	35	55	65	85
Electrical endurance	(ops.)	280.000	280.000	280.000	250.000	200.000	150.000	120.000	90.000
Max. ops./hour	(ops./hour)	350	350	350	240	240	150	150	150
Control circuit									
Standard voltages	50Hz (V)	24-690	24-690	24-690	24-690	24-690	24-690	24-690	24-690
	60Hz (V)	24-600	24-600	24-600	24-600	24-600	24-600	24-600	24-600
Consumption									
Single frequency	Mar. circuit open (VA)	45	45	48	48	88	191	191	198
	Mar. circuit closed (VA)	6	6	7	7	9	15,5	15,5	17
Dual frequency	Mar. circuit open (VA)	54	54	58	58	125	245	245	250
	Mar. circuit closed (VA)	7	7	8	8	11,5	20	20	23
Dual frequency	Mar. circuit open (VA)	35	35	39	39	110	215	215	220
	Mar. circuit closed (VA)	5	5	6	6	11	15	15	19


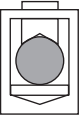
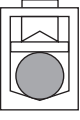
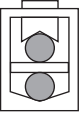
Instantaneous auxiliary contact blocks

Rated insulation voltage Ui	(V)	1000
Rated thermal current Ith	(A)	10

Ambient conditions

Storage temperature	(°C)	-50 ... +80
Operating temperature	(°C)	-25 to +55 (without derating)
Altitude up to 3000m		Nominal values
Mounting positions		Vertical mounting +/- 30°

Terminal capacity and tightening torque

		CSCN12	CSCN16	CSCN20	CSCN25	CSCN30	CSCN45	CSCN55	CSCN70
	Solid, stranded and finely stranded without end sleeve (mm ²)	1 x 0.5 ... 2,5		1 x 0.5 ... 2,5		-	-	-	-
	Finely stranded with or without end sleeve (mm ²)	1 x 1 ... 2,5		1 x 1 ... 2,5		-	-	-	-
	AWG wires	1 x 20 ... 12		1 x 20 ... 8		-	-	-	-
	Tightening torque (Nm)	1,6		2,2		-	-	-	-
	(Lb x in.)	15		20		-	-	-	-
	Solid, stranded and finely stranded without end sleeve (mm ²)	-		-	0,75 ... 16		1 ... 35		1,5 ... 50
	Finely stranded with end sleeve (mm ²)	-		-	0,75 ... 16		1 ... 35		1,5 ... 50
	Finely stranded without end sleeve (mm ²)	-		-	1 ... 16		1 ... 35		1,5 ... 50
	AWG wires	-		-	18 ... 6		16 ... 2		16 ... 2
	Tightening torque (Nm)	-		-	1,8		4		5,6
(Lb x in.)	-		-	16		35		50	
	Solid (mm ²)	-		-	0,75 ... 16		1 ... 16		4 ... 35
	Stranded (mm ²)	-		-	0,75 ... 16		1 ... 25		4 ... 35
	Finely stranded without end sleeve (mm ²)	-		-	0,75 ... 16		1 ... 25		4 ... 35
	Finely stranded with end sleeve (mm ²)	-		-	1 ... 16		1 ... 25		4 ... 35
	AWG wires	-		-	18 ... 6		16 ... 4		10 ... 1
	Tightening torque (Nm)	-		-	1,8		4		5,6
(Lb x in.)	-		-	16		35		50	
	Solid, stranded and finely stranded without end sleeve (mm ²)	-		-		Max. 16	Max. 50 ... 4		Max. 50 ... 35
	Finely stranded without end sleeve (mm ²)	-		-		Max. 16	Max. 35 ... 2,5		Max. 35
	Finely stranded with end sleeve (mm ²)	-		-		Max. 16	Max. 35 ... 16		Max. 35
	AWG wires	-		-		Max. 6	Max. 2 ... 12		Max. 1
	Tightening torque (Nm)	-		-		1,8	4		5,6
	(Lb x in.)	-		-		16	35		50
								Max. 25 ... 16	
							Max. 25 ... 25		

Standard contactors

Series "CL" and "CK" contactors, to switch three phase capacitor banks

Electrical endurance: >100,000 operations

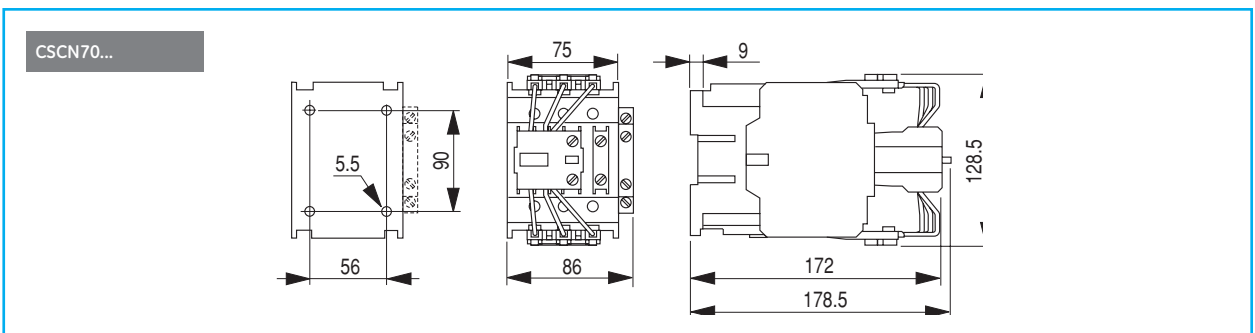
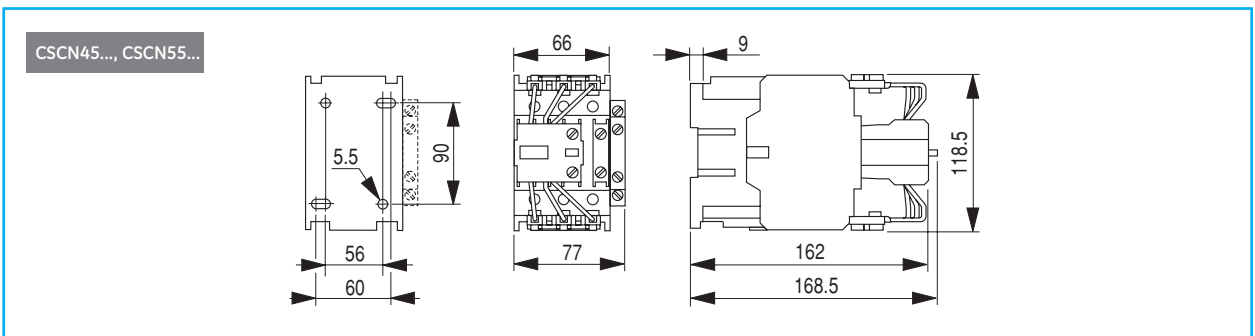
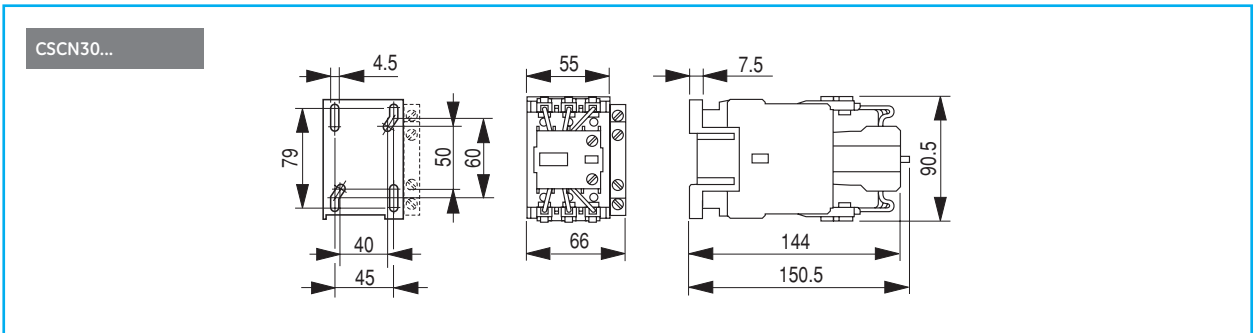
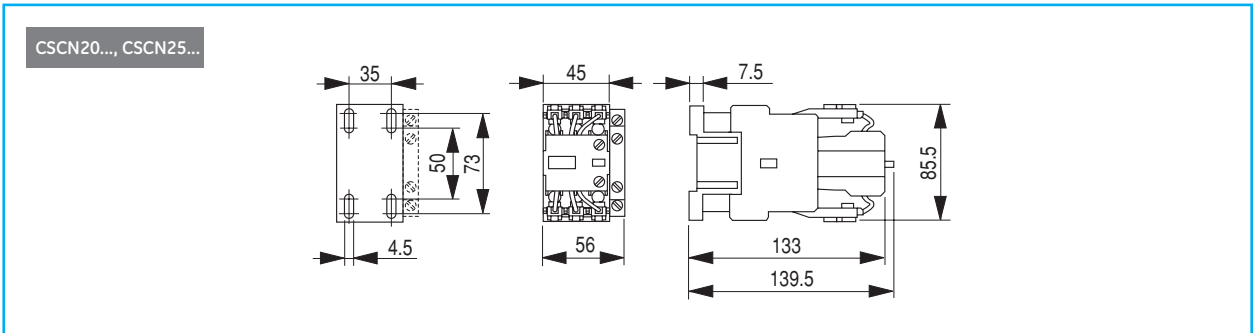
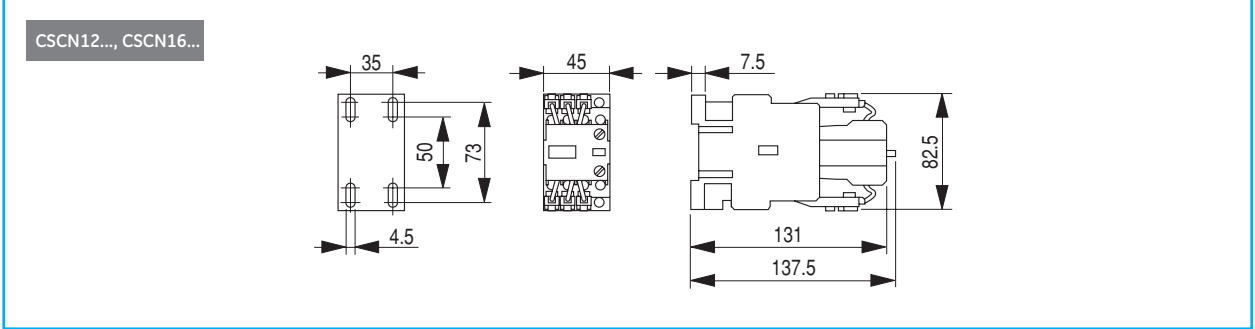
Contactor		$\theta \leq 55^{\circ}\text{C}$					$\theta \leq 70^{\circ}\text{C}$					Fuse	I max.
Type ⁽¹⁾	Ith	220V 230V 240V kvar	400V kvar	415V kvar	500V kvar	690V 660V kvar	220V 230V 240V kvar	400V kvar	415V kvar	500V kvar	690V 660V kvar	gl - gG	(peak)
	A											A	A
CL00A	25	3	5	5.5	6.5	5.7	2.4	4	4.5	5.2	4.5	10	1000
CL01A	25	4.5	9.5	10.5	12.5	11	3.6	6	6.5	10	7	16	1000
CL02A	32	6.5	11	12	14.5	12.5	5.2	8.5	9	11.5	10	25	1000
CL25A	45	7.5	12.5	14	16	15	6.5	10	11	13	12	25	1000
CL03A	45	9	15	16.5	20	17.5	7.2	12	13	16	14	35	2500
CL04A	60	12.5	21	23	27.5	24	10	17	18	22	19.5	40	2500
CL45A	60	16.5	25	27	32	30	13	20	22	25	22	50	2500
CL06A	90	22	40	43	52	50	17	30	33	41	35	80	3500
CL07A	110	25	45	48	58	65	19	35	37	46	40	125	3500
CL08A	110	30	50	54	65	70	22	40	43	52	50	125	3500
CL09A	140	40	65	70	85	95	35	58	62	75	85	160	3500
CL10A	140	50	80	85	105	120	43	70	75	90	105	160	3500
CK75C	250	60	110	118	145	150	48	88	94	116	120	250	5000
CK08C	250	70	125	135	162	170	56	100	107	130	136	250	5000
CK85B	315	80	150	160	195	200	64	120	130	156	160	315	5000
CK09B	315	95	165	177	215	230	85	148	160	192	205	315	5000
CK95B	450	105	190	205	250	288	95	175	188	230	265	450	5500
CK10C	600	135	260	280	340	370	120	235	252	375	330	630	10000
CK11C	700	190	325	350	425	450	152	260	280	340	360	800	10000
CK12B	1000	250	400	430	520	600	200	320	344	416	480	1000	12000
CK13B	1250	315	525	565	685	650	252	420	452	548	520	1250	15000

(1) To complete contactor reference, see C.10 for CL and C.18 for CK



Dimensional drawings

Contactors for capacitors switching



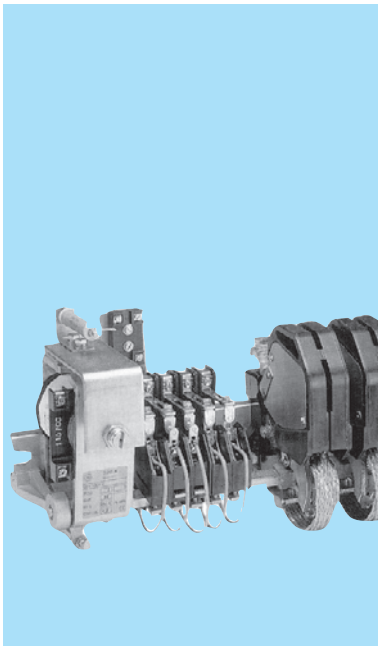
Notes

Grid area for notes.

Dimensions

A
B
C
D
E
F
G
H
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X





Clapper contactors 40A to 800A (AC-3) / 45A to 1200A (AC-1)

AC and DC control using a bridge rectifier, designed to meet the most recent stringent requirements in terms of reliability, service life and performance.

Main characteristics

- Sliding contact holder, set on self-centering and self-lubricating bronze bushings
- Minitubes made of high-strength, high electrical resistance material
- Individual auxiliary contacts

Construction

Variable composition contactors (the number of main poles and auxiliary contacts may vary), preferably secured on mounts

Control circuit

Solid iron magnetic circuit with coil powered by direct or rectified current, particularly for heavy-duty applications (e.g., cranes, roll mills, reversing winches, etc.).

The coils are sized for intermittent operation. For continuous operation, insert an economy resistor in series with the coil using the respective auxiliary contact.

Main contacts

The sintered main contacts are classified as Type 4/2 for intermittent operation and Type 5/2 for continuous operation.

The 4/2 sintered contact may be used only for heavy-duty operation when the number of switching operations per hour is above 60 and the operating intermittence is equal or less than 60% (cranes, roll mills, etc.).

If used for continuous operation, the contact will overheat.

The 5/2 sintered contact may be used only for normal duty when the number of switching operations per hour is equal to or less than 60% and the operating intermittence is above 60%.

Auxiliary contacts

Individual NO or NC single-broke contacts

Possibility to advance or delay contact making or breaking

Special versions

The following items may be supplied upon request:

- Contactors with coils having an operating limit that exceeds the limits required by the standards
- Contactors with an operating voltage up to 3000V (rotary disconnect switches, induction furnaces, etc.)
- Vertical mechanical interlocks ideal for interlocking 3 contactors.

Spare parts and additional components

Spare parts and additional components for the contactors are listed on page C.91.

Standards

IEC/EN 60947-1
IEC/EN 60947-4-1
IEC/EN 60947-5-1

Standard voltages

Alternating current (V) Dual-frequency coils

	AP	CP	EP	GP
50/60Hz	24	48	110	220

Direct current (V)

	A	B	C	D	E	F	G	H	M	R
Voltage	20	24	40	48	97	110	197	220	230	125

Order codes ● pg. C.87

Coils ● pg. C.90

Spare parts ● pg. C.91

Technical data ● pg. C.94

Dimensional drawings ● pg. C.96

Control voltage and normal combinations

Normal rated voltages, shaft spacing and combinations (main and auxiliary poles) have been defined for each switchgear unit, thereby allowing the contactor to be rapidly selected.

AC rated voltages: 24V - 48V - 110V - 220/230V

DC rated voltages: 24V - 48V - 110V - 220/230V

Spacing between standardised shafts and combinations:

See pages C.96 to C.98

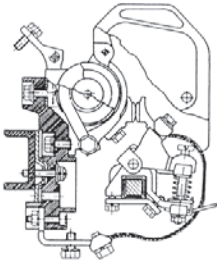
Standard center-to-center spacing (mm): 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900, 1000

Main poles

The poles can be constructed as follows, depending on the operating conditions:

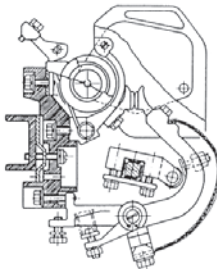
Z design (NO)

- For load breaking, with high breaking capacity
- For AC or DC use
- Equipped with magnetic arc-quenching coil. In the case of AC, the poles are normally supplied with an appropriate arc-quenching coil for the maximum rated current of the pole.
- Arc-quenching coils for medium rated currents with respect to the expected peak current are available for DC use upon request, for more effective pole performance (see table on page C.90).



RN design (NC)

- Based on the use of break poles, which are open when the coil is energized and closed when the coil is de-energized.
- For AC or DC use in special circuits where high interrupting capacities are not required.
- This design is intended to be used with contactors R1, R2, R3, R4, R5, R7.

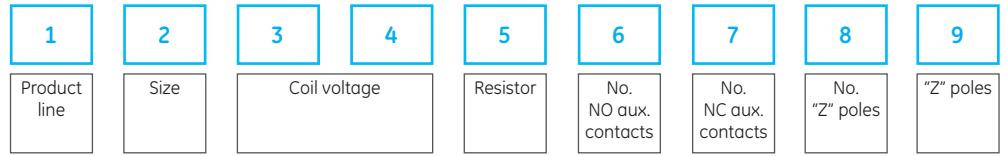


Poles	R1	R2	R3	R4	R5	R6	R7	R8	R9
Z	■	■	■	■	■	■	■	■	■
RN	■	■	■	■	■		■		

Order codes - Clapper contactors

Peak operating current	AC-3 admissible rated powers					Electric endurance	AC or DC	Pack.
	Resistive loads	Motors <440V, 3 ~ 50/60Hz	220V 230V	380V 400V	415V 440V			
AC1 A	AC3 A	kW HP	kW HP	kW HP	kW HP	Cat. AC3 Switching operations	See the following pages C.84 and C.85 on how to complete the catalogue number	
45	40	11,5	20	20	20	1 × 10 ⁶	R1...	1
90	90	26	45	45	45	1 × 10 ⁶	R2...	1
125	120	36,5	62	62	73,5	1 × 10 ⁶	R3...	1
250	200	72,5	100	100	120	1 × 10 ⁶	R4...	1
320	320	93	160	160	165	1,2 × 10 ⁶	R5...	1
450	450	130	225	225	300	1,5 × 10 ⁶	R6...	1
630	630	184	315	315	400	1 × 10 ⁶	R7...	1
800	800	232	400	400	500	0,9 × 10 ⁶	R8...	1
1500	-	-	-	-	-	-	R9...	1

Catalogue number structure



Size		1	2
1	Max.	45	R 1
	500V AC	90	R 2
2	250V DC	125	R 3
		250	R 4
		320	R 5
		450	R 6
		630	R 7
		800	R 8
		1200	R 9

Auxiliary contacts		6	7
6	NO		
	1	1	
	2	2	
	3	3	
	4	4	
	5	5	
7	6	6	
		1	1
		2	2
		3	3
	4		

"RN" poles" (NC)		11
"RN" poles	"RN" poles	
0	0	-
1	1	1
2	2	2
3	3	3
4	4	4

Note: The "RN" poles are not available for the R6, R8 and R9 types.

Coil voltage		3	4
AC	DC		
Types R1 ... R7			
24V		A	P
48V		C	P
110V		E	P
220V		G	P
	20V	A	-
	24V	B	-
	40V	C	-
	48V	D	-
	97V	E	-
	110V	F	-
	197V	G	-
	220V	H	-
	230V	M	-
	125V	R	-
Types R8 and R9			
110V		E	P
220V	97V	G	P
	110V	E	-
	197V	F	-
	220V	G	-
	230V	H	-
	125V	M	-

"Z" poles" (N)		8
"Z" poles	"Z" poles	
0	0	-
1	1	1
2	2	2
3	3	3
4	4	4

"RN" poles		12
Type of pole		
RN	V	
No "RN" poles	-	

Note: The "RN" poles are not available for the R6, R8 and R9 types.

Economy resistor		5
	If required (5/2 contacts)	R
	If not required	-

"Z" poles		9
Type of pole		
Z	Z	
No "Z" poles	-	

Type	Arc-quenching coil "Z" poles		
	A	B	C
R1	45A	14A	25A
R2	90A	45A	-
R3	125A	75A	-
R4	200A	50A	130A
R5	320A	150A	-
R6	450A	270A	-
R7	630A	320A	-
R8	800A	320A	400A
R9	1200A	-	-

Type	Arc-quenching coil «RN» poles		
	A	B	C
R1	45A	14A	25A
R2	90A	45A	-
R3	125A	75A	-
R4	200A	50A	130A
R5	320A	150A	-
R6	-	-	-
R7	630A	320A	-
R8	-	-	-
R9	-	-	-

Note: The "RN" poles are not available for the R6, R8 and R9 types.

Type of contacts		14
Type		
4/2	Intermittent op.	4
5/2	Continuous op.	5

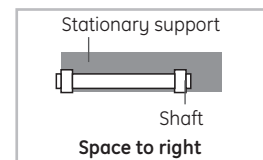
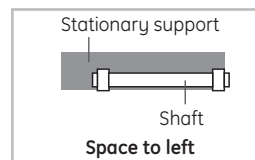
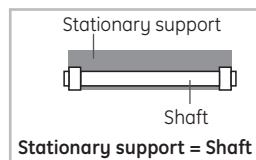
10	11	12	13	14	15	16	17	18
Arc-quenching coil "Z" poles	No. "RN" poles	"RN" poles	Arc-quenching coil "RN" poles	Type of contacts	Stationary support	Space	Shaft	Isolation

	Stationary support	Contactor type			
		R1 R2 R3	R4 R5	R6 R7 R8	R9
15	Length (mm)				
	150	A	-	-	-
	200	B	-	-	-
	250	C	C	-	-
	300	D	D	-	-
	350	E	E	E	-
	400	F	F	F	F
	450	G	G	G	G
	500	H	H	H	H
	600	I	I	I	I
	700	L	L	L	L
	800	M	M	M	M
	900	N	N	N	N
	1000	O	O	O	O

	Shaft (≤stat. sup.)	Contactor type			
		R1 R2 R3	R4 R5	R6 R7 R8	R9
17	Length (mm)				
	150	A	-	-	-
	200	B	-	-	-
	250	C	C	-	-
	300	D	D	-	-
	350	E	E	E	-
	400	F	F	F	F
	450	G	G	G	G
	500	H	H	H	H
	600	I	I	I	I
	700	L	L	L	L
	800	M	M	M	M
	900	N	N	N	N
	1000	O	O	O	O

	Isolation	18
18	For more isolation	M
	Not required	-

	Space	16
16	No space	Station. sup.=Shaft -
	Space	Left S
		Right -



Order codes

A

B

C

D

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Standardised DC or rectified coils

The DC coils are suitable for intermittent operation; for continuous operation, an economy resistor must be used.

The coils for rectified rated voltages 20-40-97-197V obtained from AC power supplies. (before the rectifier). 24-48-110-220V are available upon request. For the contactor of "RN" break poles, contact GE.

Contactor	Voltage VDC	Coil		Economy resistor for continuous operation ± 5%				Single-phase bridge rectifier for AC power		
		Cat. no.	Ref. no.	W	Ω	Cat. no.	Ref. no.	V 50/60Hz	Cat. no.	Ref. no.
R1 R2	20	39012Y20D	244107	4	8.2	RSS13/64TA8,2	204177	24	MSK-B250/220-1,5	209997
	24	39012Y24D	202327		18	RSS13/64TA18	211727	-		
	40	39012Y40D	244106		33	RSS13/64TA33	211728	48		
	48	39012Y48D	244734		68	RSS13/64TA6,8	214869	-		
	97	39012Y97D	202328		220	RSS13/64TA220	212702	110		
	110	39012Y110D	202323		330	RSS13/64TA330	211745	-		
	197	39012Y197D	202325		680	RSS13/64TA680	214580	220		
	220	39012Y220D	202326		1200	RSS13/64TA1200	213034	-		
	230	39012Y230D	211706		1200	RSS13/64TA1200	213034	-		
	125	39012Y125D	202324		330	RSS13/64TA300	211714	-		
R3	20	3903Y20D	215278	4	8.2	RSS13/64TA8,2	204177	24	MSK-B250/220-1,5	209997
	24	3903Y24D	244735		18	RSS13/64TA18	211727	-		
	40	3903Y40D	244088		39	RSS13/64TA39	211730	48		
	48	3903Y48D	212705		47	RSS13/64TA47	211731	-		
	97	3903Y97D	213691		270	RSS13/64TA270	214399	110		
	110	3903Y110D	202437		330	RSS13/64TA330	211745	-		
	197	3903Y197D	214442		820	RSS13/64TA820	214400	220		
	220	3903Y220D	202438		1200	RSS13/64TA1200	213034	-		
	230	3903Y230D	211107		1200	RSS13/64TA1200	213034	-		
	125	3903Y125D	216100		330	RSS13/64TA300	211714	-		
R4	20	3904Y20D	244084	6	8.2	RSS13/64TA8,2	204177	24	MSK-B250/220-1,5	209997
	24	3904Y24D	202483		18	RSS13/64TA18	211727	-		
	40	3904Y40D	244083		33	RSS13/64TA33	211728	48		
	48	3904Y48D	213814		33	RSS13/64TA33	211728	-		
	97	3904Y97D	213601		180	RSS13/64TA180	211744	110		
	110	3904Y110D	202479		180	RSS13/64TA180	211744	-		
	197	3904Y197D	202481		680	RSS13/64TA680	214580	220		
	220	3904Y220D	202482		680	RSS13/64TA680	214580	-		
	230	3904Y230D	211708		680	RSS13/64TA680	214580	-		
	125	3904Y125D	202480		180	RSS13/64TA180	211744	-		
R5	20	3905Y20D	244073	10	6.8	RSS13/64TA6,8	214869	24	SKB-B80/70-4	211716
	24	3905Y24D	244072		10	RSS13/64TA10	211742	-		
	40	3905Y40D	244071		27	RSS13/64TA27	244192	48		
	48	3905Y48D	244736		27	RSS13/64TA27	244192	-		
	97	3905Y97D	202513		120	RSS13/64TA120	243281	110		
	110	3905Y110D	202512		180	RSS13/64TA180	211744	-		
	197	3905Y197D	244074		470	RSS13/64TA470	244191	220		
	220	3905Y220D	212706		680	RSS13/64TA680	214580	-		
	230	3905Y230D	211709		680	RSS13/64TA680	214580	-		
	125	3905Y125D	242260		180	RSS13/64TA180	211744	-		
R6	20	3906Y20D	244065	10	6.8	RSS13/64TA6,8	214869	24	SKB-B80/70-4	211716
	24	3906Y24D	244064		8.2	RSS13/64TA8,2	204177	-		
	40	3906Y40D	244063		27	RSS13/64TA27	244192	48		
	48	3906Y48D	212707		27	RSS13/64TA27	244192	-		
	97	3906Y97D	202533		100	RSS13/64TA100	211744	110		
	110	3906Y110D	202532		180	RSS13/64TA180	211744	-		
	197	3906Y197D	244066		470	RSS13/64TA470	244191	220		
	220	3906Y220D	213612		680	RSS13/64TA680	214580	-		
	230	3906Y230D	211770		680	RSS13/64TA680	214580	-		
	125	3906Y125D	211711		180	RSS13/64TA180	211744	-		
R7	20	3907Y20D	244058	16	5.6	RSS13/64TA5,6	211735	24	SKB-B80/70-4	211716
	24	3907Y24D	244057		5.6	RSS13/64TA5,6	211735	-		
	40	3907Y40D	244056		15	RSS13/64TA15	211737	48		
	48	3907Y48D	244737		18	RSS13/64TA18	211727	-		
	97	3907Y97D	244738		82	RSS13/64TA82	204177	110		
	110	3907Y110D	202547		100	RSS13/64TA100	211743	-		
	197	3907Y197D	244059		330	RSS13/64TA330	211745	220		
	220	3907Y220D	202548		390	RSS13/64TA390	211746	-		
	230	3907Y230D	211712		1200	RSS13/64TA1200	213034	-		
	125	3907Y125D	211713		330	RSS13/64TA330	211745	-		
R8	97	3908Y97D	212959	16	82	RSS20/165TA82	214081	110	SKB-B250/220-4	212165
	110	3908Y110D	202565		120	RSS20/165TA120	213664	-		
	197	3908Y197D	214066		390	RSS20/165TA390	211748	220		
	220	3908Y220D	202566		470	RSS20/165TA470	211739	-		
R9	97	3909Y97D	214146	140	100	RSS20/165TA100	213663	110	SKB-B30/08	211720
	110	3909Y110D	202572		150	RSS20/165TA150	215004	-		
	197	3909Y197D	204181		390	RSS20/165TA390	211748	220		
	220	3909Y220D	244739		560	RSS20/165TA560	244987	-		

(1) To insert the resistors, use NC auxiliary contacts in series.

(2) Two 20x165 resistors connected in parallel, each with a resistive value listed in the table.



Spare parts

Contactors	Description	Cat. no.	Ref. no.	Pack (units)	
R1	"Z" stationary part with 14A arc-quenching coil and spark suppressor	390/3921PFZCS14	202273	1	
	"Z" stationary part with 25A arc-quenching coil and spark suppressor	390/3921PFZCS25	244172	1	
	"Z" stationary part with 45A arc-quenching coil and spark suppressor	390/3921PFZCS45	202274	1	
	"RN" stationary part with spark suppressor	390/3921PFRN	244173	1	
	"Z" moving part (with pressure spring and strap)	390/3921PMZI	202276	1	
	"RN" moving part (with pressure spring and strap)	390/3921PMRN	202275	1	
	Stationary and moving main contact, type 4/2 (intermittent operation)	390/3921/2FOM4/2	214120	1	
	Stationary and moving main contact, type 5/2 (continuous operation)	390/3922FOM5/2	214121	1	
	Spark suppressor for "Z" and "RN" poles	390/3921PZ	202277	1	
	R2	"Z" stationary part with 45A arc-quenching coil and spark suppressor	390/3922PFZCS45	244744	1
		"Z" stationary part with 90A arc-quenching coil and spark suppressor	390/3922PFZCS90	202278	1
"RN" stationary part with spark suppressor		390/3922PFRN	212709	1	
"Z" moving part (with pressure spring and strap)		390/3922PMZI	202279	1	
"RN" moving part (with pressure spring and strap)		390/3922PMRN	213014	1	
Stationary and moving main contact, type 4/2 (intermittent operation)		390/3921/2FOM4/2	214120	1	
Stationary and moving main contact, type 5/2 (continuous operation)		390/3922FOM5/2	214121	1	
Spark suppressor for "Z" and "RN" poles		390/3922PZ	202280	1	
R3		"Z" stationary part with 75A arc-quenching coil and spark suppressor	390/3923PFZCS75	244745	1
		"Z" stationary part with 125A arc-quenching coil and spark suppressor	390/3923PFZCS125	202281	1
		"RN" stationary part with spark suppressor	390/3923PFRN	213986	1
	"Z" moving part (with pressure spring and strap)	390/3923PMZI	202283	1	
	"RN" moving part (with pressure spring and strap)	390/3923PMRN	202282	1	
	Stationary and moving main contact, type 4/2 (intermittent operation)	390/3923/2FOM4/2	214122	1	
	Stationary and moving main contact, type 5/2 (continuous operation)	390/3923FOM5/2	214123	1	
	Spark suppressor for "Z" and "RN" poles	390/3923PZ	202284	1	
	R4	"Z" stationary part with 125A arc-quenching coil and spark suppressor	390/3924PFZCS125	202288	1
		"Z" stationary part with 200A arc-quenching coil and spark suppressor	390/3924PFZCS200	202289	1
		"RN" stationary part with spark suppressor	390/3924PFRN	202287	1
"Z" moving part (with pressure spring and strap)		390/3924PMZI	202291	1	
"RN" moving part (with pressure spring and strap)		390/3924PMRN	202290	1	
Stationary main contact, type 4/2 (intermittent operation)		390/3924F4	214124	1	
Moving main contact, type 4/2 (intermittent operation)		390/3924M4/2	214126	1	
Stationary main contact, 5/2 type (continuous operation)		390/3924F5/2	204178	1	
Moving main contact, type 5/2 (continuous operation)		390/3924M5/2	214127	1	
Spark suppressor for "Z" and "RN" poles		390/3924PZ	202292	1	
R5		"Z" stationary part with 125A arc-quenching coil and spark suppressor	390/3925PFZCS150	213573	1
	"Z" stationary part with 320A arc-quenching coil and spark suppressor	390/3925PFZCS320	202295	1	
	"RN" stationary part with spark suppressor	390/3925PFRN	244746	1	
	"Z" moving part (with pressure spring and strap)	390/3925PMZI	202298	1	
	"RN" moving part (with pressure spring and strap)	390/3925PMRN	202297	1	
	Stationary main contact, type 4/2 (intermittent operation)	390/3925F4/2	214128	1	
	Moving main contact, type 4/2 (intermittent operation)	390/3925M4/2	214130	1	
	Stationary main contact, 5/2 type (continuous operation)	390/3925F5/2	214129	1	
	Moving main contact, type 5/2 (continuous operation)	390/3925M5/2	214131	1	
	Spark suppressor for "Z" and "RN" poles	390/3925PZ	202299	1	
	R5	"Z" stationary part with 270A arc-quenching coil and spark suppressor	390/3926PFZCS270	202303	1
"Z" stationary part with 450A arc-quenching coil and spark suppressor		390/3926PFZCS450	213574	1	
"Z" moving part (with pressure spring and strap)		390/3926PMZI	202304	1	
Stationary main contact, type 4/2 (intermittent operation)		390/3926F4/2	214133	1	
Moving main contact, type 4/2 (intermittent operation)		390/3926M4/2	214135	1	
Stationary main contact, 5/2 type (continuous operation)		390/3926F5/2	214134	1	
Moving main contact, type 5/2 (continuous operation)		390/3926M5/2	214136	1	
Spark suppressor for "Z" and "RN" poles	390/3926PZ	202654	1		

Order codes

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Spare parts (continued)

Contactora	Description	Cat. no.	Ref. no.	Pack (units)
R7	"Z" stationary part with 320A arc-quenching coil and spark suppressor	390/3927PFZCS320	202307	1
	"Z" stationary part with 630A arc-quenching coil and spark suppressor	390/3927PFZCS630	202308	1
	"RN" stationary part with spark suppressor	390/3927PFRN	202306	1
	"Z" moving part (with pressure spring and strap)	390/392PMZI	202310	1
	"RN" moving part (with pressure spring and strap)	390/3927PMRN	202309	1
	Stationary main contact, type 4/2 (intermittent operation)	390/3927F4/2	214137	1
	Moving main contact, type 4/2 (intermittent operation)	390/3927M4/2	214139	1
	Stationary main contact, 5/2 type (continuous operation)	390/3927F5/2	214138	1
	Moving main contact, type 5/2 (continuous operation)	390/3927M5/2	214140	1
	Spark suppressor for "Z" and "RN" poles	390/3927PZ	202311	1
R8	"Z" stationary part with 400A arc-quenching coil and spark suppressor	3908PFZCS400	202555	1
	"Z" stationary part with 800A arc-quenching coil and spark suppressor	3908PFZCS800	202562	1
	"Z" moving part (with pressure spring and strap)	3908PMZ	202563	1
	Stationary main contact, type 4/2 (intermittent operation)	3908F4/2	214144	1
	Moving main contact, type 4/2 (intermittent operation)	3908/9M4/2	214141	1
	Stationary main contact, 5/2 type (continuous operation)	3908F5/2	214145	1
	Moving main contact, type 5/2 (continuous operation)	3908/9M5/2	214142	1
	Spark suppressor for "Z" and "RN" poles	3908PZ	202564	1
R8	"Z" stationary part with 1200A arc-quenching coil and spark suppr.	3909PFZCS120	244983	1
	"Z" moving part (with pressure spring and strap)	3909PMZ	212962	1
	Stationary main contact, type 4/2 (intermittent operation)	3909F4/2	204179	1
	Moving main contact, type 4/2 (intermittent operation)	3908/9M4/2	214141	1
	Stationary main contact, 5/2 type (continuous operation)	3909F5/2	204180	1
Moving main contact, type 5/2 (continuous operation)	3908/9M5/2	214142	1	



Operating categories

			R1...	R2...	R3...	R4...	R5...	R6...	R7...	R8...	R9...		
AC-1	Peak operating current at ambient temp. of: (for all rated voltages)	40°C (A)	45	90	125	250	320	450	630	800	1200		
		55°C (A)	45	90	125	250	320	450	600	750	1200		
		70°C (A)	30	70	100	200	280	360	500	700	950		
	Max. operating power Resistor III	230/220V (kW)	17	30	45	90	114	170	195	240	450		
		400/380V (kW)	29	55	75	155	196	310	330	410	750		
		440/415V (kW)	32	57	85	180	227	340	330	500	900		
		500V (kW)	39	69	102	200	250	390	420	550	1030		
Conductor (mm ²)		10	35	50	120	185	2 x (30x5)	2 x (40x5)	2 x (60x5)	4 x (50x5)			
Operation in % of peak operating current	120 ops/h (%)	100	100	100	100	100	100	100	100	100	50		
	300 ops/h (%)	50	50	50	50	30	30	20	10	10			
AC-3	Peak operating current	Ue = 400V (A)	40	90	110	200	320	450	630	800	-		
	Max. operating power	230/220V (kW)	11.5	26	36.5	72.5	93	130	184	232	-		
		400/380V (kW)	20	45	62	100	160	225	315	400	-		
		440/415V (kW)	20	45	68	100	160	225	315	400	-		
		500V (kW)	20	45	72.5	120	165	280	400	500	-		
Use in % of peak operating current	120 ops/h (%)	100	100	100	100	100	100	100	100	-			
	300 ops/h (%)	50	50	50	50	50	50	30	30	-			
AC-4	Peak operating current	Ue = 500V (A)	18.5	44	55	110	125	150	165	250	-		
	Operating power (200,000 switching)	230/220V (kW)	4	11	15	33	37	45	50	80	-		
		400/380V (kW)	9	22	28	55	63	80	90	132	-		
		(HP)	11.9	29.2	37.2	73.1	83.8	106	119.7	175.5	-		
		500V (kW)	11	25	33	75	90	100	110	225	-		
		(HP)	14.6	33.2	43.9	99.7	119.7	133	146	299	-		
	Peak operating current ≤ 400V (A)		40	90	110	185	280	420	590	700	-		
Max. operating power 400/380V (kW)		18.5	38	55	90	150	220	300	375	-			
			R1...	R2...	R3...	R4...	R5...	R6...	R7...	R8...	R9...		
DC1 L/R ≤ 1ms	Ue	Series poles	125V	1	40	85	115	180	300	400	600	700	900
			2	60	90	125	200	320	450	630	750	1000	
		3	60	90	125	200	320	450	630	800	1250		
		4	60	90	125	200	320	450	630	800	1250		
	220V	1	20	75	110	160	275	350	500	600	800		
		2	30	90	115	200	300	370	560	650	900		
		3	40	90	125	250	320	400	630	750	1000		
		4	40	90	125	250	320	450	630	800	1250		
	440V	1	-	-	-	-	-	-	-	-	-	-	
		2	-	75	100	200	275	350	500	600	800		
		3	20	90	125	250	320	400	600	700	900		
		4	20	90	125	250	320	450	630	800	1000		
	DC3 L/R ≤ 2.5ms	125V	1	30	75	100	170	280	380	550	650	-	
			2	40	80	110	200	320	450	630	800	-	
			3	45	90	110	200	320	450	630	800	-	
			4	45	100	120	220	340	480	-	-	-	
220V		1	-	-	-	-	-	-	-	-	-		
		2	15	65	90	155	245	340	460	550	-		
		3	20	90	110	200	320	450	630	800	-		
		4	25	90	110	200	320	450	630	800	-		
440V		1	-	-	-	-	-	-	-	-	-		
		2	-	-	-	-	-	-	-	-	-		
		3	10	55	75	120	200	300	400	500	-		
		4	13	70	100	160	260	400	550	660	-		
DC5 L/R ≤ 15ms	125V	1	27	50	70	90	240	320	400	500	-		
		2	35	70	90	150	280	380	450	550	-		
		3	40	90	100	200	320	420	500	600	-		
		4	40	90	110	200	320	450	500	650	-		
	220V	1	-	-	-	-	-	-	-	-	-		
		2	13	55	80	140	220	300	410	490	-		
		3	18	80	100	180	290	400	560	700	-		
		4	22	80	100	180	290	400	560	700	-		
	440V	1	-	-	-	-	-	-	-	-	-		
		2	-	-	-	-	-	-	-	-	-		
		3	9	50	67	100	180	270	360	450	-		
		4	11	60	90	130	224	360	480	600	-		

Technical data

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Technical data

Standards

IEC/EN 60947-1
IEC/EN 60947-4-1
IEC/EN 60947-5-1

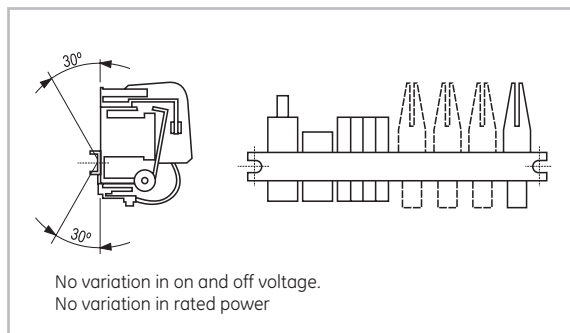
Ambient conditions

Storage temperature	-55°C to +80°C	
Operating temperature	-40°C to +60°C	
Altitude	up to 2500m	Rated values
	3000 to 4000m	90%Ie 80%Ue
	4000 to 5000m	80%Ie 75%Ue

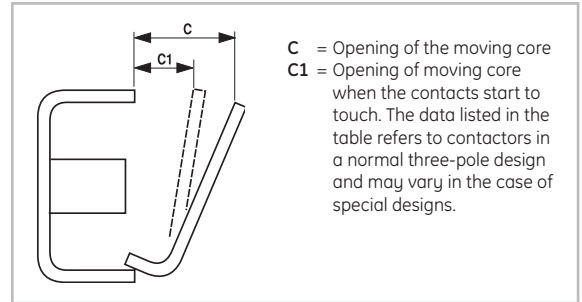
Climatic withstand capacity (IEC 68-2)

Continuous testing 40/125/56			
Cold (72h)	Temperature	-40°C	
Dry heat (96h)	Temperature	+125°C	
	Relative humidity	< 50%	
Moist heat (56 days)	Temperature	+40°C	
	Relative humidity	95%	
Cyclic testing			
First half-cycle (12h)	Low temperature	+25°C	
	Relative humidity	93%	
Second half-cycle (12h)	Low temperature	+55°C	
	Relative humidity	95%	
No. consecutive cycles	6		

Mounting positions



Maintenance



DC power supply		Pressure of closed contact in kg (+10% / -30%)
C (mm) ±1	C1 (mm) ±1	
18	5	0.750
18	5	0.750
20	6	0.750
22	6	1.300
24	7	2.000
28	8	3.500
28	8	5.500
34	10	8.000
34	10	15.000

Replacement of main contact

The replacement (due to wear) of the main contacts requires an adjustment to ensure proper distance between the moving and the stationary contacts. The respective adjustment screws should be turned until the main contacts start to touch simultaneously when the gap indicated by A1 or C1 exists between the stationary and the moving magnetic circuit. Make sure that all contactor poles have the same stroke by manually closing the magnetic circuit; if the poles are properly adjusted, they should come into contact at the same time.

If contact wear is abnormal, please contact the manufacturer since the apparatus has been improperly chosen for the application conditions. To replace the contacts, loosen the screw securing the contacts to the respective contact holder, making sure that the screws are well-tightened when installing the new contacts.

GE Power Controls warrants proper operation of the contactors only if the contacts are replaced with OEM contacts.

Capacity of terminals and torque

		R1... R2...	R3...	R4...	R5...	R6...	R7...	R8...	R9...
	Single-core conductor	(mm²)	2.5...25	2.5...50					
	Multi-strand conductor with terminal sheath	(mm²)	2.5...25	2.5...50					
	Multi-strand conductor without terminal sheath	(mm²)	2.5...25	2.5...50					
	Multi-strand	(mm²)	4...25	4...50					
	Single- and multi-strand AWG	(mm²)	16...4	16...2					
	Torque	(Nm)	4	5,6					
		(Lb x in)	35	50					
	Multi-strand with terminal	(mm²)			1 x 120 2 x 95	1 x 185 2 x 150	-	-	-
	Clappers				-	-	2 x (30x5)	2 x (40x5)	2 x (60x5)
	Torque	(Nm)			7	23	31	31	31
		(Lb x in)			60	200	275	275	275

Power circuit

		R1...	R2...	R3...	R4...	R5...	R6...	R7...	R8...	R9...
Thermal rated current I _{th} at $\theta \leq 55^\circ\text{C}$	(A)	45	90	125	250	320	450	630	800	1500
Rated operating current I _e AC-3	(A)	40	90	110	200	320	450	630	800	-
Rated operating voltage U _e (1)	(V)	500	500	500	500	500	500	500	500	500
3-pole contactors										
Rated isolation voltage U _i	(V)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Maximum continuous current AC-1	(A)	45	90	125	250	320	450	630	800	1200
Frequency limits (Hz)	(Hz)									
Making capacity (RMS) (IEC947)	(A)	540	1200	1250	2400	3800	5400	7500	9600	4000
Breaking capacity (RMS) (IEC 947)	U _e ≤ 400V (A)	450	960	1250	1900	3050	4350	6000	7700	4000
	U _e = 500V (A)	-	650	1050	1900	3050	4350	6000	7700	4000
Short-time current	1 s. (A)	1200	1500	2000	2500	3000	4250	5000	6000	10000
	5 s. (A)	800	900	1500	2200	2800	4000	4800	5700	9000
	10 s. (A)	500	650	1200	1600	2500	3900	4600	5500	8800
	30 s. (A)	250	300	750	1100	2000	3700	4400	5200	8500
	1 min. (A)	180	200	450	800	1500	2500	3000	4000	5000
	3 min. (A)	100	150	250	500	600	900	1500	2300	3000
Recovery time	(min.)	10	10	10	10	10	10	10	10	10
Fused short-circuit protection	aM (A)	50	125	160	250	400	630	800	1000	-
	gL-gG (A)	80	160	200	315	425	630	800	1000	-
Impedance per pole	(mΩ)	1	1	0.5	0.4	0.2	0.3	0.2	0.25	0.10
Power dissipated per pole	AC-1 (W)	2.1	8.1	7.8	25	20	60	79	160	144
	AC-3 (W)	1.6	8.1	6	16	20	60	79	160	-
Isolation resistance										
Pole-to-pole	(mΩ)	>10	>10	>10	>10	>10	>10	>10	>10	>10
Pole-to-ground	(mΩ)	>10	>10	>10	>10	>10	>10	>10	>10	>10
Input-to-output	(mΩ)	>10	>10	>10	>10	>10	>10	>10	>10	>10

(1) For rated voltages above 500V, contact the manufacturer.

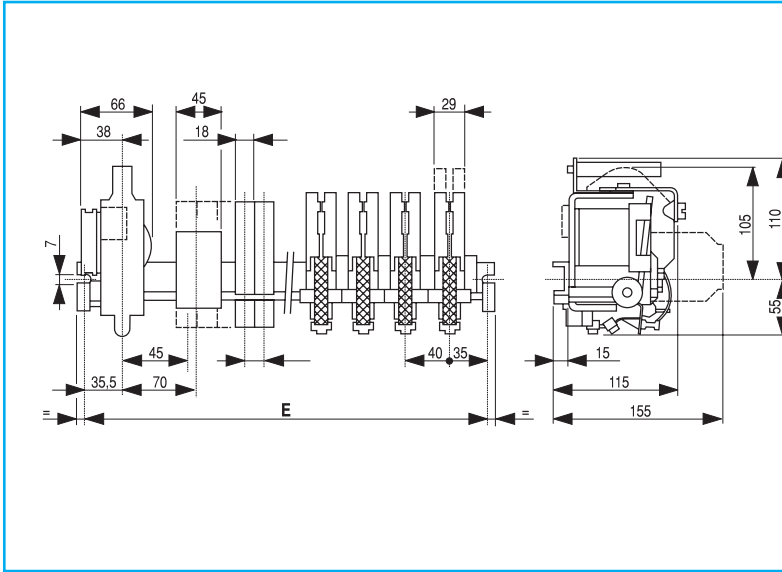
Control circuit

		R1...	R2...	R3...	R4...	R5...	R6...	R7...	R8...	R9...
Rated isolation voltage U _i	(V)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Standardized voltages U _s at 50/60 Hz	(V)	24...220	24...220	24...220	24...220	24...220	24...220	24...220	24...220	24...220
Single-frequency coil voltage limits										
Operation	xU _s	0.85...1.1	0.85...1.1	0.85...1.1	0.85...1.1	0.85...1.1	0.85...1.1	0.85...1.1	0.85...1.1	0.85...1.1
Off	xU _s	0.22...0.55	0.22...0.55	0.22...0.55	0.22...0.55	0.22...0.55	0.22...0.55	0.22...0.55	0.22...0.55	0.22...0.55
Consumption of dual-frequency coils (1)										
Closed magnetic circuit (50 Hz/60 Hz)	(VA)	19	19	20	25	35	38	53	100	190
Open magnetic circuit (50 Hz/60 Hz)	(VA)	27	27	38	41	57	60	90	440	1400
Dissipated thermal power (50 Hz/60 Hz)	(W)	19	19	20	25	35	38	53	100	190
On and off times. Values at U _s										
Making time at de-energisation (NA)	(ms)	60/70	60/70	60/70	110/120	150/160	180/200	200/210	150/160	-
Making time at de-energisation (NA)	(ms)	80/95	80/95	80/95	160/170	200/210	350/450	240/250	150/160	-
Mechanical endurance										
Dual-frequency coils (at 50 Hz)	10 ⁶ ops.	10	10	10	10	10	10	10	8	8
Maximum rate										
Dual-frequency coils. No-load	ops./h	1200	1200	600	400	400	400	400	300	300
AC-1 with rated power	ops./h	600	600	300	120	120	120	120	90	60
AC-2 with rated power	ops./h	250	250	200	120	120	120	120	90	-
AC-3 with rated power	ops./h	600	600	300	120	120	120	120	90	-
AC-4 with rated power	ops./h	150	150	100	60	60	60	60	30	-
Direct current										
Rated isolation voltage U _i	(V)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Standardized voltages U _s	(V)	24...230	24...230	24...230	24...230	24...230	24...230	24...230	24...230	24...230
Voltage limits										
Operating	xU _s	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1
Off	xU _s	0.15...0.5	0.15...0.5	0.15...0.5	0.15...0.5	0.15...0.5	0.15...0.5	0.15...0.5	0.15...0.5	0.15...0.5
Power consumption										
Closed magnetic circuit	(W)	14	14	16	22	28	30	42	80	140
Open magnetic circuit	(W)	21	21	25	31	45	46	65	400	1000
On and off time										
Values at U _s										
Making time at energization (NA)	(ms)	60/70	60/70	60/70	110/120	150/160	180/200	200/210	150/160	-
Breaking time at de-energization (NA)	(ms)	19/20	19/20	19/20	28/30	40/45	59/60	30/35	25/30	-
Mechanical endurance										
	10 ⁶ ops.	10	10	10	10	10	10	10	8	8
Maximum rate										
No-load	ops./h	1200	1200	600	400	400	400	400	300	300
AC1 and AC3 with rated power	ops./h	600	600	300	120	120	120	120	90	-
AC4 with rated power	ops./h	150	150	100	60	60	60	60	30	-

(1) With 5/2 contact

Dimensional drawings

R1..., R2...

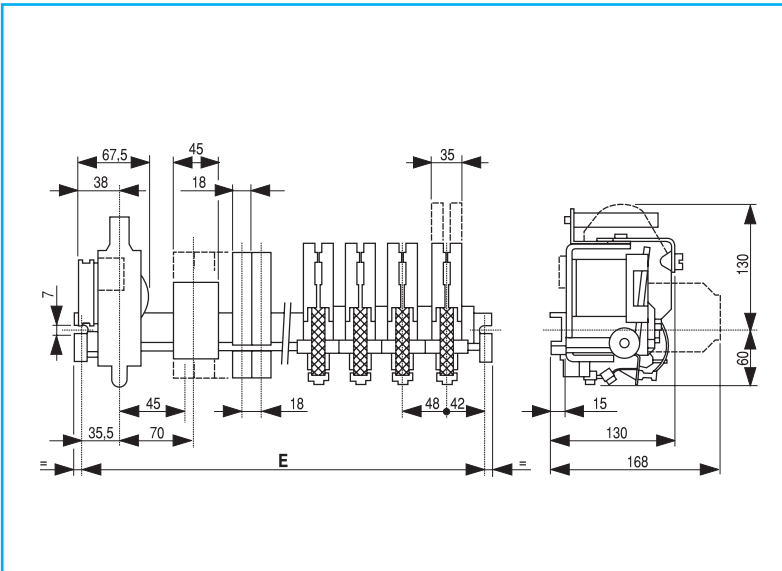


Contact combination

"Z" main pole (1)	Max. no. of aux. contacts	Max. NO	Max. NC	Center-to-center spacing
1	1	1	1	150
	3	3	3	200
	6	6	4	250
	9	6	4	300
	10	6	4	350
2	10	6	4	400
	1	1	1	200
	4	4	4	250
	7	6	4	300
	9	6	4	350
3	9	6	4	400
	2	2	2	250
	5	5	4	300
	7	6	4	350
	7	6	4	400
4	4	4	4	400
	5	5	4	350
	5	5	4	400

(1) A "RN" pole can be used to replace one of the "Z" poles. To use a higher number of "RN" poles, contact the manufacturer.

R3...

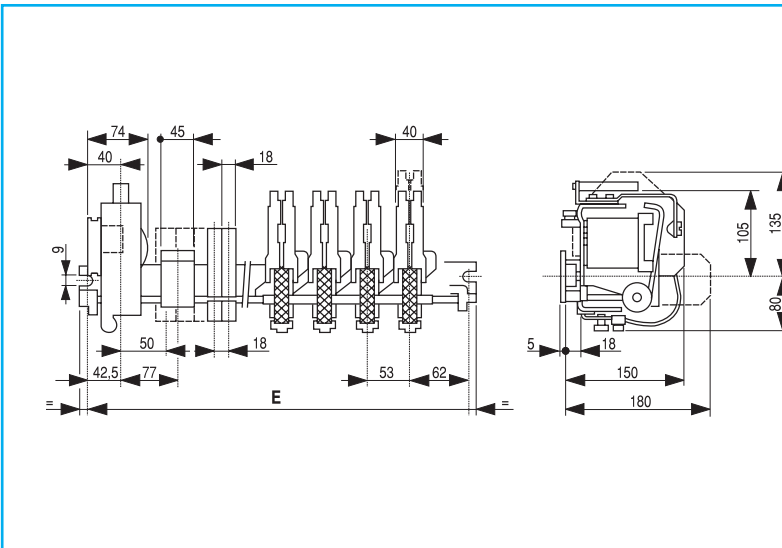


Contact combination

"Z" main pole (1)	Max. no. of aux. contacts	Max. NO	Max. NC	Center-to-center spacing
1	-	-	-	150
	3	3	3	200
	6	6	4	250
	9	6	4	300
	10	6	4	350
2	10	6	4	400
	-	-	-	200
	3	3	3	250
	6	6	4	300
	8	6	4	350
3	9	6	4	400
	-	-	-	250
	3	3	3	300
	6	6	4	350
	7	6	4	400
4	4	4	4	400
	-	-	-	300
	3	3	3	350

(1) A "RN" pole can be used to replace one of the "Z" poles. To use a higher number of "RN" poles, contact the manufacturer.

R4...



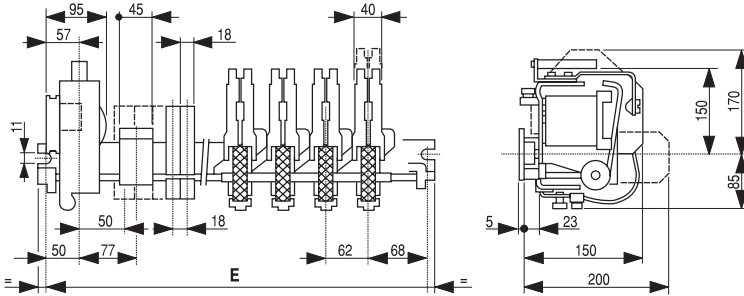
Contact combination

"Z" main pole (1)	Max. no. of aux. contacts	Max. NO	Max. NC	Center-to-center spacing
1	3	3	3	250
	6	6	4	300
	9	6	4	350
	10	6	4	400
	10	6	4	450
2	10	6	4	450
	-	-	-	250
	3	3	3	300
	6	6	4	350
	9	6	4	400
3	10	6	4	450
	-	-	-	300
	3	3	3	350
	6	6	4	400
	9	6	4	450
4	4	4	3	400
	4	4	3	450

(1) A "RN" pole can be used to replace one of the "Z" poles. To use a higher number of "RN" poles, contact the manufacturer.



R5...

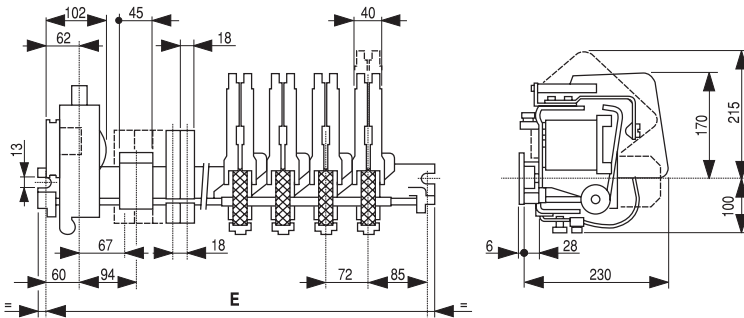


Contact combination

"Z" main pole (1)	Max. no. of aux. contacts	Max. NO	Max. NC	Center-to-center spacing
1	2	2	2	250
	5	5	4	300
	8	6	4	350
	10	6	4	400
	10	6	4	450
2	10	6	4	500
	2	2	2	300
	4	4	4	350
	7	6	4	400
3	10	6	4	450
	10	6	4	500
	1	-	-	350
	4	4	4	400
4	6	6	4	450
	7	6	4	500
	-	-	-	400
	3	3	3	450
	3	3	3	500

(1) A "RN" pole can be used to replace one of the "Z" poles. To use a higher number of "RN" poles, contact the manufacturer.

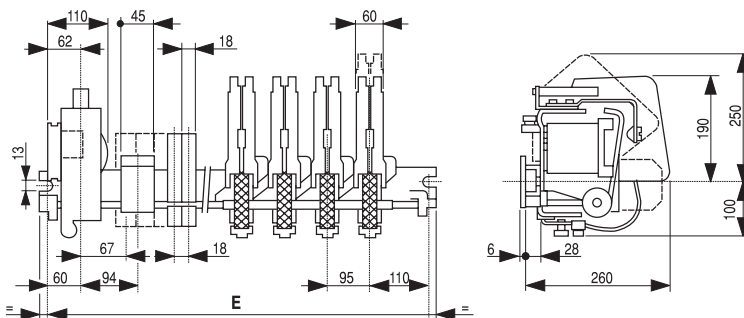
R6...



Contact combination

"Z" main pole	Max. no. of aux. contacts	Max. NO	Max. NC	Center-to-center spacing
1	5	2	4	350
	8	6	4	400
	10	6	4	450
	10	6	4	500
	10	6	4	600
2	10	6	4	700
	1	1	1	350
	4	4	4	400
	7	6	4	450
3	9	6	4	500
	10	6	4	600
	10	6	4	700
	2	2	2	450
4	5	5	4	500
	7	6	4	600
	7	6	4	700
	1	1	1	500
	2	2	2	600
	2	2	2	700

R7...



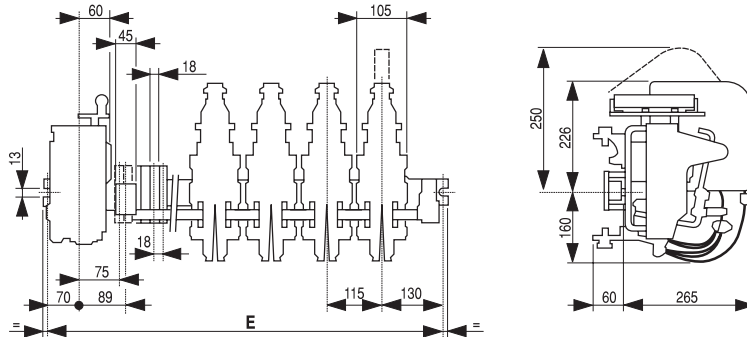
Contact combination

"Z" main pole (1)	Max. no. of aux. contacts	Max. NO	Max. NC	Center-to-center spacing
1	4	4	4	350
	6	6	4	400
	9	6	4	450
	10	6	4	500
	10	6	4	600
2	10	6	4	700
	1	1	1	400
	4	4	4	450
	7	6	4	500
3	10	6	4	600
	10	6	4	700
	1	1	1	500
	7	6	4	600
4	8	6	4	700
	2	2	2	600
	5	5	3	700

(1) A "RN" pole can be used to replace one of the "Z" poles. To use a higher number of "RN" poles, contact the manufacturer.

Dimensional drawings

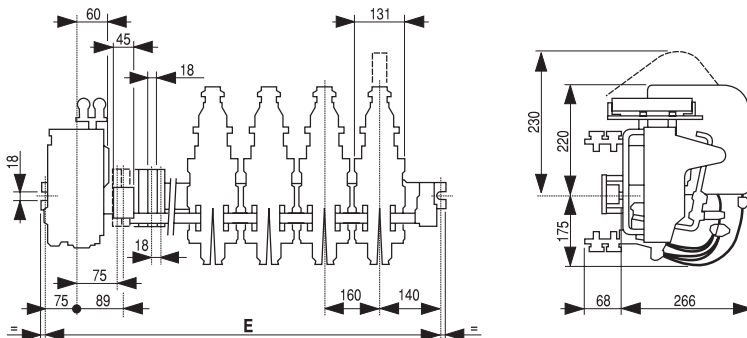
R8...



Contact combination

"Z" main pole	Max. no. of aux. contacts	Max. NO	Max. NC	Center-to-center spacing
1	1	1	1	350
	4	4	4	400
	6	6	4	450
	9	6	4	500
	10	6	4	600
	10	6	4	700
2	10	6	4	800
	-	-	-	450
	3	3	3	500
	8	6	4	600
3	10	6	4	700
	10	6	4	800
	2	2	2	600
4	8	6	4	700
	8	6	4	800
	1	1	1	700
	4	3	3	800

R9...



Contact combination

"Z" main pole	Max. no. of aux. contacts	Max. NO	Max. NC	Center-to-center spacing
1	2	2	2	400
	4	4	4	450
	7	6	4	500
	10	6	4	600
	10	6	4	700
	10	6	4	800
	10	6	4	900
	10	6	4	1000
2	4	4	4	600
	9	6	4	700
	10	6	4	800
	10	6	4	900
	10	6	4	1000
3	-	-	-	700
	6	6	4	800
	8	6	4	900
4	8	6	4	1000
	3	3	3	900
	4	3	3	1000

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GE imagination at work