# *FDV – DOKUMENTASJON*	***Nr.: 039***
	Rev.:
	Dato: 5.8.2015

Produktspesifikasjon	Kontaktor 3 og 4 pol
Produktnavn	Serie CK
Anvisning for drift	Ingen
Vedlikehold	Produktet er vedlikeholdsfritt
Henvisninger Vedlegg	Produktkatalog, dokumentasjon, brukerveiledning og tekniske data
Produsent	General Electric
Importør	**EFA Elektro AS,** Postboks 593, 1411 Kolbotn, Norway Tlf. 66812400 e-mail: post@efa.no - **www.efa.no**

EFA Elektro AS

Rune Haland

Serviceingeniør vern og startapparater

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	

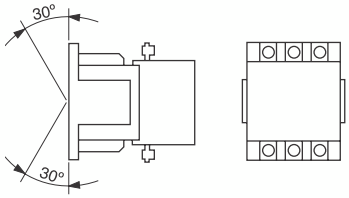
Ambient conditions

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%Ie 80%Ue
	from 4000 up to 5000m	80%Ie 75%Ue

Climatic resistance (IEC 68-2)

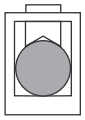
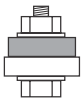
Continuous tests 40 / 125 / 56		
Cold (72h)		
	Temperature	-40°C
Dry heat (96h)		
	Temperature	+125°C
	Relative humidity	< 50%
Humid heat (56 days)		
	Temperature	+40°C
	Relative humidity	95%
Cyclical test		
First half-cycle (12h)		
	Low temperature	+25°C
	Relative humidity	93%
Second half-cycle (12h)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

Mounting positions



With the same pick-up and drop-out voltage
With the same rated power

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

Power circuit

Three pole contactors

			CK75C	CK08C	CK85B	CK09B	CK95B	CK10C	CK11C	CK12B	CK13B
Rated thermal current Ith at θ ≤ 40°C		(A)	250	250	315	315	450	600	700	1000	1250
Rated operational current Ie AC-3		(A)	150	185	205	250	309	420	550	700	825
Rated operational voltage Ue		(V)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Rated insulation voltage Ui		(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)											
Ue ≤ 400V		(A)	1600	1850	2000	3500	3500	5600	5600	7300	6600
Ue = 500V		(A)	1600	1850	2000	3500	3500	5600	5600	7000	6600
Ue = 690V		(A)	1000	1200	1660	2200	2200	5000	5000	6700	6000
Ue = 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

Four pole contactors

			CK07B	CK08B		CK09B	CK95B	CK10C	CK11C	CK12B	CK13B
Rated thermal current Ith at θ ≤ 40°C		(A)	200	325		400	500	600	700	1000	1250
Rated operational voltage Ue		(V)	690	1000		1000	1000	1000	1000	1000	1000
Rated insulation voltage Ui		(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)											
Ue ≤ 400V		(A)	950	1600		3500	3500	5600	5600	6700	6600
Ue = 500V		(A)	950	1600		3500	3500	5600	5600	6700	6600
Ue = 690V		(A)	800	1000		2200	2200	3500	3500	6000	6000
Ue = 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

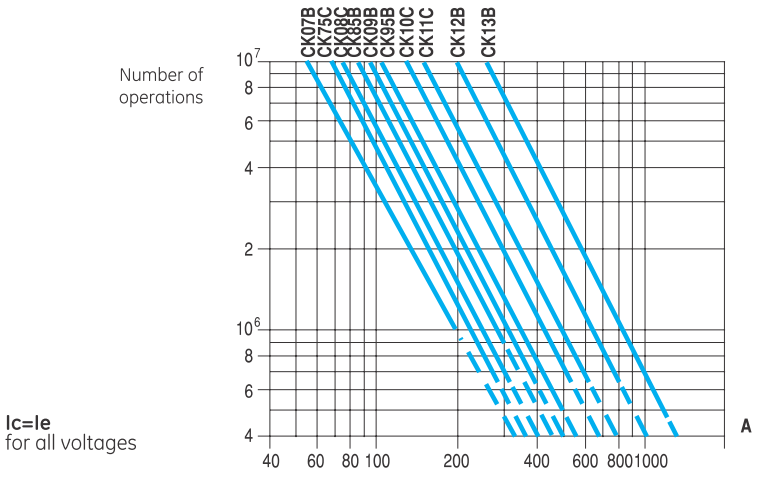
Electrical endurance

Mixed category AC4 / AC3

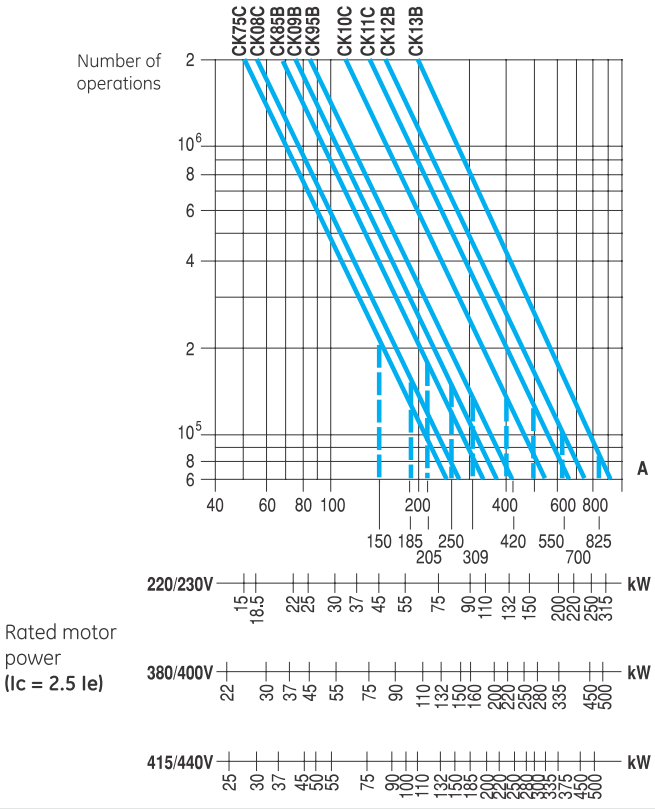
Electrical endurance for mixed category (AC-3/AC-4) is calculated with the following formula:

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

Category AC1

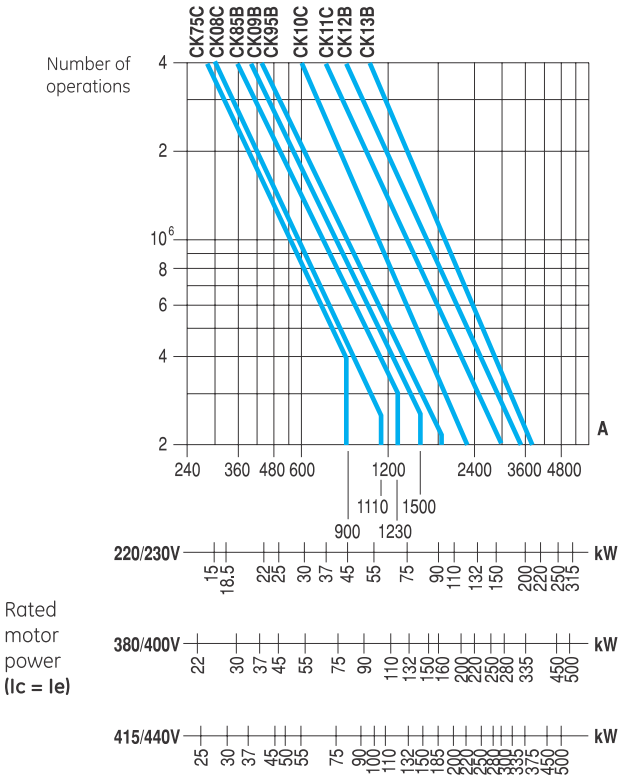


Category AC2

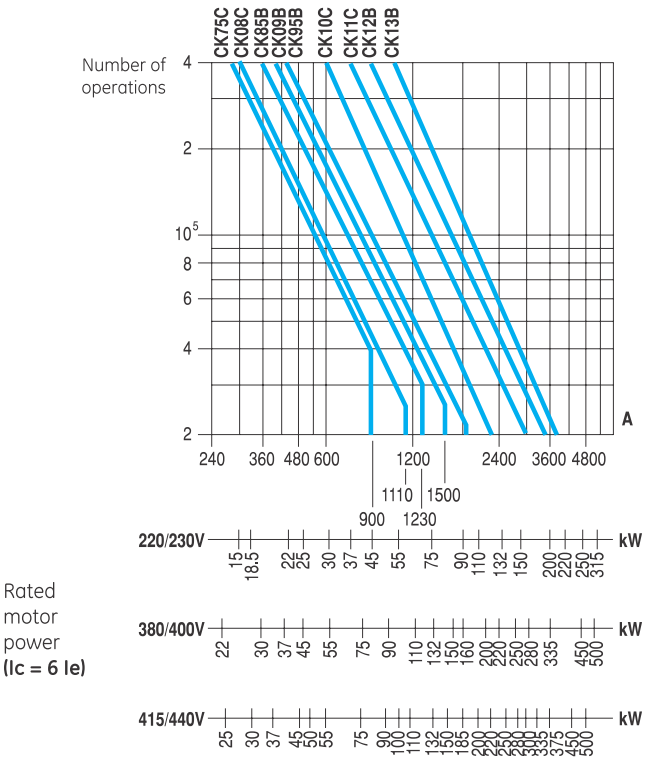


Electrical endurance (continued)

Category AC3



Category AC4



Three pole contactors. Control circuit

Alternating current

			CK75CA	CK08CA	CK85BA CK85BE	CK09BE	CK95BE	CK10CE	CK11CE	CK12BE	CK12BE	CK13BA
Rated insulation voltage Ui		(V)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Standard voltages Us (50/60 Hz)		(V)	24...690	24...690	24...690	24...690	24...690	24...690	24...690	24...72	100...690	24...440
Operating limits												
Switch-on		xUs	0.8...1.1	0.8...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	0.8...1.1
Switch-off		xUs	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.25...0.55
Consumption. Monofrequency coils												
Magnetic circuit	CK....A	(VA)	42	42	46	-	-	-	-	-	-	6
closed	CK....E	(VA)	-	-	20	20	20	23	23	25	25	-
Magnetic circuit	CK....A	(VA)	500	500	830	-	-	-	-	-	-	2760
open	CK....E	(VA)	-	-	425	425	425	680	680	750	750	-
Power	CK....A	(W)	21	21	17	-	-	-	-	-	-	5
dissipation	CK....E	(W)	-	-	3.5	3.5	3.5	4	4	4.5	4.5	-
Consumption. Bifrequency coils												
Magnetic circuit	50Hz	(VA)	46	46	60	-	-	-	-	-	-	-
closed (CK....A)	60Hz	(VA	38.3	38.3	50	-	-	-	-	-	-	-
Magnetic circuit	50Hz	(VA)	568	568	1082	-	-	-	-	-	-	-
open (CK....A)	60Hz	(VA)	473	473	901	-	-	-	-	-	-	-
Power 50Hz		(W)	23	23	22.2	-	-	-	-	-	-	-
dissipation (CK....A)	60Hz	(W	19.1	19.1	18.5	-	-	-	-	-	-	-
Power factor												
Magnetic circuit	CK....A	(cos φ)	0.4	0.4	0.37	-	-	-	-	-	-	approx. 1
closed	CK....E	(cos φ)	-	-	-	-	-	-	-	-	-	-
Magnetic circuit	CK....A	(cos φ)	0.6	0.6	0.6	-	-	-	-	-	-	approx. 1
open	CK....E	(cos φ)	-	-	-	-	-	-	-	-	-	-
Opening and closing times at Us												
Making time		(ms)	20...25	20...25	36...40	60...70	60...80	80...90	80...90	150...170	70...80	50...55
at excitation (NO)												
Breaking time		(ms)	10...13	10...13	60...80	60...80	60...80	60...80	60...90	60...90	60...90	115...130
at de-energisation (NO)												
Mechanical endurance [1]		10^6 ops	10	10	6.5	6.5	6.5	7.5	7.5	3.5	3.5	3
Maximum rate												
No load		ops./h	2400	2400	2400	1200	1200	900	900	900	900	600
AC-1/AC-3 at rated power		ops./h	600	600	600	600	600	300	300	300	300	120
AC-2 at rated power		ops./h	150	150	150	150	150	120	120	120	120	120
AC-4 at rated power		ops./h	150	150	150	150	150	120	120	120	120	120

(1) Mechanical endurance for e-module is 1 Million operations

Direct current

		CK75CE	CK08CE	CK85BE	CK09BE	CK95BE	CK10CE	CK11CE	CK12BE	CK12BE	
Rated insulation voltage Ui	(V)	1000	1000	1000	1000	1000	1000	1000	1000	1000	
Standard voltages Us (50/60 Hz)	(V)	24...500	24...500	24...500	24...500	24...500	24...500	24...500	24...72	110...500	
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	0.8...1.1	
Switch-off	xUs	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	
Consumption											
Magnetic circuit closed	(W)	10	10	10	10	10	10	10	10	10	
Magnetic circuit open	(W)	225	225	350	350	350	500	500	650	650	
Opening and closing times at Us											
Making time	(ms)	60...70	60...70	60...70	60...70	60...70	80...90	80...90	150...170	70...80	
at excitation (NO contacts)											
Breaking time	(ms)	40...50	40...50	60...80	60...80	60...80	60...80	60...80	60...90	60...90	
at de-energisation (NO contacts)											
Mechanical endurance	10^6 ops.	10	10	6.5	6.5	6.5	7.5	7.5	3.5	3.5	
Maximum rate											
No load	ops./h	1200	1200	1200	1200	1200	900	900	900	900	
AC-3 at rated power	ops./h	600	600	600	600	600	300	300	300	300	
AC-4 at rated power	ops./h	150	150	150	150	150	120	120	120	120	

(1) Mechanical endurance for e-module is 1 Million operations

Four pole contactors. Control circuit

Alternating current

			CK07BA CK07BE	CK08BA CK08BE	CK09BE	CK95BE	CK10CE	CK11CE	CK12BE	CK12BE	CK13BA
Rated insulation voltage Ui		(V)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Standard voltages Us (50/60 Hz)		(V)	24...690	24...690	24...690	24...690	24...690	24...690	24...72	100...690	110...440
Operating limits											
Switch-on		xUs	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
Switch-off		xUs	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.6	0.2...0.75	0.2...0.75	0.2...0.75
Consumption. Monofrequency coils											
Magnetic circuit	CK....A	(VA)	46	130	-	-	-	-	-	-	6
closed	CK....E	(VA)	20	25	25	25	23	23	25	25	-
Magnetic circuit	CK....A	(VA)	830	2860	-	-	-	-	-	-	2760
open	CK....E	(VA)	425	750	750	750	680	680	750	750	-
Power	CK....A	(W)	17	53	-	-	-	-	-	-	5
dissipation	CK....E	(W)	3.5	4.5	4.5	4.5	4	4	4.5	4.5	-
Consumption. Bifrequency coils											
Magnetic circuit	50Hz	(VA)	60	159.3	-	-	-	-	-	-	-
closed (CK....A)	60Hz	(VA)	50	132.7	-	-	-	-	-	-	-
Magnetic circuit	50Hz	(VA)	1082	3509	-	-	-	-	-	-	-
open (CK....A)	60Hz	(VA)	901	2924	-	-	-	-	-	-	-
Power	50Hz	(W)	22.2	65.3	-	-	-	-	-	-	-
dissipation (CK....A)	60Hz	(W)	18.5	54.4	-	-	-	-	-	-	-
Power factor											
Magnetic circuit	CK....A	(cos φ)	0.37	0.37	-	-	-	-	-	-	approx. 1
closed	CK....E	(cos φ)	-	-	-	-	-	-	-	-	-
Magnetic circuit	CK....A	(cos φ)	0.6	0.6	-	-	-	-	-	-	approx. 1
open	CK....E	(cos φ)	-	-	-	-	-	-	-	-	-
Opening and closing times at Us											
Making time		(ms)	36...40	60...70	70...80	70...80	110...115	80...90	150...170	110...115	50...55
at excitation (NO)											
Breaking time		(ms)	10...15	13...17	70...80	70...80	70...80	70...80	70...80	70...80	70...80
at de-energisation (NO)											
Mechanical endurance		10^6 ops.	10	6.5	6.5	6.5	6.5	6.5	3.5	3.5	3
Maximum rate											
No load		ops./h	2400	900	900	900	900	900	900	900	600
AC-1/AC-3 at rated power		ops./h	600	600	600	600	300	300	300	300	120

(1) Mechanical endurance for e-module is 1 Million operations

Direct current - Electronic module

		CK07BE	CK08BE		CK08BE	CK95BE	CK10CE	CK11CE	CK12BE	CK12BE
Rated insulation voltage Ui	(V)	1000	1000		1000	1000	1000	1000	1000	1000
Standard voltages Us	(V)	24...500	24...500		24...500	24...500	24...500	24...500	24...72	110...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	0.8...1.1
Switch-off	xUs	0.2...0.75	0.2...0.75		0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75	0.2...0.75
Consumption										
Magnetic circuit closed	(W)	10	10		10	10	10	10	10	10
Magnetic circuit open	(W)	350	650		650	650	650	650	650	650
Opening and closing times at Us										
Making time	(ms)	60...70	70...80		70...80	70...80	80...90	80...90	150...170	110...115
at excitation (NO contacts)										
Breaking time	(ms)	40...50	70...80		70...80	70...80	60...80	60...80	60...90	60...90
at de-energisation (NO contacts)										
Mechanical endurance	10^6 ops.	10	6.5		6.5	6.5	6.5	6.5	3.5	3.5
Maximum rate										
No load	ops./h	1200	900		900	900	900	900	900	900
AC-3 at rated power	ops./h	600	600		600	600	600	300	300	300

(1) Mechanical endurance for e-module is 1 Million operations

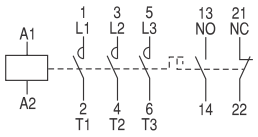
Contact sequence

		Basic contactor	Auxiliary contact blocks Lateral mounted BCLL 20 BRLL 20	BCLL 11 BRLL 11
Three-pole contactors 3 NO	CK75C... CK08C...	0 7.3 10.4	0 3.5 10.4	0 3.5 10.4 1,8
	CK85B... CK09B... CK95B...	0 10.4 14	0 3.5 14	0 3.5 14 1,8
	CK10C... CK11C...	0 12 17	0 3.5 17	0 3.5 17 1.8
	CK12B... CK13B...	0 12.6 17.5	0 3.5 17.5	0 3.5 17.5 1.8
	CK07B...	0 7.7 10.7	0 3.5 10.7	0 3.5 10.7 1.8
	CK08B... CK09B... CK95B...	0 10.4 14	0 3.5 14	0 3.5 14 1.8
	CK10C... CK11C...	0 12 17	0 3.5 17	0 3.5 17 1.8
	CK12B... CK13B...	0 12.6 17.5	0 3.5 17.5	0 3.5 17.5 1.8

Numbering of the terminals

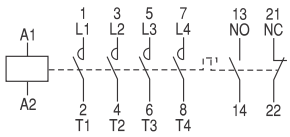
Three pole contactors

CK75C__3_ ... CK13B __3_



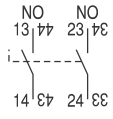
Four pole contactors

CK07B__4_ ... CK13B __4_

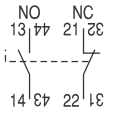


Auxiliary contact blocks. *Lateral mounting*

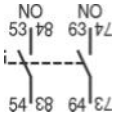
BCLL20



BCLL11



BRLL20



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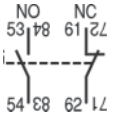
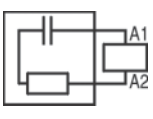


Voltage suppressor block

K/RC...



Mechanical interlock

BEKV, BEKVA1, BEKVS1, BEKVH