

Contactor utilisation categories conforming to IEC 60947-4

The standard utilisation categories define the current values which the contactor must be able to make or break.

These values depend on:

- the type of load being switched : squirrel cage or slip ring motor, resistors,
- the conditions under which making or breaking takes place: motor stalled, starting or running, reversing, plugging.

a.c. applications

Category AC-1	This category applies to all types of a.c. load with a power factor equal to or greater than 0.95 ($\cos \varphi \geq 0.95$). Application examples: heating, distribution.
Category AC-2	This category applies to starting, plugging and inching of slip ring motors. <input type="checkbox"/> On closing, the contactor makes the starting current, which is about 2.5 times the rated current of the motor. <input type="checkbox"/> On opening, it must break the starting current, at a voltage less than or equal to the mains supply voltage.
Category AC-3	This category applies to squirrel cage motors with breaking during normal running of the motor. <input type="checkbox"/> On closing, the contactor makes the starting current, which is about 5 to 7 times the rated current of the motor. <input type="checkbox"/> On opening, it breaks the rated current drawn by the motor; at this point, the voltage at the contactor terminals is about 20% of the mains supply voltage. Breaking is light. Application examples: all standard squirrel cage motors: lifts, escalators, conveyor belts, bucket elevators, compressors, pumps, mixers, air conditioning units, etc... .
Category AC-4	This category covers applications with plugging and inching of squirrel cage and slip ring motors. The contactor closes at a current peak which may be as high as 5 or 7 times the rated motor current. On opening it breaks this same current at a voltage which is higher, the lower the motor speed. This voltage can be the same as the mains voltage. Breaking is severe Application examples: printing machines, wire drawing machines, cranes and hoists, metallurgy industry.

d.c. applications

Category DC-1	This category applies to all types of d.c. load with a time constant (L/R) of less than or equal to 1 ms.
Category DC-3	This category applies to starting, counter-current braking and inching of shunt motors. Time constant ≤ 2 ms. <input type="checkbox"/> On closing, the contactor makes the starting current, which is about 2.5 times the rated motor current. <input type="checkbox"/> On opening, the contactor must be able to break 2.5 times the starting current at a voltage which is less than or equal to the mains voltage. The slower the motor speed, and therefore the lower its back e.m.f., the higher this voltage. Breaking is difficult.
Category DC-5	This category applies to starting, counter-current braking and inching of series wound motors. Time constant $\leq 7,5$ ms. On closing, the contactor makes a starting current peak which may be as high as 2.5 times the rated motor current. On opening, the contactor breaks this same current at a voltage which is higher, the lower the motor speed. This voltage can be the same as the mains voltage. Breaking is severe.

Utilisation categories for auxiliary contacts & control relays conforming to IEC 60947-5

a.c. applications

Category AC-14 (1)	This category applies to the switching of electromagnetic loads whose power drawn with the electromagnet closed is less than 72 VA. Application example: switching the operating coil of contactors and relays.
Category AC-15 (1)	This category applies to the switching of electromagnetic loads whose power drawn with the electromagnet closed is more than 72 VA. Application example: switching the operating coil of contactors.

d.c. applications

Category DC-13 (2)	This category applies to the switching of electromagnetic loads for which the time taken to reach 95 % of the steady state current ($T = 0.95$) is equal to 6 times the power P drawn by the load (with $P \leq 50$ W). Application example: switching the operating coil of contactors without economy resistor.
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(1) Replaces category AC-11.

(2) Replaces category DC-13.

Technical information

Tests according to standard utilisation categories conforming to IEC 60947-4-1 and 5-1 based on rated operational current I_e and rated operational voltage U_e

Contactors

		Electrical durability: making and breaking conditions						Occasional duty: making and breaking conditions					
a.c. supply		Making			Breaking			Making			Breaking		
Typical applications	Utilisation category	I	U	cos φ	I	U	cos φ	I	U	cos φ	I	U	cos φ
Resistors, non inductive or slightly inductive loads	AC-1	I_e	U_e	0.95	I_e	U_e	0.95	$1.5 I_e$	$1.05 U_e$	0.8	$1.5 I_e$	$1.05 U_e$	0.8
Motors													
Slip ring motors: starting, breaking,	AC-2	$2.5 I_e$	U_e	0.65	$2.5 I_e$	U_e	0.65	$4 I_e$	$1.05 U_e$	0.65	$4 I_e$	$1.05 U_e$	0.65
Squirrel cage motors: starting, breaking whilst motor running,	AC-3												
	$I_e \leq (1)$	$6 I_e$	U_e	0.65	$1 I_e$	$0.17 U_e$	0.65	$10 I_e$	$1.05 U_e$	0.45	$8 I_e$	$1.05 U_e$	0.45
	$I_e > (2)$	$6 I_e$	U_e	0.35	$1 I_e$	$0.17 U_e$	0.35	$10 I_e$	$1.05 U_e$	0.35	$8 I_e$	$1.05 U_e$	0.35
Squirrel cage motors: starting, reversing, inching	AC-4												
	$I_e \leq (1)$	$6 I_e$	U_e	0.65	$6 I_e$	U_e	0.65	$12 I_e$	$1.05 U_e$	0.45	$10 I_e$	$1.05 U_e$	0.45
	$I_e > (2)$	$6 I_e$	U_e	0.35	$6 I_e$	U_e	0.35	$12 I_e$	$1.05 U_e$	0.35	$10 I_e$	$1.05 U_e$	0.35
d.c. supply													
Typical applications	Utilisation category	Making			Breaking			Making			Breaking		
		I	U	L/R (ms)	I	U	L/R (ms)	I	U	L/R (ms)	I	U	L/R (ms)
Resistors, non inductive or slightly inductive loads	DC-1	I_e	U_e	1	I_e	U_e	1	$1.5 I_e$	$1.05 U_e$	1	$1.5 I_e$	$1.05 U_e$	1
Shunt wound motors: starting, reversing, inching	DC-3	$2.5 I_e$	U_e	2	$2.5 I_e$	U_e	2	$4 I_e$	$1.05 U_e$	2.5	$4 I_e$	$1.05 U_e$	2.5
Series wound motors: starting, reversing, inching	DC-5	$2.5 I_e$	U_e	7.5	$2.5 I_e$	U_e	7.5	$4 I_e$	$1.05 U_e$	15	$4 I_e$	$1.05 U_e$	15

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Control relays and auxiliary contacts

		Electrical durability: making and breaking conditions						Occasional duty: making and breaking conditions					
a.c. supply		Making			Breaking			Making			Breaking		
Typical applications	Utilisation category	I	U	cos φ	I	U	cos φ	I	U	cos φ	I	U	cos φ
Electromagnets													
≤ 72 VA	AC-14	–	–	–	–	–	–	$6 I_e$	$1.1 U_e$	0.7	$6 I_e$	$1.1 U_e$	0.7
> 72 VA	AC-15	$10 I_e$	U_e	0.7	I_e	U_e	0.4	$10 I_e$	$1.1 U_e$	0.3	$10 I_e$	$1.1 U_e$	0.3
d.c. supply													
Typical applications	Utilisation category	Making			Breaking			Making			Breaking		
		I	U	L/R (ms)	I	U	L/R (ms)	I	U	L/R (ms)	I	U	L/R (ms)
Electromagnets	DC-13	I_e	U_e	$6 P (3)$	I_e	U_e	$6 P (3)$	$1.1 I_e$	$1.1 U_e$	$6 P (3)$	$1.1 I_e$	$1.1 U_e$	$6 P (3)$

(1) $I_e \leq 17$ A for electrical durability, $I_e \leq 100$ A for occasional duty.

(2) $I_e > 17$ A for electrical durability, $I_e > 100$ A for occasional duty.

(3) The value $6 P$ (in watts) is based on practical observations and is considered to represent the majority of d.c. magnetic loads up to the maximum limit of $P = 50$ W i.e. $6 P = 300 \text{ ms} = L/R$.

Above this, the loads are made up of smaller loads in parallel. The value 300 ms is therefore a maximum limit whatever the value of current drawn.

3-phase 4-pole motors

Current values for power in kW

Rated operational power (1)	Indicative rated operational current values at:			
	230 V	400 V	500 V	690 V
kW	A	A	A	A
0.06	0.35	0.2	0.16	0.12
0.09	0.52	0.3	0.24	0.17
0.12	0.7	0.44	0.32	0.23
0.18	1	0.6	0.48	0.35
0.25	1.5	0.85	0.68	0.49
0.37	1.9	1.1	0.88	0.64
0.55	2.6	1.5	1.2	0.87
0.75	3.3	1.9	1.5	1.1
1.1	4.7	2.7	2.2	1.6
1.5	6.3	3.6	2.9	2.1
2.2	8.5	4.9	3.9	2.8
3	11.3	6.5	5.2	3.8
4	15	8.5	6.8	4.9
5.5	20	11.5	9.2	6.7
7.5	27	15.5	12.4	8.9
11	38	22	17.6	12.8
15	51	29	23	17
18.5	61	35	28	21
22	72	41	33	24
30	96	55	44	32
37	115	66	53	39
45	140	80	64	47
55	169	97	78	57
75	230	132	106	77
90	278	160	128	93
110	340	195	156	113
132	400	230	184	134
160	487	280	224	162
200	609	350	280	203
250	748	430	344	250
315	940	540	432	313
355	1061	610	488	354
400	1200	690	552	400
500	1478	850	680	493
560	1652	950	760	551
630	1844	1060	848	615
710	2070	1190	952	690
800	2340	1346	1076	780
900	2640	1518	1214	880
1000	2910	1673	1339	970


Current values for power in hp

Rated operational power (2)	Indicative rated operational current values at:						
	110 - 120 V	200 V	208 V	220 - 240 V	380 - 415 V	440 - 480 V	550 - 600 V
hp	A	A	A	A	A	A	A
1/2	4.4	2.5	2.4	2.2	1.3	1.1	0.9
3/4	6.4	3.7	3.5	3.2	1.8	1.6	1.3
1	8.4	4.8	4.6	4.2	2.3	2.1	1.7
1 1/2	12	6.9	6.6	6	3.3	3	2.4
2	13.6	7.8	7.5	6.8	4.3	3.4	2.7
3	19.2	11	10.6	9.6	6.1	4.8	3.9
5	30.4	17.5	16.7	15.2	9.7	7.6	6.1
7 1/2	44	25.3	24.2	22	14	11	9
10	56	32.2	30.8	28	18	14	11
15	84	48.3	46.2	42	27	21	17
20	108	62.1	59.4	54	34	27	22
25	136	78.2	74.8	68	44	34	27
30	160	92	88	80	51	40	32
40	208	120	114	104	66	52	41
50	260	150	143	130	83	65	52
60	—	177	169	154	103	77	62
75	—	221	211	192	128	96	77
100	—	285	273	248	165	124	99
125	—	359	343	312	208	156	125
150	—	414	396	360	240	180	144
200	—	552	528	480	320	240	192
250	—	—	—	604	403	302	242
300	—	—	—	722	482	361	289
350	—	—	—	828	560	414	336
400	—	—	—	954	636	477	382
450	—	—	—	1030	—	515	412
500	—	—	—	1180	786	590	472

(1) Values conforming to standard IEC 60072-1 (at 50 Hz).

(2) Values conforming to standard UL 508 (at 60 Hz).

Nota : These values are given as a guide. They may vary depending on the type of motor, its polarity and the manufacturer.

Applications	Equipment based on standard contactors		Equipment requiring low consumption contactors which can be switched directly from solid state outputs					
								
Rated operational current	AC-3	6 A	6..0.16 A	9...150 A	115...800 A	750...1800 A	6...12 A	9...25 A
	AC-1	12 A	20 A	25...200 A	200...2100 A	800...2750 A	20 A	20...40 A
Rated operational voltage	690 V		690 V	690 V	1000 V	1000 V	690 V	690 V
Number of poles	2 or 3		3 or 4	3 or 4	2, 3 or 4	1...4	3 or 4	3
Contactor type references	LC1 SK LP1 SK		LC1 K LC7 K LP1 K	LC1 D	LC1 F	LC1 B	LP4 K	LC1 D
Pages	5/8 and 5/9		5/46 and 5/47		5/104 and 5/105		5/15	5/48 and 5/49

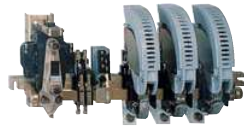
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Equipment requiring magnetic latching contactors

Motors, resistive circuits, rotor short-circuiting devices, electro lifting magnets, hoisting, mines, $\overline{\text{---}}$ motors, high operating rates. Variable composition bar mounted contactors.

Induction heating, heating of metal or of a metal part in a channel or crucible furnace by induction of a. c. currents. Contactors for induction heating applications.



Applications conforming to "NATO" specifications and references. Shockproof contactors



150...1800 A	80...1800 A	—	12...630 A
250...2750 A	80...2750 A	80...16 300 A	25...850 A
1000 V	\sim 1000 V $\overline{\text{---}}$ 440 or 1500 V	3000 V	690 V or 1000 V
1...4	1...6	1...8	3 or 4
CR1 F CR1 B	CV●	CE● CS●	LC1 D●G LP1 D●G LC1 FG●●●
5/250 to 5/259	5/226 and 5/227	Please consult your Regional Sales Office	

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Applications		Simple automation systems	
			
Rated operational current	Ie max AC-3 (Ue ≤ 440 V)	6 A	6 A
	Ie AC-1 (θ ≤ 40 °C)	12 A	—
Rated operational voltage		690 V	
Number of poles		2 or 3	3
Rated operational power in category AC-3	220/240 V	1.1 kW	1.5 kW
	380/400 V	2.2 kW	2.2 kW
	415/440 V	2.2 kW	2.2/3 kW
	500 V	—	3 kW
	660/690 V	—	3 kW
	1000 V	—	—
Add-on auxiliary contact blocks	Front	Up to 2 N/C or N/O	Up to 4 N/C or N/O
	Side	—	—
	Front time delay	—	1 N/C
	Front dust and damp protected	—	—
Associated manual-auto thermal overload relays	Class 10 A	—	0.11...16 A
	Class 20 A	—	—
Suppressor modules		Varistor or diode	Varistor, diode + Zener diode or RC circuit
Contactor type references	~	LC1 SK	LC1 or LC7 K06
	≡	LP1 SK	LP1 K06
Reversing contactor with mechanical interlock type references	~	—	LC2 or LC8 K06
	≡	—	LP2 K06
Pages	Contactors	5/34 and 5/35	5/14 to 5/17
	Reversing contactors	—	5/18 to 5/21



9 A	12 A	16 A
20 A	–	–

3 or 4

2.2 kW	3 kW	3 kW
4 kW	5.5 kW	7.5 kW
4 kW	5.5 kW	7.5 kW
4 kW	4 kW	5.5 kW
4 kW	4 kW	4 kW
–	–	–

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LC1 or LC7 K09	LC1 or LC7 K12	LC1 K16
LP1 K09	LP1 K12	–
LC2 or LC8 K09	LC2 or LC8 K12	LC2 K16
LP2 K09	LP2 K12	–

Environment characteristics						
Conforming to standards			IEC 60947, NF C 63-110, VDE 0660, BS 5424			
Product certifications		LC● and LP● K06 to K12	UL, CSA			
Operating positions			<p>Vertical axis Horizontal axis</p> <p>Without derating Without derating Possible positions for LC● K only. Contactor pull-in voltage: 0.85 Uc</p>			
Connection			Min.	Max.	Max. to IEC 60947	
Screw clamp terminals	Solid conductor	mm ²	1 x 1,5	2 x 4	1 x 4 + 1 x 2,5	
	Flexible conductor without cable end	mm ²	1 x 0,75	2 x 4	2 x 2,5	
	Flexible conductor with cable end	mm ²	1 x 0,34	1 x 1,5 + 1 x 2,5	1 x 1,5 + 1 x 2,5	
Spring terminals	Solid conductor	mm ²	1 x 0,75	1 x 1,5	2 x 1,5	
	Flexible conductor without cable end	mm ²	1 x 0,75	1 x 1,5	2 x 1,5	
Faston connectors	Clip	mm	2 x 2,8 or 1 x 6,35			
Solder pins for printed circuit board	With locating device between power and control circuits		4 mm x 35 microns			
Tightening torque		Philips head n° 2 and Ø 6	N.m	0,8		
Terminal referencing		Conforming to standards EN 50005 and EN 50012	Up to 5 contacts, depending on model			
Rated insulation voltage (Ui)	Conforming to IEC 60947	V	690			
	Conforming to VDE 0110 gr C	V	750			
	Conforming to BS 5424, NF C 20-040	V	690			
	Conforming to CSA 22-2 n° 14, UL 508	V	600			
Rated impulse withstand voltage (Uimp)			kV	8		
Protective treatment		Conforming to IEC 60068 (DIN 50016)	"TC" (Klimafest, Climateproof)			
Degree of protection		Conforming to VDE 0106	Protection against direct finger contact			
Ambient air temperature around the device	Storage	°C	- 50...+ 80			
	Operation	°C	- 25...+ 50			
Maximum operating altitude		Without derating	m	2000		
Vibration resistance 5 ... 300 Hz	Contactor open		2 gn			
	Contactor closed		4 gn			
Flame resistance		Conforming to UL 94 Conforming to NF F 16-101 and 16-102	Self-extinguishing materials V1 Conforming to requirement 2			
Shock resistance (1/2 sine wave, 11 ms)	Contactor open		On X axis: 6 gn On Y and Z axes: 10 gn			
	Contactor closed		On X axis: 10 gn On Y and Z axes: 15 gn			
Safe separation of circuits		Conforming to VDE 0106 and IEC 60536	SELV (Safety Extra Low Voltage), up to 400 V			

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Pole characteristics									
Type	LC● or LP●		K06	K09	K12	K16			
Conventional thermal current (Ith)	For ambient temperature ≤ 50 °C	A	20						
Rated operational frequency		Hz	50/60						
Frequency limits of the operational current		Hz	Up to 400						
Rated operational voltage (Ue)		V	690						
Rated making capacity	I rms conforming to NF C 63 110 and IEC 60947	A	110	110	144	160			
Rated breaking capacity	I rms conforming to NF C 63 110 and IEC 60947	220/230 V	A	110	110	–			
		380/400 V	A	110	110	–			
		415 V	A	110	110	–			
		440 V	A	110	110	110	110		
		500 V	A	80	80	80	80		
		660/690 V	A	70	70	70	70		
Permissible short time rating	In free air for a time "t" from cold state (θ ≤ 50 °C)	1 s	A	90	90	115	115		
		5 s	A	85	85	105	105		
		10 s	A	80	80	100	100		
		30 s	A	60	60	75	75		
		1 min	A	45	45	55	55		
		3 min	A	40	40	50	50		
		≥ 15 min	A	20	20	25	25		
		Short-circuit protection	gG fuse U ≤ 440 V (aM fuse, see page 6/12)	A	25				
Average impedance per pole	At Ith and 50 Hz	mΩ	3						
Use in category AC-1 resistive circuits, heating, lighting (Ue ≤ 440 V)	Maximum rated operational current for a temperature ≤ 50 °C	A	20						
		A	16 for Ue only						
	Rated operational current limits in relation to the on-load factor and operating frequency			On-load factor			90 %	60 %	30 %
		A		300 operating cycles/hour			13	15	18
		A		120 operating cycles/hour			15	18	19
A		30 operating cycles/hour			19	20	20		
	Increase in rated operational current by paralleling of poles		Apply the following coefficients to the above currents; these coefficients take into account an often unbalanced distribution of current between the poles 2 poles in parallel: K = 1,60 3 poles in parallel: K = 2,25 4 poles in parallel: K = 2,80						
Use in category AC-3 squirrel cage motors	Operational power according to the voltage. Voltage 50 or 60 Hz	115 V single-ph.	kW	0.37	0.55	–			
		220 V single-ph.	kW	0.75	1,1	–			
		220/230 V 3-ph.	kW	1,5	2,2	3	4		
		380/415 V 3-ph.	kW	2,2	4	5,5	7,5		
		440/480 V 3-ph.	kW	3	4	5,5/4 (480)	5,5/4 (480)		
		500/600 V 3-ph.	kW	3	4	4	4		
		660/690 V 3-ph.	kW	3	4	4	4		
			Maximum operating rate (in operating cycles/hour in relation to % of rated power)		Op. cycles/h		600	900	1200
				Power		100 %	75 %	50 %	

Control circuit characteristics										
Type		LC1	LC2	LC7	LC8	LP1	LP2	LP4	LP5	
Rated control circuit voltage (Uc)	V	~ 12...690 (1)		~ 24...240 (1)		~ 12...250 (1)		~ 12...120		
Control voltage limits (≤ 50 °C) single voltage coil	Operation	0.8...1.15 Uc (2)		0.85...1.1 Uc		0.8...1.15 Uc		0.7...1.30 Uc		
	Drop-out	≥ 0.20 Uc		≥ 0.10 Uc		≥ 0.10 Uc		≥ 0.10 Uc		
Average consumption at 20 °C and at Uc	Inrush	30 VA		3 VA		3 W		1.8 W		
	Sealed	4.5 VA		3 VA		3 W		1.8 W		
Heat dissipation	W	1.3		3		3		1.8		
Operating time at 20 °C and at Uc	Between coil energisation and:									
	- opening of the N/C contacts	ms	5...15		25...35		25...35		25...35	
	- closing of the N/O contacts	ms	10...20		30...40		30...40		30...40	
	Between coil de-energisation and:									
- opening of the N/O contacts	ms	10...20		30		10		10...20		
- closing of the N/C contacts	ms	15...25		40		15		15...25		
Maximum immunity to microbreaks	ms	2		2		2		2		
Maximum operating rate	In operating cycles per hour	3600		3600		3600		3600		
Mechanical durability at Uc In millions of operating cycles	50/60 Hz coil	10	5	10	5	–	–	–	–	
	~ coil	–	–	–	–	10	5	–	–	
	Wide range coil, Low consumption	–	–	–	–	–	–	30	5	

(1) For mains supplies with a high level of interference (voltage surge > 800 V), use a suppressor module LA4 KE1FC (50...129 V) or LA4 KE1UG (130...250 V), see page 5/24.

(2) LC1 K16: 0.85...1.15 Uc.

Auxiliary contact characteristics of contactors and instantaneous contact blocks

Number of auxiliary contacts	On LC● K or LP● K 3-pole		1
	On LA1 K		2 or 4
Rated operational voltage (Ue) Up to		V	690
Rated insulation voltage (Ui)	Conforming to BS 5424	V	690
	Conforming to IEC 60947	V	690
	Conforming to VDE 0110 group C	V	750
	Conforming to CSA C 22-2 n° 14	V	600
Conventional thermal current (Ith)	For ambient temperature ≤ 50 °C	A	10
Frequency of the operational current		Hz	Up to 400
Minimum switching capacity	U min (DIN 19 240)	V	17
	I min	mA	5
Short-circuit protection	Conforming to IEC 60947 and VDE 0660, gG fuse	A	10
Rated making capacity	Conforming to IEC 60947	I rms	A 110
Short-time rating	Permissible for	1 s	A 80
		500 ms	A 90
		100 ms	A 110
Insulation resistance		MΩ	> 10
Non-overlap distance	LA1 K: linked contacts conforming to INRS, BIA and CNA specifications	mm	0,5 (see schemes pages 5/27 and 5/29)

Operational power of contacts conforming to IEC 60947

a.c. supply, category AC-15

Electrical durability (valid for up to 3600 operating cycles/hour) on an inductive load such as the coil of an electromagnet: making current (cos φ 0.7) = 10 times the power broken (cos φ 0.4).

d.c. supply, category DC-13

Electrical durability (valid for up to 1200 operating cycles/hour) on an inductive load such as the coil of an electromagnet, without economy resistor, the time constant increasing with the load.

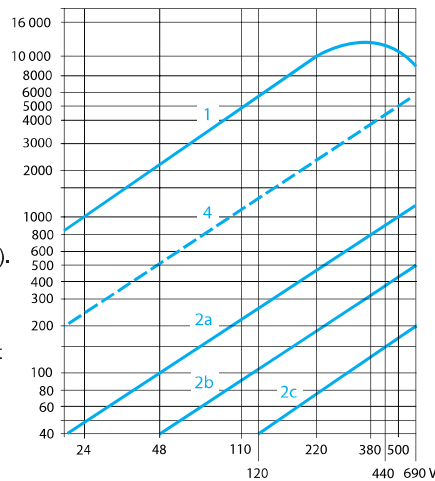
- 1 million operating cycles
- 3 million operating cycles
- 10 million operating cycles
- Occasional making capacity

V	24	48	110/127	220/230	380/400	440	600/690
VA	48	96	240	440	800	880	1200
VA	17	34	86	158	288	317	500
VA	7	14	36	66	120	132	200
VA	1000	2050	5000	10 000	14 000	13 000	9000

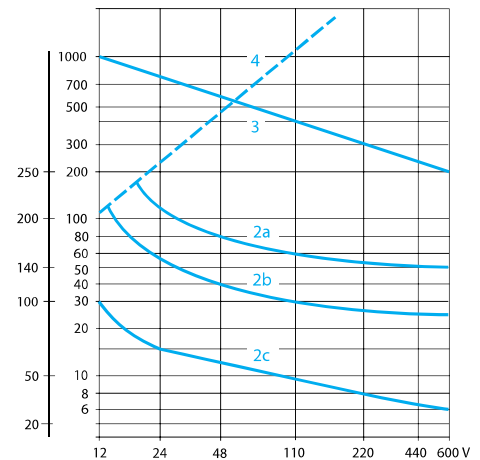
V	24	48	110	220	440	600
W	120	80	60	52	51	50
W	55	38	30	28	26	25
W	15	11	9	8	7	6
W	720	600	400	300	230	200

- 1 Breaking limit of contacts valid for:
 - maximum of 50 operating cycles at 10 s intervals (power broken = making current x cos φ 0.7).
- 2 Electrical durability of contacts for:
 - 1 million operating cycles (2a)
 - 3 million operating cycles (2b)
 - 10 million operating cycles (2c).
- 3 Breaking limit of contacts valid for:
 - maximum of 20 operating cycles at 10 s intervals with current passing for 0,5 s per operating cycle.
- 4 Thermal limit.

Power broken in VA



Power broken in W



TeSys contactors

Contactors for motor control,
6 to 16 A in category AC-3 and 6 to 12 A
in category AC-4
Control circuit: a.c.



LC1 K0910●●



LC1 K09103●●



LC1 K09107●●



LC1 K09105●●



LC7 K0910●●

Contactors selection according to utilisation category, see pages 5/194 to 5/197 and 5/200 to 5/203.
Mounting on 35 mm rail or Ø 4 screw fixing.
Screws in the open "ready-to-tighten" position.
Add-on auxiliary contact blocks and accessories, see pages 5/22 to 5/25.

3-pole contactors for standard applications

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3			Rated operational current in category AC-3 440 V up to	Instantaneous auxiliary contacts	Basic reference, to be completed by adding the voltage code (1) (2)	Weight
220 V	380 V	440/500 V	A	↓ ↓		kg
230 V	415 V	660/690 V				
1.5	2.2	3	6	1	LC1 K0610●●	0.180
				–	LC1 K0601●●	0.180
2.2	4	4	9	1	LC1 K0910●●	0.180
				–	LC1 K0901●●	0.180
3	5.5	4 (> 440)	12	1	LC1 K1210●●	0.180
		5.5 (440)		–	LC1 K1201●●	0.180
4	7.5	4 (> 440)	16	1	LC1 K1610●●	0.180
		5.5 (440)		–	LC1 K1601●●	0.180

Screw clamp connections

For 6 to 12 A ratings only, in the references selected above, insert a figure 3 before the voltage code.
Example: LC1 K0610●● becomes LC1 K06103●●.

Faston connectors, 1 x 6.35 or 2 x 2.8

For 6 to 16 A ratings, in the references selected above, insert a figure 7 before the voltage code.
Example: LC1 K0610●● becomes LC1 K06107●●.

Solder pins for printed circuit boards

For 6 to 16 A ratings, in the references selected above, insert a figure 5 before the voltage code.
Example: LC1 K0610●● becomes LC1 K06105●●.

3-pole silent contactors

Recommended for use in areas sensitive to noise, high interference mains supplies, etc.
Coil with rectifier incorporated, suppressor fitted as standard.

Screw clamp connections

1.5	2.2	3	6	1	–	LC7 K0610●●	0.225
				–	1	LC7 K0601●●	0.225
2.2	4	4	9	1	–	LC7 K0910●●	0.225
				–	1	LC7 K0901●●	0.225
3	5.5	4 (> 440)	12	1	–	LC7 K1210●●	0.225
		5.5 (440)		–	1	LC7 K1201●●	0.225

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.
Example: LC7 K0610●● becomes LC7 K06107●●.

Solder pins for printed circuit boards

In the references selected above, insert a figure 5 before the voltage code.
Example: LC7 K0610●● becomes LC7 K06105●●.

(1) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

a.c. supply

Contactors LC1 K (0.8...1.15 Uc) (0.85...1.1 Uc)

Volts	12	20	24 (2)	36	42	48	110	115	120	127	200/208	220/230	230	230/240
50/60 Hz	J7	Z7	B7	C7	D7	E7	F7	FE7	G7	FC7	L7	M7	P7	U7
Volts	256	277	380/400	400	400/415	440	480	500	575	600	660/690			
50/60 Hz	W7	UE7	Q7	–	V7	N7	R7	T7	S7	SC7	X7	Y7	–	–

Up to and including 240 V, coil with integral suppression device available: add 2 to the code required. Example: J72.

Contactors LC7 K (0.85...1.1 Uc)

Volts	24	42	48	110	115	220	230/240
50/60 Hz	B7	D7	E7	F7	FE7	M7	U7

(2) For mains supplies with a high level of interference (voltage surge > 800 V), use a suppressor module LA4 KE1FC (50...129 V) or LA4 KE1UG (130...250 V), see page 5/24

TeSys contactors

Contactors for motor control,
6 to 12 A in categories AC-3 and AC-4
Control circuit: d.c. or low consumption



LP1 K0910●●



LP1 K09103●●



LP1 K09107●●



LP1 K09105●●



LP4 K0910●●

Contactors selection according to utilisation category, see pages 5/194 to 5/197 and 5/200 to 5/203.
Mounting on 35 mm rail or Ø 4 screw fixing.
Screws in the open "ready-to-tighten" position.
Add-on auxiliary contact blocks and accessories, see pages 5/22 to 5/25

3-pole contactors, d.c. supply				Instantaneous auxiliary contacts	Basic reference, to be completed by adding the voltage code (1) (2)	Weight	
Standard power ratings of 3-phase motors 50-60 Hz in category AC-3			Rated operational current in category AC-3				
220 V	380 V	440/500 V	440 V up to				
230 V	415 V	660/690 V					
kW	kW	kW	A			kg	
Screw clamp connections							
1.5	2.2	3	6	1	–	LP1 K0610●●	0,225
				–	1	LP1 K0601●●	0,225
2.2	4	4	9	1	–	LP1 K0910●●	0,225
				–	1	LP1 K0901●●	0,225
3	5.5	4 (> 440)	12	1	–	LP1 K1210●●	0,225
		5.5 (440)		–	1	LP1 K1201●●	0,225

Spring terminal connections

In the references selected above, insert a figure 3 before the voltage code.
Example: LP1 K0610●● becomes LP1 K06103●●.

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.
Example: LP1 K0610●● becomes LP1 K06107●●.

Solder pins for printed circuit boards

In the references selected above, insert a figure 5 before the voltage code.
Example: LP1 K0610●● becomes LP1 K06105●●.

3-pole low consumption contactors

Compatible with programmable controller outputs.
LED indicator incorporated (except models LP4 K●●●FW3 and LP4 K●●●GW3).
Wide range coil (0.7...1.30 Uc), suppressor fitted as standard, consumption 1.8 W.

Screw clamp connections							
1.5	2.2	3	6	1	–	LP4 K0610●●	0,235
				–	1	LP4 K0601●●	0,235
2.2	4	4	9	1	–	LP4 K0910●●	0,235
				–	1	LP4 K0901●●	0,235
3	5.5	4 (> 440)	12	1	–	LP4 K1210●●	0,235
		5.5 (440)		–	1	LP4 K1201●●	0,235

Spring terminal connections

In the references selected above, insert a figure 3 before the voltage code.
Example: LP4 K0610●● becomes LP4 K06103●●.

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.
Example: LP4 K0610●● becomes LP4 K06107●●.

Solder pins for printed circuit boards

In the references selected above, insert a figure 5 before the voltage code.
Example: LP4 K0610●● becomes LP4 K06105●●.

(1) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

d.c. supply (contactors LP1 K: 0,8*1,15 Uc)																	
Volts	12	20	24 (2)	36	48	60	72	100	110	125	155	174	200	220	230	240	250
Code	JD	ZD	BD	CD	ED	ND	SD	KD	FD	GD	PD	QD	LD	MD	MPD	MUD	UD

Coil with integral suppression device available: add 3 to the code required. Example: JD3

Low consumption (contactors LP4 K: 0,7*130 Uc)

Volts	12	20	24	48	72	110	120
Code	JW3	ZW3	BW3	EW3	SW3	FW3	GW3

(2) For LP1 K only, when connecting an electronic sensor or timer in series with the contactor coil, select a 20 V coil (~ control circuit voltage code Z7, ≡ control circuit voltage code ZD) so as to compensate for the incurred voltage drop.

TeSys contactors

Contactors for control in category AC-1, 20 A

Control circuit: a.c.



Contactor selection according to utilisation category, see pages 5/198 and 5/199.

Mounting on 35 mm rail or Ø 4 screw fixing.

Screws in the open "ready-to-tighten" position.

Add-on auxiliary contact blocks and accessories, see pages 5/22 to 5/25.

3 or 4-pole contactors for standard applications (1)

Non-inductive loads Category AC-1 Maximum current at $\theta \leq 50^\circ\text{C}$	Number of poles	Instantaneous auxiliary contacts	Basic reference, to be completed by adding the voltage code (2) (3)	Weight		
						
A				kg		
Screw clamp connections						
20	3	-	1	-	LC1 K0910●●	0.180
					or LC1 K1210●●	0.180
	3	-	-	1	LC1 K0901●●	0.180
					or LC1 K1201●●	0.180
	4	-	-	-	LC1 K09004●●	0.180
					or LC1 K12004●●	0.180
	2	2	-	-	LC1 K09008●●	0.180

Spring terminal connections

In the references selected above, insert a figure 3 before the voltage code.

Example: LC1 K0910●● becomes LC1 K09103●●.

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.

Example: LC1 K0910●● becomes LC1 K09107●●.

Solder pins for printed circuit boards

In the references selected above, insert a figure 5 before the voltage code.

Example: LC1 K0910●● becomes LC1 K09105●●.

3 or 4-pole silent contactors (1)

Recommended for use in areas sensitive to noise, high interference mains supplies, etc.

Coil with rectifier incorporated, suppressor fitted as standard.

Screw clamp connections

20	3	-	1	-	LC7 K0910●●	0.225
					or LC7 K1210●●	0.225
	3	-	-	1	LC7 K0901●●	0.225
					or LC7 K1201●●	0.225
	4	-	-	-	LC7 K09004●●	0.225
					or LC7 K12004●●	0.225
	2	2	-	-	LC7 K09008●●	0.225

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.

Example: LC7 K0910●● becomes LC7 K09107●●.

Solder pins for printed circuit boards

In the references selected above, insert a figure 5 before the voltage code.

Example: LC7 K0910●● becomes LC7 K09105●●.

(1) Selection between 9 and 12 A ratings according to number of operating cycles, see AC-1 curve on page 5/198.

(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

a.c. supply**Contactors LC1 K (0.8...1.15 Uc) (0.85...1.1 Uc)**

Volts	12	20	24 (3)	36	42	48	110	115	120	127	200/208	220/230	230	230/240
50/60 Hz	J7	Z7	B7	C7	D7	E7	F7	FE7	G7	FC7	L7	M7	P7	U7
Volts	256	277	380/400	400	400/415	440	480	500	575	600	660/690			
50/60 Hz	W7	UE7	Q7	V7	N7	R7	T7	S7	SC7	X7	Y7			

Up to and including 240 V, coil with integral suppression device available: add 2 to the code required. Example: J72.

Contactors LC7 K (0.8...1.1 Uc)

Volts	24	42	48	110	115	220	230/240
50/60 Hz	B7	D7	E7	F7	FE7	M7	U7

(3) For mains supplies with a high level of interference (voltage surge > 800 V), use a suppressor module LA4 KE1FC (50...129 V) or LA4 KE1UG (130...250 V), see page 5/24.



LC1 K09004●●



LC1 K09103●●



LC1 K09107●●



LC1 K09004●●

5

TeSys contactors

Contactors for control in category AC-1, 20 A
Control circuit: d.c. or low consumption

Contactor selection according to utilisation category, see pages 5/198 and 5/199.
Mounting on 35 mm rail or Ø 4 screw fixing.
Screws in the open "ready-to-tighten" position.
Add-on auxiliary contact blocks and accessories, see pages 5/22 to 5/25.



LC1 K09004



LC1 K09103



LC1 K09105



LC1 K09004

3 and 4-pole contactors, d.c. supply (1)					
Non-inductive loads Category AC-1 Maximum current at $\theta \leq 50^\circ\text{C}$	Number of poles	Instantaneous auxiliary contacts		Basic reference, to be completed by adding the voltage code (2) (3)	Weight
A kg					
Screw clamp connections					
20	3	-	1	LP1 K0910	0,225
				or LP1 K1210	0,225
	3	-	-	LP1 K0901	0,225
				or LP1 K1201	0,225
	4	-	-	LP1 K09004	0,225
				or LP1 K12004	0,225
	2	2	-	LP1 K09008	0,225

Spring terminal connections

In the references selected above, insert a figure 3 before the voltage code.
Example: LP1 K0910 becomes LP1 K09103.

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.
Example: LP1 K0910 becomes LP1 K09107.

Solder pins for printed circuit boards

In the references selected above, insert a figure 5 before the voltage code.
Example: LP1 K0910 becomes LP1 K09105.

3 or 4-pole low consumption contactors (1)

Compatible with programmable controller outputs,
LED indicator incorporated (except models LP4 K...FW3 and LP4 K...GW3).
Wide range coil (0.7...1.30 Uc), suppressor fitted as standard, consumption 1.8 W.

Screw clamp connections					
20	3	-	1	LP4 K0910	0,235
				or LP4 K1210	0,235
	3	-	-	LP4 K0901	0,235
				or LP4 K1201	0,235
	4	-	-	LP4 K09004	0,235
				or LP4 K12004	0,235
	2	2	-	LP4 K09008	0,235

Spring terminal connections

In the references selected above, insert a figure 3 before the voltage code.
Example: LP4 K0910 becomes LP4 K09103.

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.
Example: LP4 K0910 becomes LP4 K09107.

Solder pins for printed circuit boards

In the references selected above, insert a figure 5 before the voltage code.
Example: LP4 K0910 becomes LP4 K09105.

(1) Selection between 9 and 12 A ratings according to number of operating cycles, see AC-1 curve on page 5/198.
(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

d.c. supply (contactors LP1 K: 0.8*1.15 Uc)																	
Volts	12	20	24 (3)	36	48	60	72	100	110	125	155	174	200	220	230	240	250
Code	JD	ZD	BD	CD	ED	ND	SD	KD	FD	GD	PD	QD	LD	MD	MPD	MUD	UD

Coil with integral suppression device available: add 3 to the code required. Example: JD3.

Low consumption (contactors LP4 K: 0.7*130 Uc)

Volts	12	20	24	48	72	110	120
Code	JW3	ZW3	BW3	EW3	SW3	FW3	GW3

(3) For LP1 K only, when connecting an electronic sensor or timer in series with the contactor coil, select a 20 V coil (~ control circuit voltage code Z7, --- control circuit voltage code ZD) so as to compensate for the incurred voltage drop.

TeSys contactors

Reversing contactors for motor control, 6 to 16 A in category AC-3 and 6 to 12 A in category AC-4
Control circuit: a.c.

Reversing contactor selection according to utilisation category, see pages 5/194 to 5/197 and 5/200 to 5/203. Integral mechanical interlock.

It is essential to link the contacts of the electrical interlock.

Pre-wired power circuit connections as standard on screw clamp versions.

Mounting on 35 mm rail or Ø 4 screw fixing. Screws in the open "ready-to-tighten" position.

Add-on auxiliary contact blocks and accessories, see pages 5/22 to 5/25.

3-pole reversing contactors for standard applications

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3			Rated operational current in category AC-3 440V up to	Instan- taneous auxiliary contacts per contactor	Basic reference, to be completed by adding the voltage code (1) (2)	Weight
220 V 230 V	380 V 415 V	440/500 V 660/690 V				
kW	kW	kW	A			kg
Screw clamp connections						
1.5	2.2	3	6	1 –	LC2 K0610●●	0.390
				– 1	LC2 K0601●●	0.390
2.2	4	4	9	1 –	LC2 K0910●●	0.390
				– 1	LC2 K0901●●	0.390
3	5.5	4 (> 440)	12	1 –	LC2 K1210●●	0.390
		5.5 (440)		– 1	LC2 K1201●●	0.390
4	7.5	4 (> 440)	16	1 –	LC2 K1610●●	0.390
		5.5 (440)		– 1	LC2 K1601●●	0.390

Spring terminal connections

For 6 to 12 A ratings only, in the references selected above, insert a figure 3 before the voltage code.

Example: LC2 K0610●● becomes LC2 K06103●●.

Faston connectors, 1 x 6.35 or 2 x 2.8

For 6 to 16 A ratings, in the references selected above, insert a figure 7 before the voltage code.

Example: LC2 K0610●● becomes LC2 K06107●●.

Solder pins for printed circuit boards

For 6 to 16 A ratings, in the references selected above, insert a figure 5 before the voltage code.

Example: LC2 K0610●● becomes LC2 K06105●●.

3-pole silent reversing contactors

Recommended for use in areas sensitive to noise, high interference mains supplies, etc.

Coil with rectifier incorporated, suppressor fitted as standard.

Screw clamp connections

1.5	2.2	3	6	1 –	LC8 K0610●●	0.480
				– 1	LC8 K0601●●	0.480
2.2	4	4	9	1 –	LC8 K0910●●	0.480
				– 1	LC8 K0901●●	0.480
3	5.5	4 (> 440)	12	1 –	LC8 K1210●●	0.480
		5.5 (440)		– 1	LC8 K1201●●	0.480

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.

Example: LC8 K0610●● becomes LC8 K06107●●.

Solder pins for printed circuit boards

In the references selected above, insert a figure 5 before the voltage code.

Example: LC8 K0610●● becomes LC8 K06105●●.

(1) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

a.c. supply

Reversing contactors LC2 K (0.8...1.15 Uc) (0.85...1.1 Uc)

Volts	12	20	24 (2)	36	42	48	110	115	120	127	200/208	220/230	230	230/240
50/60 Hz	J7	Z7	B7	C7	D7	E7	F7	FE7	G7	FC7	L7	M7	P7	U7
Volts	256	277	380/400	400	400/415	440	480	500	575	600	660/690			
50/60 Hz	W7	UE7	Q7	V7	N7	R7	T7	S7	SC7	X7	Y7			

Up to and including 240 V, coil with integral suppression device available: add 2 to the code required. Example: J72

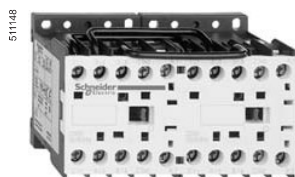
Reversing contactors LC8 K (0.8...1.1 Uc)

Volts	24	42	48	110	115	220	230/240
50/60 Hz	B7	D7	E7	F7	FE7	M7	U7

(2) For mains supplies with a high level of interference (voltage surge > 800 V), use a suppressor module LA4 KE1FC (50...129 V) or LA4 KE1UG (130...250 V), see page 5/24.



LC2 K0910●●



LC2 K09105●●

TeSys contactors

Reversing contactors for motor control, 6 to 12 A
in categories AC-3 and AC-4

Control circuit: d.c. or low consumption

Reversing contactor selection according to utilisation category, see pages 5/194 to 5/197 and 5/200 to 5/203.

Integral mechanical interlock.

It is essential to link the contacts of the electrical interlock.

Pre-wired power circuit connections as standard on screw clamp versions.

Mounting on 35 mm rail or Ø 4 screw fixing.

Screws in the open "ready-to-tighten" position.

Add-on auxiliary contact blocks and accessories, see pages 5/22 to 5/25

3-pole reversing contactors, d.c. supply

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3				Rated operational current in category AC-3 440V up to	Instan- taneous auxiliary contacts per contactor	Basic reference, to be completed by adding the voltage code (1) (2)	Weight
220 V	380 V	440/500 V					
230 V	415 V	660/690 V					
kW	kW	kW	A				kg
Screw clamp connections							
1,5	2,2	3	6	1	–	LP2 K0610●●	0,480
				–	1	LP2 K0601●●	0,480
2,2	4	4	9	1	–	LP2 K0910●●	0,480
				–	1	LP2 K0901●●	0,480
3	5,5	4 (> 440)	12	1	–	LP2 K1210●●	0,480
		5,5 (440)		–	1	LP2 K1201●●	0,480

Spring terminal connections

In the references selected above, insert a figure 3 before the voltage code.

Example: LP2 K0610●● becomes LP2 K06103●●.

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.

Example: LC2 K0610●● becomes LC2 K06107●●.

Solder pins for printed circuit boards

For 6 to 16 A ratings, in the references selected above, insert a figure 5 before the voltage code.

Example: LC2 K0610●● becomes LC2 K06105●●.

3-pole low consumption reversing contactors

Compatible with programmable controller outputs.

LED indicator incorporated (except models LP5-K●●●FW3 and LP5-K●●●GW3).

Wide range coil (0,7...1,30 Uc), suppressor fitted as standard, consumption 1,8 W.

Screw clamp connections

1,5	2,2	3	6	1	–	LP5 K0610●●	0,490
				–	1	LP5 K0601●●	0,490
2,2	4	4	9	1	–	LP5 K0910●●	0,490
				–	1	LP5 K0901●●	0,490
3	5,5	4 (> 440)	12	1	–	LP5 K1210●●	0,490
		5,5 (440)		–	1	LP5 K1201●●	0,490

Spring terminal connections

In the references selected above, insert a figure 3 before the voltage code.

Example: LP5 K0610●● becomes LP5 K06103●●.

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.

Example: LP5 K0610●● becomes LP5 K06107●●.

Solder pins for printed circuit boards

In the references selected above, insert a figure 5 before the voltage code.

Example: LP5 K0610●● becomes LP5 K06105●●.

(1) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

d.c. supply

Reversing contactors LP2 K (0,8...1,15 Uc)

Volts	12	20	24 (3)	36	48	60	72	100	110	125	155	174	200	220	230	240	250
Code	JD	ZD	BD	CD	ED	ND	SD	KD	FD	GD	PD	QD	LD	MD	MPD	MUD	UD

Coil with integral suppression device available: add 3 to the code required. Example: JD3.

Low consumption

Reversing contactors LP5 K (0,7...1,30 Uc)

Volts	12	20	24	48	72	110	120
Code	JW3	ZW3	BW3	EW3	SW3	FW3	GW3

(2) For LP2 K only, when connecting an electronic sensor or timer in series with the contactor coil, select a 20 V coil (~ control circuit voltage code Z7, -- control circuit voltage code ZD) so as to compensate for the incurred voltage drop.

TeSys contactors

Reversing contactors for control in category AC-1, 20 A

Control circuit: a.c.

Warning: reversing contactors LC2 K0910●● and LC2 K0901●● are pre-wired for reverse motor operation as standard. Reversing contactor selection according to utilisation category, see pages 5/198 and 5/199. Integral mechanical interlock.

It is essential to link the contacts of the electrical interlock.

Mounting on 35 mm rail or Ø 4 screw fixing.
Screws in the open "ready-to-tighten" position.
Add-on auxiliary contact blocks and accessories, see pages 5/22 to 5/25.



LC2 K0910●●

3 or 4-pole reversing contactors for standard applications (1)

Non-inductive loads Category AC-1 Maximum current at 0 ≤ 50 °C	Number of poles	Instantaneous auxiliary contacts per contactor	Basic reference, to be completed by adding the voltage code (2) (3)	Weight	
A				kg	
Screw clamp connections					
20	3	–	1 –	LC2 K0910●● or LC2 K1210●●	0.390 0.390
	3	–	– 1	LC2 K0901●● or LC2 K1201●●	0.390 0.390
	4	–	– –	LC2 K09004●● or LC2 K12004●●	0.380 0.380

Spring terminal connections

In the references selected above, insert a figure 3 before the voltage code.
Example: LC2 K0910●● becomes LC2 K09103●●.

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.
Example: LC2 K0910●● becomes LC2 K09107●●.

Solder pins for printed circuit boards

In the references selected above, insert a figure 5 before the voltage code.
Example: LC2 K0910●● becomes LC2 K09105●●.

3 or 4-pole silent reversing contactors (1)

Recommended for use in areas sensitive to noise, high interference mains supplies, etc.
Coil with rectifier incorporated, suppressor fitted as standard.

Screw clamp connections

20	3	–	1 –	LC8 K0910●● or LC8 K1210●●	0.480 0.480
	3	–	– 1	LC8 K0901●● or LC8 K1201●●	0.480 0.480
	4	–	– –	LC8 K09004●● or LC8 K12004●●	0.470 0.470

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.
Example: LC8 K0910●● becomes LC8 K09107●●.

Solder pins for printed circuit boards

In the references selected above, insert a figure 5 before the voltage code.
Example: LC8 K0910●● becomes LC8 K09105●●.

(1) Selection between 9 and 12 A ratings according to number of operating cycles, see AC-1 curve on page 5/198.

(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

a.c. supply

Reversing contactors LC2 K (0.8...1,15 Uc) (0.85...1.1 Uc)

Volts	12	20	24 (3)	36	42	48	110	115	120	127	200/208	220/230	230	230/240
50/60 Hz	J7	Z7	B7	C7	D7	E7	F7	FE7	G7	FC7	L7	M7	P7	U7
Volts	256	277	380/400	400	400/415	440	480	500	575	600	660/690			
50/60 Hz	W7	UE7	Q7	V7	N7	R7	T7	S7	SC7	X7	Y7			

Up to and including 240 V, coil with integral suppression device available: add 2 to the code required. Example: J72.

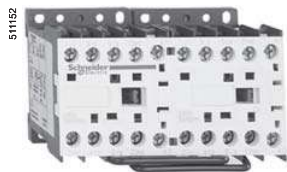
Reversing contactors LC8 K (0.8...1.1 Uc)

Volts	24	42	48	110	115	220	230/240
50/60 Hz	B7	D7	E7	F7	FE7	M7	U7

(3) For mains supplies with a high level of interference (voltage surge > 800 V), use a suppressor module LA4 KE1FC (50...129 V) or LA4 KE1UG (130...250 V), see page 5/24.



LC2 K09105●●



LC2 K09004●●

5

TeSys contactors

Reversing contactors for control in category AC-1, 20 A

Control circuit: d.c. or low consumption

Warning: reversing contactors LP2 K0910●● and LP2 K0901●● are pre-wired for reverse motor operation as standard.
Reversing contactor selection according to utilisation category, see pages 5/198 and 5/199.
Integral mechanical interlock.




It is essential to link the contacts of the electrical interlock.

Mounting on 35 mm rail or Ø 4 screw fixing.

Screws in the open "ready-to-tighten" position.

Add-on auxiliary contact blocks and accessories, see pages 5/22 to 5/25.

3 or 4-pole reversing contactors, d.c. supply (1)

Non-inductive loads Category AC-1 Maximum current at $\theta \leq 50^\circ\text{C}$	Number of poles	Instantaneous auxiliary contacts per contactor		Basic reference, to be completed by adding the voltage code (2) (3)	Weight
					
A					kg
Screw clamp connections					
20	3	–	1	–	LP2 K0910●● 0.480
				or	LP2 K1210●● 0.480
	3	–	–	1	LP2 K0901●● 0.480
				or	LP2 K1201●● 0.480
	4	–	–	–	LP2 K09004●● 0.480
				or	LP2 K12004●● 0.480

Spring terminal connections

In the references selected above, insert a figure 3 before the voltage code.

Example: LP2 K0910●● becomes LP2 K09103●●.

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.

Example: LP2 K0910●● becomes LP2 K09107●●.

Solder pins for printed circuit boards

In the references selected above, insert a figure 5 before the voltage code.

Example: LP2 K0910●● becomes LP2 K09105●●.

3 or 4-pole low consumption reversing contactors (1)

Compatible with programmable controller outputs.

LED indicator incorporated (except models LP5 K●●●●FW3 and LP5 K●●●●GW3).

Wide range coil (0.7...1.30 Uc), suppressor fitted as standard, consumption 1.8 W.

Screw clamp connections

20	3	–	1	–	LP5 K0910●●● 0.490
				or	LP5 K1210●●● 0.490
	3	–	–	1	LP5 K0901●●● 0.490
				or	LP5 K1201●●● 0.490
	4	–	–	–	LP5 K09004●●● 0.490
				or	LP5 K12004●●● 0.490

Spring terminal connections

In the references selected above, insert a figure 3 before the voltage code.

Example: LP5 K0910●●● becomes LP5 K09103●●●.

Faston connectors, 1 x 6.35 or 2 x 2.8

In the references selected above, insert a figure 7 before the voltage code.

Example: LP5 K0910●●● becomes LP5 K09107●●●.

Solder pins for printed circuit boards

In the references selected above, insert a figure 5 before the voltage code.

Example: LP5 K0910●●● becomes LP5 K09105●●●.

(1) Selection between 9 and 12 A ratings according to number of operating cycles, see AC-1 curve on page 5/198.

(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

d.c. supply (reversing contactors LP2 K: 0.8...1.15 Uc)

Volts ---	12	20	24 (3)	36	48	60	72	100	110	125	155	174	200	220	230	240	250
Code	JD	ZD	BD	CD	ED	ND	SD	KD	FD	GD	PD	QD	LD	MD	MPD	MUD	UD

Coil with integral suppression device available: add 3 to the code required. Example: JD3.

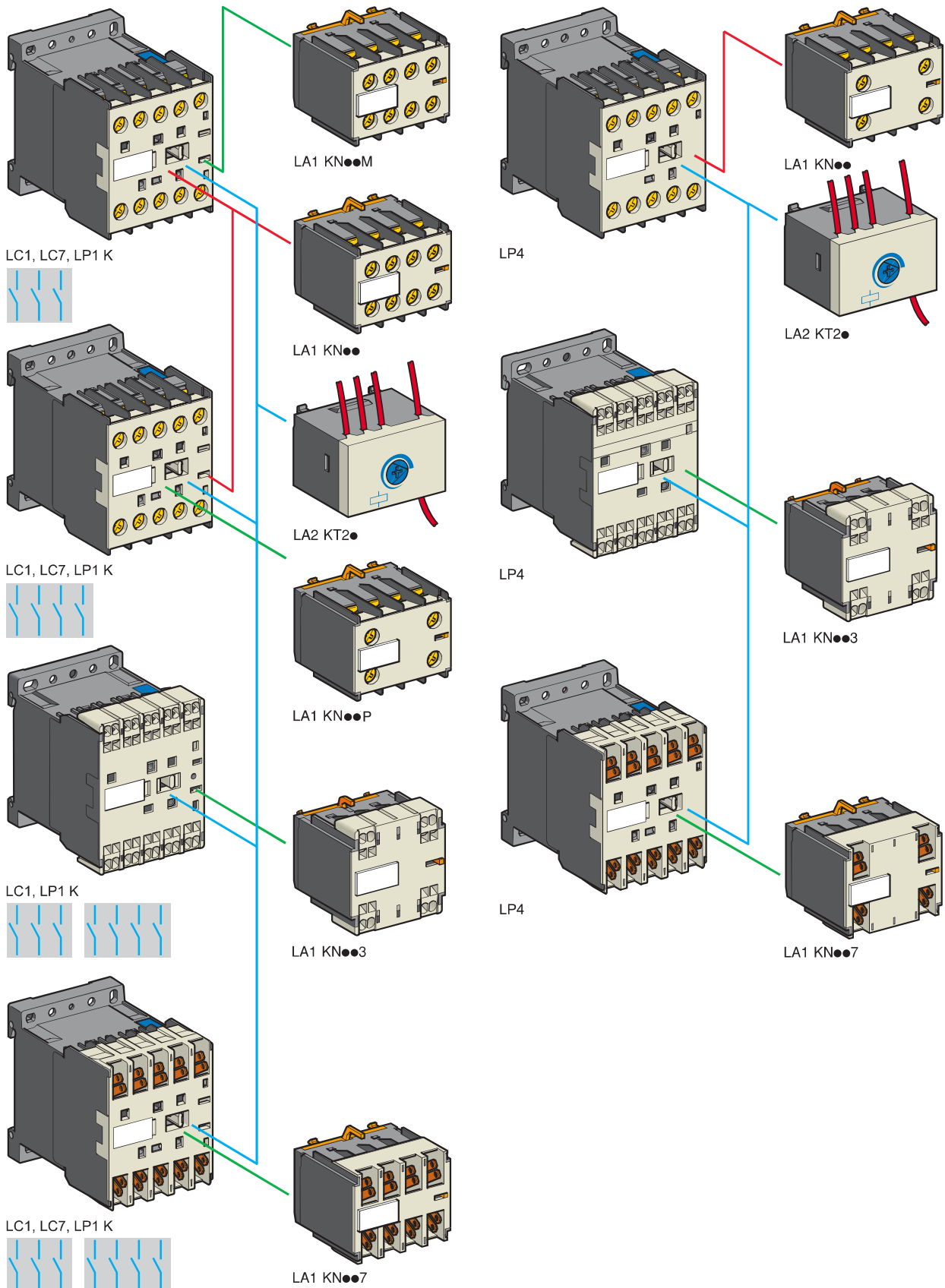
Low consumption

 (reversing contactors LP5 K: 0.7...1.30 Uc)

Volts ---	12	20	24	48	72	110	120
Code	JW3	ZW3	BW3	EW3	SW3	FW3	GW3

(3) For LP2 K only, when connecting an electronic sensor or timer in series with the contactor coil, select a 20 V coil (~ control circuit voltage code Z7, --- control circuit voltage code ZD) so as to compensate for the incurred voltage drop.

5





TeSys contactors

TeSys K contactors and reversing contactors
Auxiliary contact blocks

Instantaneous auxiliary contact blocks

Recommended for standard applications. Clip-on front mounting, 1 block per contactor

Connection	For use on contactors	Composition		Reference	Weight kg
					
Screw clamp terminals	All products with screw clamp terminals	2	–	LA1 KN20	0.045
		–	2	LA1 KN02	0.045
		1	1	LA1 KN11	0.045
	All products with screw clamp terminals except low consumption	4	–	LA1 KN40	0.045
		3	1	LA1 KN31	0.045
		2	2	LA1 KN22	0.045
		1	3	LA1 KN13	0.045
Spring terminals	All products with spring terminals	2	–	LA1 KN203	0.045
		–	2	LA1 KN023	0.045
		1	1	LA1 KN113	0.045
	All products with spring terminals except low consumption	4	–	LA1 KN403	0.045
		3	1	LA1 KN313	0.045
		2	2	LA1 KN223	0.045
		1	3	LA1 KN133	0.045
Faston connectors, 1 x 6.35 or 2 x 2.8	All products with Faston connectors	2	–	LA1 KN207	0.045
		–	2	LA1 KN027	0.045
		1	1	LA1 KN117	0.045
	All products with Faston connectors except low consumption	4	–	LA1 KN407	0.045
		3	1	LA1 KN317	0.045
		2	2	LA1 KN227	0.045
		1	3	LA1 KN137	0.045
–	4	LA1 KN047	0.045		



With terminal referencing to standard EN 50012. Clip-on front mounting, 1 block per contactor

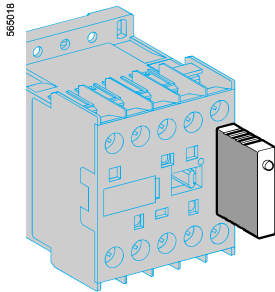
Screw clamp terminals with referencing conforming to standard EN 50012	All 3-pole + N/O products with screw clamp terminals except LP4 and LP5 K12	–	2	LA1 KN02M	0.045
		1	1	LA1 KN11M	0.045
	All 3-pole + N/O products with screw clamp terminals except LP4 or LP5 K06, K09 and K12	3	1	LA1 KN31M	0.045
		2	2	LA1 KN22M	0.045
		1	3	LA1 KN13M	0.045
All 4-pole products with screw clamp terminals except LP4 or LP5 K12	1	1	LA1 KN11P	0.045	
All 4-pole products with screw clamp terminals except LP4 or LP5 K09 and K12	2	2	LA1 KN22P	0.045	

Electronic time delay auxiliary contact blocks

Relay output with common point changeover contact, \sim or $\overline{\sim}$ 240 V, 2 A maximum.
Control voltage 0.85...1,1 Uc.
Maximum switching capacity 250 VA or 150 W.
Operating temperature -10...+60 °C.
Reset time: 1.5 s during the time delay period, 0.5 s after the time delay period.

Clip-on front mounting, 1 block per contactor

Voltage	Type	Timing range	Composition		Reference	Weight kg
						
V		s				kg
\sim or $\overline{\sim}$ 24...48	On-delay	1...30	1		LA2 KT2E	0.040
\sim 110...240	On-delay	1...30	1		LA2 KT2U	0.040

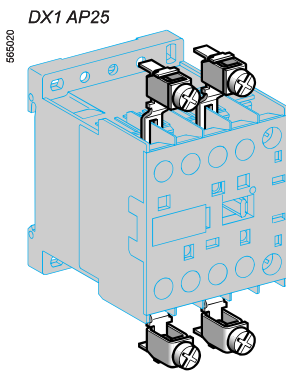
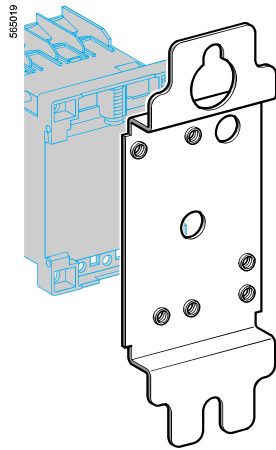


LA4 K●●●

References

Mounting and connection	Type	For voltages	Sold in lots of	Unit reference	Weight kg
Clip-on fixing on the front of contactors LC1 and LP1, with locating device. No tools required.	Varistor (1)	~ and ≍ 12...24 V	5	LA4 KE1B	0.010
		~ and ≍ 32...48 V	5	LA4 KE1E	0.010
		~ and ≍ 50...129 V	5	LA4 KE1FC	0.010
		~ and ≍ 130...250 V	5	LA4 KE1UG	0.010
	Diode + Zener diode (2)	≍ 12...24 V	5	LA4 KC1B	0.010
		≍ 32...48 V	5	LA4 KC1E	0.010
	RC (3)	~ 110...250 V	5	LA4 KA1U	0.010

- (1) Protection provided by limiting the transient voltage to $2 U_c$ max.
Maximum reduction of transient voltage peaks.
Slight increase in drop-out time (1.1 to 1.5 times the normal time).
- (2) No overvoltage or oscillating frequency.
Polarised component.
Slight increase in drop-out time (1.1 to 1.5 times the normal time).
- (3) Protection by limiting the transient voltage to $3 U_c$ max. and limitation of the oscillating frequency.
Slight increase in drop-out time (1.2 to 2 times the normal time).



LA9 E01

Mounting and marking accessories

Description	Application		Sold in lots of	Unit reference	Weight kg
Mounting plates (1)	For fixing on 1 rail	Clip-on	1	LA9 D973	0,025
	For fixing on 2 rails	110/120 mm fixing centres	10	DX1 AP25	0,065
Marker holder	Clip-on	Onto front of contactor	100	LA9 D90	0,001
Clip-in markers	4 maximum per contactor	Strips of 10 identical numbers 0...9	25	AB1 P● (2)	0,002
		Strips of 10 identical letters A...Z	25	AB1 G● (2)	0,002

Connection accessories

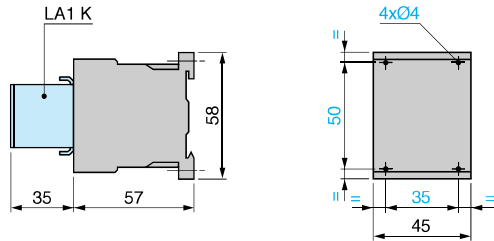
Description	Application		Sold in lots of	Unit preference	Weight kg
Paralleling links	For 2 poles	With screw clamps	4	LA9 E01	0,010
	For 4 poles	With screw clamps	2	LA9 E02	0,015
Set of 6 power connections	For 3-pole reversing contactors for motor control	For contactors with screw clamp terminals	100	LA9 K0969	0,010
Set of 4 power connections	For 4-pole changeover contactor pairs	For contactors with screw clamp terminals	100	LA9 K0970	0,010

(1) Order 1 mounting plate for fixing a contactor and 2 mounting plates for fixing a reversing contactor.
(2) Complete the reference by replacing the dot with the required character.

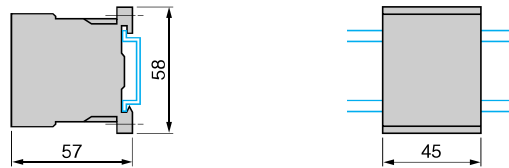
Contactors

LC1 K, LC7 K, LP1 K, LP4 K

On panel

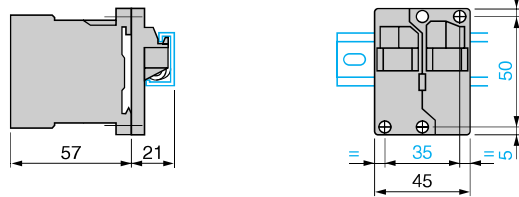


On mounting rail AM1 DP200 or AM1 DE200 (≥ 35 mm)

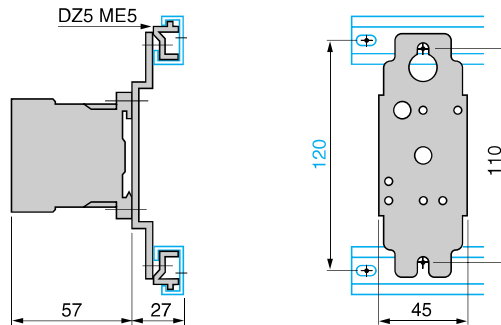


LA9 D973

On one asymmetrical rail DZ5 MB with clip-on mounting plates

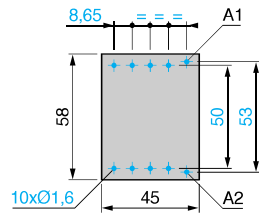


DX1 AP25



5

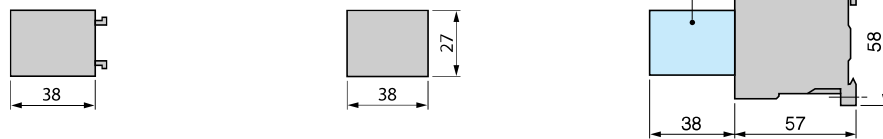
On printed circuit board



Electronic time delay contact blocks

LA2 KT

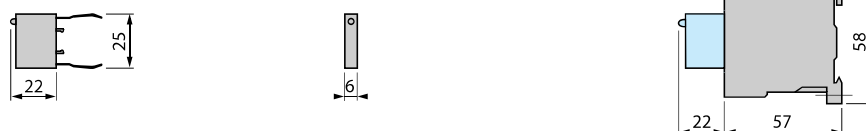
On contactor



Suppressor modules

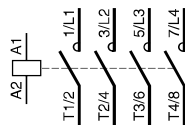
LA4 K_e

On contactor LC1 K or LP1 K

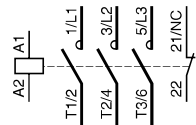


3-pole contactors

3 P + N/O

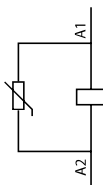


3 P + N/C

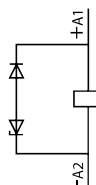


With integral suppression device

LC7 K

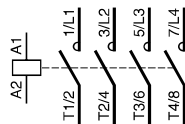


LP4 K

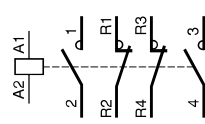


4-pole contactors

4 P

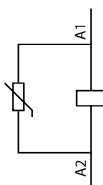


2 P N/O + 2 P N/C

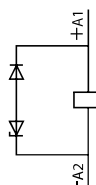


With integral suppression device

LC7 K



LP4 K

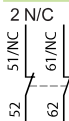


Instantaneous auxiliary contacts LA1 K

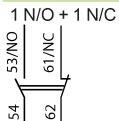
LA1 KN20, KN207, KN203



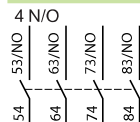
LA1 KN02, KN027, KN023



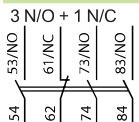
LA1 KN11, KN117, KN113



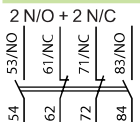
LA1 KN40, KN407, KN403



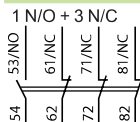
LA1 KN31, KN317, KN313



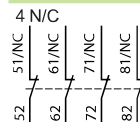
LA1 KN22, KN227, KN223



LA1 KN13, KN137, KN133



LA1 KN04, KN047, KN043



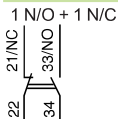
5

Terminal referencing conforming to standard EN 50012

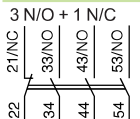
LA1 KN02M



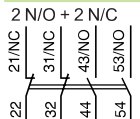
LA1 KN11M



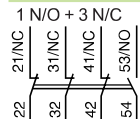
LA1 KN31M



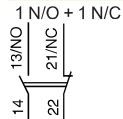
LA1 KN22M



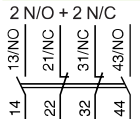
LA1 KN13M



LA1 KN11P



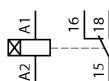
LA1 KN22P



Electronic time delay contact blocks

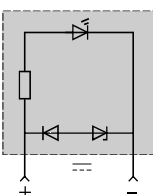
LA2 KT

1 C/O



Suppressor modules

LA4 KC



LA4 KE

