TeSys contactors
TeSys D contactors

Applications		**All types of control system**					
							
Rated operational current	Ie max AC-3 (Ue ≤ 440 V)	9 A	12 A	18 A	25 A	32 A	38 A
	Ie AC-1 (θ ≤ 60 °C)	20/25 A		25/32 A	25/40 A	50 A	
Rated operational voltage		690 V on ∿ and ⎓					
Number of poles		3 or 4	3 or 4	3 or 4	3 or 4	3	
Rated operational power in AC-3	220/240 V	2.2 kW	3 kW	4 kW	5.5 kW	7.5 kW	9 kW
	380/400 V	4 kW	5.5 kW	7.5 kW	11 kW	15 kW	18.5 kW
	415/440 V	4 kW	5.5 kW	9 kW	11 kW	15 kW	18.5 kW
	500 V	5.5 kW	7.5 kW	10 kW	15 kW	18.5 kW	18.5 kW
	660/690 V	5.5 kW	7.5 kW	10 kW	15 kW	18.5 kW	18.5 kW
	1000 V	–	–	–	–	–	–
Auxiliary contacts		1 N/C and 1 N/O instantaneous incorporated in the contactors, with add-on blocks common to the whole range comprising up to 4 N/C or N/O instantaneous, up to 1 N/O + 1 N/C time delay and up to 2 N/O or 2 N/C protected contacts and 2 screen continuity terminals.					
Thermal overload relays manual-auto compatible	Class 10 A	0.10…10 A	0.10…13 A	0.10…18 A	0.10…32 A	0.10…38 A	0.10…38 A
	Class 20	2.5…10 A	2.5…13 A	2.5…18 A	2.5…32 A		
Suppressor modules (⎓ and low consumption contactors are fitted with a built-in bidirectional peak limiting diode suppressor as standard)	Varistor	•	•	•	•	•	•
	Diode	–	–	–	–	–	–
	RC circuit	•	•	•	•	•	•
	Bidirectional peak limiting diode	•	•	•	•	•	•
Interfaces	Relay output	•	•	•	•	•	•
	Relay interface with manual override switch	•	•	•	•	•	•
	Solid state	•	•	•	•	•	•
Contactor type references	∿ or ⎓ 3 pole	**LC1 D09**	**LC1 D12**	**LC1 D18**	**LC1 D25**	**LC1 D32**	**LC1 D38**
	∿ 4 pole	**LC1 DT20/ LC1 D098**	**LC1 DT25/ LC1 D128**	**LC1 DT32/ LC1 D188**	**LC1 DT40/ LC1 D258**	–	–
	⎓ 4 pole					–	–
Reversing contactor type references	∿ 3 pole	**LC2 D09**	**LC2 D12**	**LC2 D18**	**LC2 D25**	**LC2 D32**	**LC2 D38**
	⎓ 3 pole	**LC2 D09**	**LC2 D12**	**LC2 D18**	**LC2 D25**	**LC2 D32**	**LC2 D38**
	∿ 4 pole	**LC2 DT20**	**LC2 DT25**	**LC2 DT32**	**LC2 DT40**	–	–
	⎓ 4 pole	**LC2 DT20**	**LC2 DT25**	**LC2 DT32**	**LC2 DT40**	–	–
Pages	Contactors	5/62 to 5/67					
	Reversing contactors	5/72 to 5/75					





40 A 60 A	50 A 80 A	65 A	80 A 125 A	95 A	115 A 200 A	150 A
690 V ∿ or ⎓			1000 V on ∿ supply, 690 V on ⎓ supply			
3 4	3	3 4	3 4	3	3 4	3
11 kW 18.5 kW 22 kW 22 kW 30 kW –	15 kW 22 kW 25/30 kW 30 kW 33 kW –	18.5 kW 30 kW 37 kW 37 kW 37 kW –	22 kW 37 kW 45 kW 55 kW 45 kW 45 kW	25 kW 45 kW 45 kW 55 kW 45 kW 45 kW	30 kW 55 kW 59 kW 75 kW 80 kW 75 kW	40 kW 75 kW 80 kW 90 kW 100 kW 90 kW

1 N/C and 1 N/O instantaneous incorporated in the contactors, with add-on blocks common to the whole range comprising up to 4 N/C or N/O instantaneous, up to 1 N/O + 1 N/C time delay and up to 2 N/O or 2 N/C protected contacts and 2 screen continuity terminals.

13…40 A 13…40 A	13…50 A 13…50 A	13…65 A 13…65 A	17…104 A 17…80 A	17…104 A	60…150 A 60…150 A	60…150 A 60…150 A
• •	•	• •	• •	•	• •	–
• •	•	• •	• •	•	– –	–
• •	•	• •	• •	•	• •	•
• •	•	• •	• •	•	– –	–
• •	•	• •	• •	•	• •	•
• •	•	• •	• •	•	• •	•
• •	•	• •	• •	•	• •	–
LC1 D40A **LC1 DT60A** **LC1 DT60A**	**LC1 D50A** **–** **–**	**LC1 D65A** **LC1 DT80A** **LC1 DT80A**	**LC1 D80** **LC1 D80** **LC1 D80**	**LC1 D95** **–** **–**	**LC1 D115** **LC1 D115** **LC1 D115**	**LC1 D150** **–** **–**
LC2 D40A **LC2 D40A** **–** **–**	**LC2 D50A** **LC2 D50A** **–** **–**	**LC2 D65A** **LC2 D65A** **–** **–**	**LC2 D80** **–** **LC2 D80** **–**	**LC2 D95** **–** **–** **–**	**LC2 D115** **–** **LC2 D115** **–**	**LC2 D150** **–** **–** **–**

5/62 to 5/67
5/72 to 5/75

TeSys contactors
TeSys D low consumption contactors

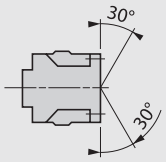
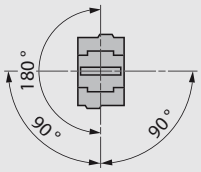
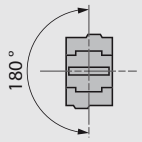
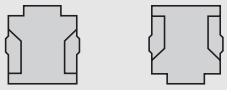
Applications		**Automation systems**		
				
Rated operational current	Ie max AC-3 (Ue ≤ 440 V)	9 A	12 A	18 A
	Ie AC-1 (θ ≤ 60 °C)	20/25 A	20/25 A	25/32 A
Rated operational voltage		690 V		
Number of poles		3 or 4	3 or 4	3 or 4
Rated operational power in AC-3	220/240 V	2.2 kW	3 kW	4 kW
	380/400 V	4 kW	5.5 kW	7.5 kW
	415/440 V	4 kW	5.5 kW	9 kW
	500 V	5.5 kW	7.5 kW	10 kW
	660/690 V	5.5 kW	7.5 kW	10 kW
Coil consumption		2.4 W (100 mA - 24 V)		
Operating ranges		0.7…1.25 Uc		
Operating time at 20 °C and at Uc	Closing	70 ms		
	Opening	25 ms		
Auxiliary contact block modules		1 N/C and 1 N/O instantaneous contacts incorporated in the contactors, with add-on blocks common to the whole range, comprising up to 2 N/C or 2 N/O instantaneous standard contacts		
Interference suppression		Built-in suppression as standard, by bi-directional peak limiting diode		
Contactor type	3-pole	**LC1 D09**	**LC1 D12**	**LC1 D18**
	4-pole	**LC1 DT20/D098**	**LC1 DT25/D128**	**LC1 DT32/D188**
Reversing contactor type	3-pole	**LC2 D09**	**LC2 D12**	**LC2 D18**
	4-pole	**LC2 DT20**	**LC2 DT25**	**LC2 DT32**
Pages	Contactors	5/62 to 5/67		
	Reversing contactors	5/72 to 5/75		

*(1) With low consumption kit **LA4 DBL** (see page 5/83).*
*(2) With 2 low consumption kits **LA4 DBL** (see page 5/83).*

5



25 A	32 A	38 A	40 A	50 A	65 A
25/40 A	50 A	50 A	60 A	–	80 A
690 V			690 V		
3 or 4	3	3	3	3	3
5.5 kW	7.5 kW	9 kW	11 kW	15 kW	18.5 kW
11 kW	15 kW	18.5 kW	18.5 kW	22 kW	30 kW
11 kW	15 kW	18.5 kW	22 kW	25/30 kW	37 kW
15 kW	18.5 kW	18.5 kW	22 kW	30 kW	37 kW
15 kW	18.5 kW	18.5 kW	30 kW	33 kW	37 kW
2.4 W (100 mA - 24 V)			0.6 W (25 mA - 24 V) for relay **LA4 DFB** + the power consumed by the contactor coil		
0.7…1.25 Uc			–	–	–
70 ms			–	–	–
25 ms			–	–	–
1 N/C and 1 N/O instantaneous contacts incorporated in the contactors, with add-on blocks common to the whole range, comprising up to 2 N/C or 2 N/O instantaneous standard contacts					
Built-in suppression as standard, by bi-directional peak limiting diode					
LC1 D25	**LC1 D32**	**LC1 D38**	**LC1 D40A** *(1)*	**LC1 D50A** *(1)*	**LC1 D65A** *(1)*
LC1 DT40/D258			–	–	–
LC2 D25	**LC2 D32**	**LC2 D38**	**LC2 D40A** *(2)*	**LC2 D50A** *(2)*	**LC2 D65A** *(2)*
LC2 DT40					
5/62 to 5/67					
5/72 to 5/75					

Contactor type		LC1		D09…D18 DT20 and DT25	D25…D38 DT32 and DT40	D40A…D65A DT60A and DT80A	D80…D95	D115 and D150
Environment								
Rated insulation voltage (Ui)	Conforming to IEC 60947-4-1, overvoltage category III, degree of pollution: 3		**V**	690			1000	
	Conforming to UL, CSA		**V**	600				
Rated impulse withstand voltage (Uimp)	Conforming to IEC 60947		**kV**	6			8	
Conforming to standards				IEC/EN 60947-4-1, IEC/EN 60947-5-1, UL 508, CSA C22.2 n°14.				
Product certifications				UL, CSA *(1)*, CCC, GOST GL, DNV, RINA, BV, LROS (pending for contactors LC1 D40A to D65A)				
Degree of protection *(2)* (front face only)	Conforming to VDE 0106 and IEC 60529							
	Power circuit connections			Protection against direct finger contact IP 2X				
	Coil connection			Protection against direct finger contact IP 2X				
Protective treatment	Conforming to IEC 60068-2-30			"TH"				
Ambient air temperature around the device	Storage		**°C**	- 60…+ 80				
	Operation		**°C**	- 5…+ 60				
	Permissible		**°C**	- 40…+ 70, for operation at Uc				
Maximum operating altitude	Without derating		**m**	3000				
Operating positions *(3)*	Without derating in the following positions			~/⎓ 		~ 		⎓ 
	Positions that are not permissible			For ⎓ contactors LC1 D09 to LC1 D65A. 				
Flame resistance	Conforming to UL 94			V1				
	Conforming to IEC 60695-2-1		**°C**	850				
Shock resistance *(4)* 1/2 sine wave = 11 ms	Contactor open			10 gn	8 gn	10 gn	8 gn	6 gn
	Contactor closed			15 gn	15 gn	15 gn	10 gn	15 gn
Vibration resistance *(4)* 5…300 Hz	Contactor open			2 gn				
	Contactor closed			4 gn	4 gn	4 gn	3 gn	4 gn

(1) Contactor LC1 D95 with d.c. coil is not UL/CSA certified.
(2) Protection provided for the cabling c.s.a.'s indicated on the next page and for connection by cable.
(3) When mounting on a vertical rail, use a stop.
(4) Without modifying the contact states, in the most unfavourable direction (coil energised at Ue).

Contactor type		LC1	D09 and D12 DT20 and DT25	D18 (3P)	D25 (3P)	D32	D38	D18 and D25 (4P) DT32 and DT40	D40A to D65A DT60A and DT80A *(1)*	D80 and D95	D115 and D150
Power circuit connections											
Screw clamp terminal connections											
Tightening			Screw clamp terminals					Connector 2 inputs	Screw clamp terminals	Connector 1 input	Connector 2 inputs
Flexible cable without cable end	1 conductor	mm²	1…4	1.5…6	2.5…10			2.5…10	1…35	4…50	10…120
	2 conductors	mm²	1…4	1.5…6	2.5…10			2.5…10	1…25 and 1…35	4…25	10…120 + 10…50
Flexible cable with cable end	1 conductor	mm²	1…4	1…6	1…10			2.5…10	1…35	4…50	10…120
	2 conductors	mm²	1…2.5	1…4	1.5…6			2.5…10	1…25 and 1…35	4…16	10…120 + 10…50
Solid cable without cable end	1 conductor	mm²	1…4	1.5…6	1.5…10			2.5…16	1…35	4…50	10…120
	2 conductors	mm²	1…4	1.5…6	2.5…10			2.5…16	1…25 and 1…35	4…25	10…120 + 10…50
Screwdriver	Philips		N° 2	N° 2	N° 2			N° 2	–	–	–
	Flat screwdriver Ø		Ø 6	Ø 6	Ø 6			Ø 6	–	Ø 6…Ø 8	–
Hexagonal key			–	–	–			–	4	4	4
Tightening torque		N.m	1.7	1.7	2.5			1.8	5: ≤ 25 mm² 8: 35 mm²	9	12
Spring terminal connections *(2)*											
Flexible cable without cable end	1 conductor	mm²	2.5 (4: DT25)	4	4	4	–	10	–	–	
	2 conductors	mm²	2.5 (except DT25)	4	4	4	–	–	–	–	
Connection by bars or lugs											
Bar c.s.a.			–	–	–	–		–	–	3 x 16	5 x 25
Lug external Ø		mm	8	8	10	10		8	16.5	17	25
Ø of screw		mm	M3.5	M3.5	M4	M4		M3.5	M6	M6	M8
Screwdriver	Philips		N° 2	N° 2	N° 2	N° 2		N° 2	–	–	–
	Flat screwdriver Ø		Ø 6	Ø 6	Ø 6	Ø 6		Ø 6	–	Ø 8	–
Key for hexagonal headed screw			–	–	–	–		–	10	10	13
Tightening torque		N.m	1.7	1.7	2.5	2.5		1.8	6	9	12
Control circuit connections											
Connection by cable (tightening via screw clamps)											
Flexible cable without cable end	1 conductor	mm²	1…4	1…4	1…4	1…4		1…4	1…4	1…4	1…2.5
	2 conductors	mm²	1…4	1…4	1…4	1…4		1…4	1…4	1…4	1…2.5
Flexible cable with cable end	1 conductor	mm²	1…4	1…4	1…4	1…4		1…4	1…4	1…2.5	1…2.5
	2 conductors	mm²	1…2.5	1…2.5	1…2.5	1…2.5		1…2.5	1…2.5	1…2.5	1…2.5
Solid cable without cable end	1 conductor	mm²	1…4	1…4	1…4	1…4		1…4	1…4	1…4	1…2.5
	2 conductors	mm²	1…4	1…4	1…4	1…4		1…4	1…4	1…4	1…2.5
Screwdriver	Philips		N° 2	N° 2	N° 2	N° 2		N° 2	N° 2	N° 2	N° 2
	Flat screwdriver Ø		Ø 6	Ø 6	Ø 6	Ø 6		Ø 6	Ø 6	Ø 6	Ø 6
Tightening torque		N.m	1.7	1.7	1.7	1.7		1.7	1.7	1.2	1.2
Spring terminal connections *(2)*											
Flexible cable without cable end	1 conductor	mm²	2.5	2.5	2.5	2.5	–	2.5	0.75…2.5	–	–
	2 conductors	mm²	2.5	2.5	2.5	2.5	–	2.5	0.75…2.5	–	–
Connection by bars or lugs											
Lug external Ø		mm	8	8	8	8		8	8	8	8
Ø of screw		mm	M3.5	M3.5	M3.5	M3.5		M3.5	M3.5	M3.5	M3.5
Screwdriver	Philips		N° 2	N° 2	N° 2	N° 2		N° 2	N° 2	N° 2	N° 2
	Flat screwdriver Ø		Ø 6	Ø 6	Ø 6	Ø 6		Ø 6	Ø 6	Ø 6	Ø 6
Tightening torque		N.m	1.7	1.7	1.7	1.7		1.7	1.7	1.2	1.2

*(1) BTR screws: hexagon socket head. In accordance with local electrical wiring regulations, a size 4 insulated Allen key must be used (reference **LAD ALLEN4**, see page 5/85).*
(2) If cable ends are used, choose the next size down (example: for 2.5 mm², use 1.5 mm²) and square crimp the cable ends using a special tool.

Contactor type			LC1		D09 (3P)	DT20 D098	D12 (3P)	DT25 D128	D18 (3P)	DT32 D188	D25 (3P)	DT40 D258
Pole characteristics												
Rated operational current (Ie) (Ue ≤ 440 V)	In AC-3, θ ≤ 60 °C			**A**	9		12		18		25	
	In AC-1, θ ≤ 60 °C			**A**	25 *(1)*	20	25 *(1)*	25	32 *(1)*	32	40 *(1)*	40
Rated operational voltage (Ue)	Up to			**V**	690		690		690		690	
Frequency limits	Of the operational current			**Hz**	25…400		25…400		25…400		25…400	
Conventional thermal current (Ith)	θ ≤ 60 °C			**A**	25 *(1)*	20	25 *(1)*	25	32 *(1)*	32	40 *(1)*	40
Rated making capacity (440 V)	Conforming to IEC 60947			**A**	250		250		300		450	
Rated breaking capacity (440 V)	Conforming to IEC 60947			**A**	250		250		300		450	
Permissible short time rating No current flowing for preceding 15 minutes with θ ≤ 40 °C	For 1 s			**A**	210		210		240		380	
	For 10 s			**A**	105		105		145		240	
	For 1 min			**A**	61		61		84		120	
	For 10 min			**A**	30		30		40		50	
Fuse protection against short-circuits (U ≤ 690 V)	Without thermal overload relay, gG fuse	type 1		**A**	25		40		50		63	
		type 2		**A**	20		25		35		40	
	With thermal overload relay			**A**	See pages 6/20 to 6/22, for aM or gG fuse ratings corresponding to the associated thermal overload relay							
Average impedance per pole	At Ith and 50 Hz			**mΩ**	2.5		2.5		2.5		2	
Power dissipation per pole for the above operational currents	AC-3			**W**	0.20		0.36		0.8		1.25	
	AC-1			**W**	1.56		1.56		2.5		3.2	
Control circuit characteristics, a.c. supply												
Rated control circuit voltage (Uc)			50/60 Hz	**V**	12…690							
Control voltage limits												
50 or 60 Hz coils	Operation				–							
	Drop-out				–							
50/60 Hz coils	Operation				0.8…1.1 Uc on 50 Hz and 0.85…1.1 Uc on 60 Hz at 60 °C							
	Drop-out				0.3…0.6 Uc at 60 °C							
Average consumption at 20 °C and at Uc	∼ 50 Hz	Inrush	50 Hz coil	**VA**	–							
			Cos φ		0.75							
			50/60 Hz coil	**VA**	70							
		Sealed	50 Hz coil	**VA**	–							
			Cos φ		0.3							
			50/60 Hz coil	**VA**	7							
	∼ 60 Hz	Inrush	60 Hz coil	**VA**	–							
			Cos φ		0.75							
			50/60 Hz coil	**VA**	70							
		Sealed	60 Hz coil	**VA**	–							
			Cos φ		0.3							
			50/60 Hz coil	**VA**	7.5							
Heat dissipation	50/60 Hz			**W**	2…3							
Operating time *(2)*		Closing "C"		**ms**	12…22							
		Opening "O"		**ms**	4…19							
Mechanical durability in millions of operating cycles		50 or 60 Hz coil			–							
		50/60 Hz coil on 50 Hz			15							
Maximum operating rate at ambient temperature ≤ 60 °C		In operating cycles per hour			3600							

(1) Versions with spring terminal connections:
*16 A for **LC1 D093** and **LC1 D123** (20 A possible with 2 x 2.5 mm² in parallel),*
*25 A for **LC1 D183** to **LC1 D323** (32 A possible for **LC1 D183** connected with 2 x 4 mm² cables in parallel; 40 A possible for **LC1 D253** and **LC1 D323** connected with 2 x 4 mm² in parallel).*

(2) The closing time "C" is measured from the moment the coil supply is switched on to closure of the main poles. The opening time "O" is measured from the moment the coil supply is switched off to the moment the main poles separate.

D32	D38	D40A	DT60A	D50A	D65A	DT80A	D80	D95	D115	D150
32	38	40	–	50	65	–	80	95	115	150
50 *(1)*	50	60	60	80	80	80	125	125	200	200
690	690	690	690	690	690	690	1000	1000	1000	1000
25…400	25…400	25…400	25…400	25…400	25…400	25…400	25…400	25…400	25…400	25…400
50	50	60	60	80	80	80	125	125	200	200
550	550	800	800	900	1000	1000	1100	1100	1260	1660
550	550	800	800	900	1000	1000	1100	1100	1100	1400
430	430	720	720	810	900	900	990	1100	1100	1400
260	310	320	320	400	520	520	640	800	950	1200
138	150	165	165	208	260	260	320	400	550	580
60	60	72	72	84	110	110	135	135	250	250
63	63	80	80	100	125	125	200	200	250	315
63	63	80	80	100	125	125	160	160	200	250
See pages 6/20 to 6/22 for aM or gG fuse ratings corresponding to the associated thermal overload relay										
2	2	1.5	1.6	1.5	1.5	1.6	0.8	0.8	0.6	0.6
2	3	2.4	–	3.7	6.3	–	5.1	7.2	7.9	13.5
5	5	5.4	5.8	9.6	9.6	10.2	12.5	12.5	24	24
12…690	12…690								24…500	
–	–						0.85…1.1 Uc at 55 °C			
–	–						0.3…0.6 Uc at 55 °C		0.3…0.5 Uc at 55 °C	
0.8…1.1 Uc on 50 Hz and 0.85…1.1 Uc on 60 Hz at 60 °C	0.8…1.1 Uc on 50 Hz and 0.85…1.1 Uc on 60 Hz at 60 °C						0.8…1.1 Uc on 50 Hz and 0.85…1.1 Uc on 60 Hz at 55 °C		0.8…1.15 Uc on 50/60 Hz at 55 °C	
0.3…0.6 Uc at 60 °C	0.3…0.6 Uc at 60 °C						0.3…0.6 Uc at 55 °C		0.3…0.5 Uc at 55 °C	
–	–						200		300	–
0.75	0.75						0.75		0.8	0.9
70	160						245		280…350	280…350
–	–						20		22	–
0.3	0.3						0.3		0.3	0.9
7	15						26		2…18	2…18
–	–						220		300	–
0.75	0.75						0.75		0.8	0.9
70	140						245		280…350	280…350
–	–						22		22	–
0.3	0.3						0.3		0.3	0.9
7.5	13						26		2…18	2…18
2…3	4…5						6…10		3…8	3…4.5
12…22	12…26	12…26	12…26	12…26	12…26		20…35	20…35	20…50	20…35
4…19	4…19	4…19	4…19	4…19	4…19		6…20	6…20	6…20	40…75
–	–	–	–	–	–		10	10	8	–
15	6	6	6	6	6		4	4	8	8
3600	3600	3600	3600	3600	3600		3600	3600	2400	1200

Contactor type				LC1 D09…D38 LC1 DT20…DT40	LC1 D40A…D65A LC1 DT60A and DT80A	LC1 or LP1 D80 LC1 D95	LC1 D115 and LC1 D150
d.c. control circuit characteristics							
Rated control circuit voltage (Uc)	⎓		**V**	12…440	12…440		24…440
Rated insulation voltage	Conforming to IEC 60947-1		**V**	690			
	Conforming to UL, CSA		**V**	600			
Control voltage limits	Operation	Standard coil		0.7…1.25 Uc at 60 °C	0.75…1.25 Uc at 60 °C	0.85…1.1 Uc at 55 °C	0.75…1.2 Uc at 55 °C
		Wide range coil		–	–	0.75…1.2 Uc at 55 °C	–
	Drop-out			0.1…0.25 Uc at 60 °C	0.1…0.3 Uc at 60 °C	0.1…0.3 Uc at 55 °C	0.15…0.4 Uc at 55 °C
Average consumption at 20 °C and at Uc	⎓	Inrush	**W**	5.4	19	22	270…365
		Sealed	**W**	5.4	7.4	22	2.4…5.1
Operating time *(1)* **average at Uc**	Closing	"C"	**ms**	63 ± 15 %	50 ± 15%	95…130	20…35
	Opening	"O"	**ms**	20 ± 20 %	20 ± 20%	20…35	40…75
				Note: *The arcing time depends on the circuit switched by the poles. For all normal 3-phase applications, the arcing time is less than 10 ms. The load is isolated from the supply after a time equal to the sum of the opening time and the arcing time.*			
Time constant (L/R)			**ms**	28	34	75	25
Mechanical durability at Uc	In millions of operating cycles			30	10	10	8
Maximum operating rate at ambient temperature ≤ 60 °C	In operating cycles per hour			3600	3600	3600	1200
Low consumption control circuit characteristics							
Rated insulation voltage	Conforming to IEC 60947-1		**V**	690	–		
	Conforming to UL, CSA		**V**	600	–		
Maximum voltage	Of the control circuit on ⎓		**V**	250	–		
Average consumption d.c. at 20 °C and at Uc	Wide range coil (0.7…1.25 Uc)	Inrush	**W**	2.4	–		
		Sealed	**W**	2.4	–		
Operating time *(1)* at Uc and at 20 °C	Closing	"C"	**ms**	77 ± 15 %	–		
	Opening	"O"	**ms**	25 ± 20 %	–		
Voltage limits (θ ≤ 60 °C) of the control circuit	Operation			0.8 to 1.25 Uc	–		
	Drop-out			0.1…0.3 Uc	–		
Time constant (L/R)			**ms**	40	–		
Mechanical durability	In millions of operating cycles			30	–		
Maximum operating rate at ambient temperature ≤ 60 °C	In operating cycles per hour			3600	–		

(1) The operating times depend on the type of contactor electromagnet and its control mode.
The closing time "C" is measured from the moment the coil supply is switched on to initial contact of the main poles.
The opening time "O" is measured from the moment the coil supply is switched off to the moment the main poles separate

Characteristics of auxiliary contacts incorporated in the contactor

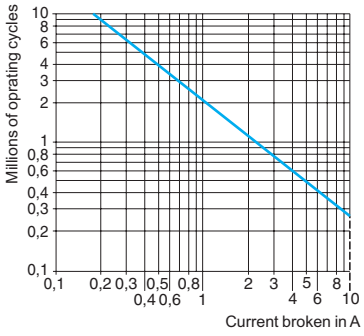
Mechanically linked contacts	Conforming to IEC 60947-5-1			Each contactor has 2 N/O and N/C contacts mechanically linked on the same movable contact holder
Mirror contact	Conforming to IEC 60947-4-1			The N/C contact on each contactor represents the state of the power contacts and can be connected to a PREVENTA safety module
Rated operational voltage (Ue)	Up to		**V**	690
Rated insulation voltage (Ui)	Conforming to IEC 60947-1		**V**	690
	Conforming to UL, CSA		**V**	600
Conventional thermal current (Ith)	For ambient temperature ≤ 60 °C		**A**	10
Frequency of the operational current			**Hz**	25…400
Minimum switching capacity $\lambda = 10^{-8}$	U min		**V**	17
	I min		**mA**	5
Short-circuit protection	Conforming to IEC 60947-5-1			gG fuse: 10 A
Rated making capacity	Conforming to IEC 60947-5-1, I rms		**A**	∿: 140, ⎓: 250
Short-time rating	Permissible for	1 s	**A**	100
		500 ms	**A**	120
		100 ms	**A**	140
Insulation resistance			**MΩ**	> 10
Non-overlap time	Guaranteed between N/C and N/O contacts		**ms**	1.5 (on energisation and on de-energisation)

Operational power of contacts conforming to IEC 60947-5-1

a.c. supply, categories AC-14 and 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).

V	**24**	**48**	**115**	**230**	**400**	**440**	**600**
1 million operating cycles	**VA**	60	120	280	560	960	1050	1440
3 million operating cycles	**VA**	16	32	80	160	280	300	420
10 million operating cycles	**VA**	4	8	20	40	70	80	100

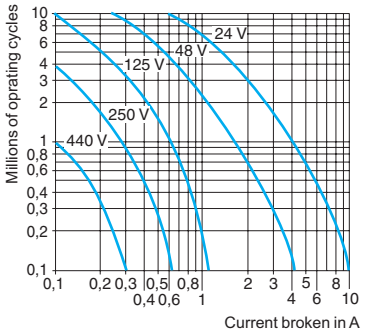
AC-15



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.

V	**24**	**48**	**125**	**250**	**440**
W	96	76	76	76	44
W	48	38	38	32	–
W	14	12	12	–	–

DC-13



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TeSys contactors
Auxiliary contact blocks without dust and damp protected contacts for TeSys D contactors

Contact block type				LAD N or LAD C	LAD T and LAD S	LAD R	LAD 8
Environment							
Conforming to standards				IEC 60947-5-1, NF C 63-140, VDE 0660, BS 4794, EN 60947-5-1			
Product certifications				UL, CSA			
Protective treatment	Conforming to IEC 60068			"TH"			
Degree of protection	Conforming to VDE 0106			Protection against direct finger contact IP 2X			
Ambient air temperature around the device	Storage		**°C**	- 60…+ 80			
	Operation		**°C**	- 5…+ 60			
	Permissible for operation at Uc		**°C**	- 40…+ 70			
Maximum operating altitude	Without derating		**m**	3000			
Connection by cable	Phillips N° 2 and Ø 6 mm Flexible or solid cable with or without cable end		**mm²**	Min: 1 x 1; max: 2 x 2.5			
Spring terminal connections	Flexible or solid cable without cable end		**mm²**	Max: 2 x 2.5			
Instantaneous and time delay contact characteristics							
Number of contacts				1, 2 or 4	2	2	2
Rated operational voltage (Ue)	Up to		**V**	690			
Rated insulation voltage (Ui)	Conforming to IEC 60947-5-1		**V**	690			
	Conforming to UL, CSA		**V**	600			
Conventional thermal current (Ith)	For ambient temperature ≤ 60 °C		**A**	10			
Frequency of the operational current			**Hz**	25…400			
Minimum switching capacity		U min	**V**	17			
		I min	**mA**	5			
Short-circuit protection	Conforming to IEC 60947-5-1 and VDE 0660. gG fuse		**A**	10			
Rated making capacity	Conforming to IEC 60947-5-1	I rms	**A**	∼: 140; ⎓: 250			
Short-time rating	Permissible for	1 s	**A**	100			
		500 ms	**A**	120			
		100 ms	**A**	140			
Insulation resistance			**MΩ**	> 10			
Non-overlap time	Guaranteed between N/C and N/O contacts		**ms**	1.5 (on energisation and on de-energisation)			
Overlap time	Guaranteed between N/C and N/O contacts on **LAD C22**		**ms**	1.5	–	–	–
Time delay (LADT, R and S contact blocks) Accuracy only valid for setting range indicated on the front face	Ambient air temperature for operation		**°C**	–	- 40…+ 70	- 40…+ 70	–
	Repeat accuracy			–	± 2 %	± 2 %	–
	Drift up to 0.5 million operating cycles			–	+ 15 %	+ 15 %	–
	Drift depending on ambient air temperature			–	0.25 % per °C	0.25 % per °C	–
Mechanical durability	In millions of operating cycles			30	5	5	30
Operational power of contacts				See page 5/58			

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References : pages 5/79 and 5/80
Dimensions : pages 5/92 and 5/93
Schemes : pages 5/96 and 5/97

TeSys contactors

Auxiliary contact blocks with dust and damp protected contacts for TeSys D contactors

Contact block type				LA1 DX	LA1 DZ		LA1 DY
					Protected	Non protected	
Environment							
Conforming to standards				IEC60947-5-1, VDE0660			
Product certifications				UL, CSA			
Protective treatment	Conforming to IEC 60068			"TH"			
Degree of protection	Conforming to VDE 0106			Protection against direct finger contact IP 2X			
Ambient air temperature	Storage and operation		**°C**	- 25…+ 70			
Cabling	Phillips N° 2 and Ø 6 mm Flexible or solid conductor with or without cable end		**mm²**	Min: 1 x 1; max: 2 x 2.5			
Number of contacts				2	2	2	2
Contact characteristics							
Rated operational voltage (Ue)	Up to		**V**	50	50	690	24
Rated insulation voltage (Ui)	Conforming to IEC 60947-5-1		**V**	250	250	690	250
	Conforming to UL, CSA		**V**	–	–	600	–
Conventional thermal current (Ith)	For ambient temperature ≤ 40 °C		**A**	–	–	10	–
Maximum operational current (Ie)			**mA**	500	500	–	50
Frequency of the operational current			**Hz**	–	–	25…400	–
Minimum switching capacity		U min	**V**	3	3	3	3
		I min	**mA**	0.3	0.3	0.3	0.3
Short-circuit protection	Conforming to IEC 609475-1 gG fuse		**A**	–	–	10	–
Rated making capacity	Conforming to IEC 609475-1	I rms	**A**	–	–	∼:140; ⎓: 250	–
Short-time rating	Permissible for	1 s	**A**	–	–	100	–
		500 ms	**A**	–	–	120	–
		100 ms	**A**	–	–	140	–
Insulation resistance			**MΩ**	> 10	> 10	> 10	> 10
Mechanical durability	In millions of operating cycles			5	5	30	5
Materials and technology used for dust and damp protected contacts				Silver - Single **break**	Silver - Single **break**	–	Gold - Single break with **crossed bars**

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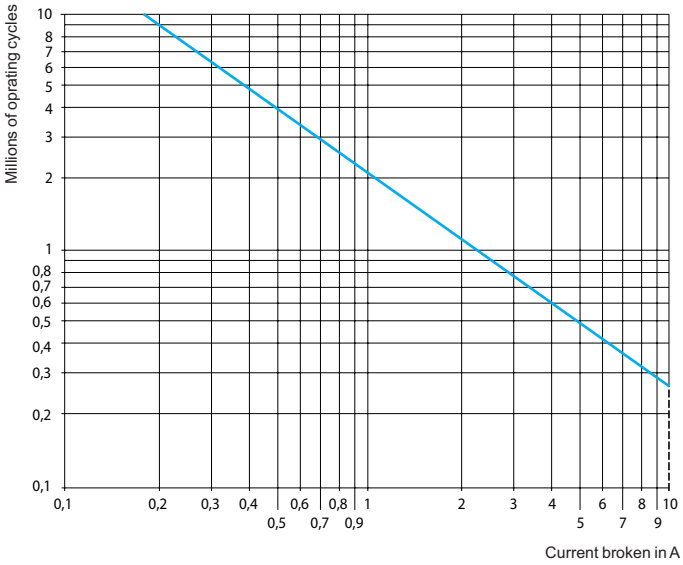
References : page 5/79
Dimensions : pages 5/92 and 5/93
Schemes : pages 5/96 and 5/97

Rated operational power of contacts (conforming to IEC 60947-5-1)

a.c. supply, categories AC-14 and 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).

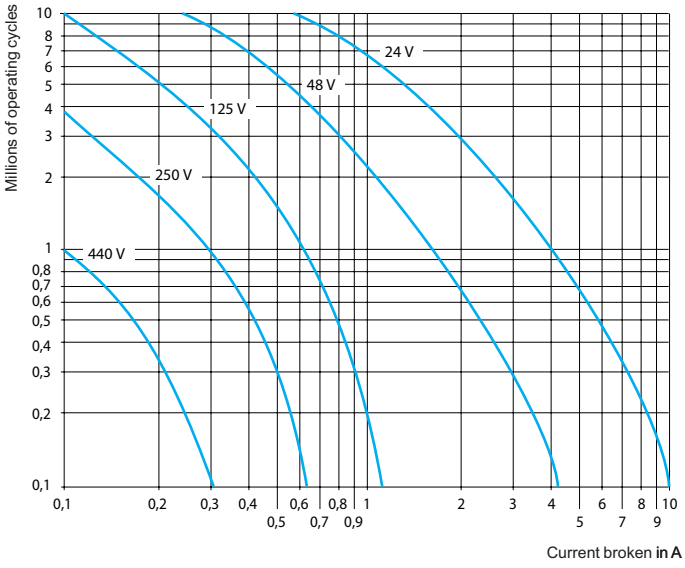
	V	24	48	115	230	400	440	600
1 million operating cycles	**VA**	60	120	280	560	960	1050	1440
3 million operating cycles	**VA**	16	32	80	160	280	300	420
10 million operating cycles	**VA**	4	8	20	40	70	80	100



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.

	V	24	48	125	250	440
1 million operating cycles	**W**	120	90	75	68	61
3 million operating cycles	**W**	70	50	38	33	28
10 million operating cycles	**W**	25	18	14	12	10



References :
pages 5/79 to 5/83

Dimensions :
pages 5/92 and 5/93

Schemes :
pages 5/96 and 5/97

TeSys contactors
Control modules, coil suppressor modules and mechanical latch blocks for TeSys D contactors

Environment

Conforming to standards			IEC 60947-5-1
Product certifications			UL, CSA
Protective treatment	Conforming to IEC 60068		"TH"
Degree of protection	Conforming to VDE 0106		Protection against direct finger contact IP 2X
Ambient air temperature around the device	Storage	**°C**	– 40…+ 80
	Operation	**°C**	– 25…+ 55
	Permissible for operation at Uc	**°C**	– 25…+ 70

Suppressor modules

Module type			**LA4 DA, LAD 4RC, LAD 4RC3**	**LA4 DB, LAD 4T, LAD 4T3**	**LA4 DC, LAD 4D3**	**LA4 DE, LAD 4V, LAD 4V3**
Type of protection			RC circuit	Bidirectional peak limiting diode	Diode	Varistor
Rated control circuit voltage (Uc)		**V**	∼ 24…415	∼ or ⎓ 24…440	⎓ 12…250	∼ or ⎓ 24…250
Maximum peak voltage			3 Uc	2 Uc	Uc	2 Uc
Natural RC frequency	24/48 V	**Hz**	400	–	–	–
	50/127 V	**Hz**	200	–	–	–
	110/240 V	**Hz**	100	–	–	–
	380/415 V	**Hz**	150	–	–	–

Mechanical latch blocks *(1)*

Mechanical latch block type			**LAD 6K10**	**LA6 DK20**
For use on contactor			**LC1 D09…D65A DT20…DT80A**	**LC1 D80…D150 LP1 D80 and LC1 D115**
Product certifications			UL, CSA	UL, CSA
Rated insulation voltage	Conforming to IEC 60947-5-1	**V**	690	690
Rated control circuit voltage	∼ 50/60 Hz and ⎓	**V**	24…415	24…415
Power required	For unlatching ∼	**VA**	25	25
	⎓	**W**	30	30
Maximum operating rate	In operating cycles/hour		1200	1200
On-load factor			10 %	10 %
Mechanical durability at Uc	In millions of operating cycles		0.5	0.5

(1) Unlatching can be manually operated or electrically controlled (pulsed).
*The **LA6 DK** or **LAD 6K** latch coil and the **LC1 D** operating coil must not be energised simultaneously.*
*The duration of the **LA6 DK** or **LAD 6K** and **LC1 D** control signals must be ⩾ 100 ms.*

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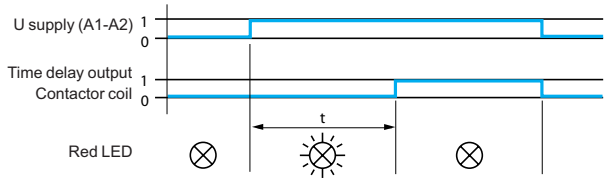
References : pages 5/80 to 5/83
Dimensions : pages 5/92 and 5/93
Schemes : pages 5/96 and 5/97

TeSys contactors
Electronic serial timer module for TeSys D contactors

Module type			LA4 DT (On-delay)
Environment			
Conforming to standards			IEC 60255-5
Product certifications			UL, CSA
Protective treatment	Conforming to IEC 60068		"TH"
Degree of protection	Conforming to VDE 0106		Protection against direct finger contact IP 2X
Ambient air temperature around the device	Storage	**°C**	– 40…+ 80
	Operation	**°C**	– 25…+ 55
	For operation at Uc	**°C**	– 25…+ 70
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	**V**	250
Cabling	Phillips n° 2 and Ø 6 mm Flexible or solid conductor with or without cable end	**mm²**	Min: 1 x 1; max: 2 x 2.5
Control circuit characteristics			
Built-in protection	Of the input		By varistor
	Contactor coil suppression		By varistor
Rated control circuit voltage (Uc)		**V**	∿ or ⎓ : 24…250
Permissible variation			0.8…1.1 Uc
Type of control			By mechanical contact only
Timing characteristics			
Timing ranges		**s**	0.1…2; 1.5…30; 25…500
Repeat accuracy	0…40 °C		± 3 % (10 ms minimum)
Reset time	During time delay period	**ms**	150
	After time delay period	**ms**	50
Immunity to microbreaks	During time delay period	**ms**	10
	After time delay period	**ms**	2
Minimum control pulse duration		**ms**	–
Time delay signalling	By LED		Illuminates during time delay period
Switching characteristics (solid state type)			
Maximum power dissipated		**W**	2
Leakage current		**mA**	< 5
Residual voltage		**V**	3.3
Overvoltage protection			3 kV; 0.5 joule
Electrical durability	In millions of operating cycles		30

Function diagram

Electronic on-delay timer LA4 DT



References : page 5/83
Dimensions : pages 5/92 and 5/93
Schemes : pages 5/96 and 5/97

TeSys contactors
Interface modules for TeSys D contactors

Environment

Conforming to standards			IEC 60255-5
Product certifications			UL, CSA
Protective treatment	Conforming to IEC 60068		"TH"
Degree of protection	Conforming to VDE 0106		Protection against direct finger contact IP 2X
Ambient air temperature around the device	Storage	**°C**	– 40…+ 80
	Operation	**°C**	– 25…+ 55
	Permissible for operation at Uc	**°C**	– 25…+ 70

Other characteristics

Module type				**LA4 DFB** With relay	**LA4 DWB** Solid state
Conventional thermal current (Ith)	For ambient temperature ≤ 50 °C		**A**	8	
Rated insulation voltage	Conforming to IEC 60947-5-1		**V**	250	
Rated operational voltage	Conforming to IEC 60947-5-1		**V**	250	
Indication of input state				By integral LED which illuminates when the contactor coil is energised	
Input signals	Control voltage (E1-E2)		**V**	⎓ 24	⎓ 24
	Permissible variation		**V**	17…30	5…30
	Current consumption at 20 °C		**mA**	25	8.5 for 5 V 15 for 24 V
	State "0" guaranteed for	U	**V**	< 2.4	< 2.4
		I	**mA**	< 2	< 2
	State "1" guaranteed for	U	**V**	17	5
Built-in protection	Against reversed polarity			By diode	By diode
	Of the input			By diode	By diode
Electrical durability at 220 A/240 V	In millions of operating cycles			10	20
Maximum immunity to microbreaks			**ms**	4	1
Power dissipated	At 20 °C		**W**	0.6	0.4
Direct mounting on contactor	With coil	∼ 24…250 V		**LC1 D80…D150**	–
		∼ 100…250 V		–	**LC1 D80…D115**
		∼ 380…415 V		–	–
Mounting with cabling adapter LAD 4BB	With coil	∼ 24…250 V		**LC1 D09…D38, LC1 DT20…DT40**	**LC1 D09…D38, LC1 DT20…DT40**
		∼ 380…415 V		–	–
Mounting with cabling adapter LAD 4BB3	With coil	∼ 24…250 V		**LC1 D40A…D65A**	**LC1 D40A…D65A**
		∼ 380…415 V		**LC1 D40A…D65A**	**LC1 D40A…D65A**

Total operating time at Uc (of the contactor)

The operating times depend on the type of contactor electromagnet and its control mode. The closing time "C" is measured from the moment the coil supply is switched on to initial contact of the main poles. The opening time "O" is measured from the moment the coil supply is switched off to the moment the main poles separate.

			LC1 D09…D38, LC1 DT20…DT40	**LC1 D40A…D65A**	**LC1 D80 and D95**
With **LA4 DFB**	"C"	**ms**	20…30	28…34	28…43
	"O"	**ms**	16…24	20…24	18…32

Cabling	Phillips N° 2 and Ø 6 mm Flexible or solid cable with **or without cable end**	**mm²**	Min: 1 x 1; max: 2 x 2.5

References : page 5/83
Dimensions : pages 5/92 and 5/93
Schemes : pages 5/96 and 5/97

TeSys contactors

TeSys D contactors for motor control up to 75 kW at 400 V, in category AC-3

For connection by screw clamp terminals and lugs

526216

LC1 D09●●

526217

LC1 D25●●

526218

LC1 D65A●●

526219

LC1 D95●●

526220

LC1 D115●●

3-pole contactors

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3 (θ ≤ 60 °C)							Rated operational current in AC-3 440 V up to	Instantaneous auxiliary contacts		Basic reference, to be completed by adding the control voltage code *(2)*	Weight *(3)*
220 V 230 V	380 V 400 V	415 V	440 V	500 V	660 V 690 V	1000 V				Fixing *(1)*	
kW	kW	kW	kW	kW	kW	kW	A				kg
Connection by screw clamp terminals											
2.2	4	4	4	5.5	5.5	–	**9**	1	1	**LC1 D09●●**	0.320
3	5.5	5.5	5.5	7.5	7.5	–	**12**	1	1	**LC1 D12●●**	0.325
4	7.5	9	9	10	10	–	**18**	1	1	**LC1 D18●●**	0.330
5.5	11	11	11	15	15	–	**25**	1	1	**LC1 D25●●**	0.370
7.5	15	15	15	18.5	18.5	–	**32**	1	1	**LC1 D32●●**	0.375
9	18.5	18.5	18.5	18.5	18.5	–	**38**	1	1	**LC1 D38●●**	0.380
Power connections by EverLink® BTR screw connectors *(4)* and control by spring terminals											
11	18.5	22	22	22	30	–	**40**	1	1	**LC1 D40A●●** *(5)*	0.850
15	22	25	30	30	33	–	**50**	1	1	**LC1 D50A●●** *(5)*	0.855
18.5	30	37	37	37	37	–	**65**	1	1	**LC1 D65A●●** *(5)*	0.860
Connection by screw clamp terminals or connectors											
22	37	45	45	55	45	45	**80**	1	1	**LC1 D80●●**	1.590
25	45	45	45	55	45	45	**95**	1	1	**LC1 D95●●**	1.610
30	55	59	59	75	80	65	**115**	1	1	**LC1 D115●●**	2.500
40	75	80	80	90	100	75	**150**	1	1	**LC1 D150●●**	2.500

Connection by lugs or bars

In the references selected above, insert a figure **6** before the voltage code.
Example: **LC1 D09●●** becomes **LC1 D096●●**.

Separate components

Auxiliary contact blocks and add-on modules: see pages 5/78 to 5/85

(1) LC1 D09 to D65A: clip-on mounting on 35 mm ⊔ rail AM1 DP or screw fixing.
LC1 D80 to D95 ∿: clip-on mounting on 35 mm ⊔ rail AM1 DP or 75 mm ⊔ rail AM1 DL or screw fixing.
LC1 D80 to D95 ⎓ : clip-on mounting on 75 mm ⊔ rail AM1 DL or screw fixing.
LC1 D115 and D150: clip-on mounting on 2 x 35 mm ⊔ rails AM1 DP or screw fixing.
(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

a.c. supply													
Volts	**24**	**42**	**48**	**110**	**115**	**220**	**230**	**240**	**380**	**400**	**415**	**440**	**500**
LC1 D09…D150 (D115 and D150 coils with built-in suppression as standard, by bi-directional peak limiting diode).													
50/60 Hz	B7	D7	E7	F7	FE7	M7	P7	U7	Q7	V7	N7	R7	S7
LC1 D80…D115													
50 Hz	B5	D5	E5	F5	FE5	M5	P5	U5	Q5	V5	N5	R5	S5
60 Hz	B6	–	E6	F6	–	M6	–	U6	Q6	–	–	R6	–

d.c. supply											
Volts	**12**	**24**	**36**	**48**	**60**	**72**	**110**	**125**	**220**	**250**	**440**
LC1 D09…D65A (coils with integral suppression device fitted as standard)											
U 0.75…1.25 Uc	JD	BD	CD	ED	ND	SD	FD	GD	MD	UD	RD
LC1 D80…D95											
U 0.85…1.1 Uc	JD	BD	CD	ED	ND	SD	FD	GD	MD	UD	RD
U 0.75…1.2 Uc	JW	BW	CW	EW	–	SW	FW	–	MW	–	–
LC1 D115 and D150 (coils with integral suppression device fitted as standard)											
U 0.75…1.2 Uc	–	BD	–	ED	ND	SD	FD	GD	MD	UD	RD

Low consumption								
Volts ⎓	**5**	**12**	**20**	**24**	**48**	**110**	**220**	**250**
LC1 D09...D38 (coils with integral suppression device fitted as standard)								
U 0.8…1.25 Uc	AL	JL	ZL	BL	EL	FL	ML	UL

For other voltages between 5 and 690 V, see pages 5/86 to 5/91.
*(3) The weights indicated are for contactors with a.c. control circuit. For d.c. or low consumption control circuit, add 0.160 kg from **LC1 D09** to **D38**, 0.075 kg from **LC1 D40A** to **D65A** and 1 kg for **LC1 D80** and **D95**.*
*(4) BTR screws: hexagon socket head. In accordance with local electrical wiring regulations, a size 4 insulated Allen key must be used (reference **LAD ALLEN4**, see page 5/85).*
*(5) For low consumption kit **LA4 DBL** (see page 5/83).*

TeSys contactors

TeSys D contactors for motor control up to 30 kW at 400 V, in category AC-3

For connection by spring terminals

526221

LC1 D123●●

526222

LC1 D65A3●●

3-pole contactors

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3 (θ ≤ 60 °C)							Rated operational current in AC-3 440 V up to	Instantaneous auxiliary contacts		Basic reference, to be completed by adding the control voltage code *(2)*	Weight *(3)*
220 V 230 V	380 V 400 V	415 V	440 V	500 V	660 V 690 V	1000 V				Fixing *(1)*	
kW	kW	kW	kW	kW	kW	kW	A				kg
Power and control connections by spring terminals											
2.2	4	4	4	5.5	5.5		**9**	1	1	**LC1 D093●●**	0.320
3	5.5	5.5	5.5	7.5	7.5		**12**	1	1	**LC1 D123●●**	0.325
4	7.5	9	9	10	10		**18**	1	1	**LC1 D183●●**	0.330
5.5	11	11	11	15	15		**25**	1	1	**LC1 D253●●**	0.370
7.5	15	15	15	18.5	18.5		**32** *(4)*	1	1	**LC1 D323●●**	0.375
Power connections by EverLink® BTR screw connectors *(5)* **and control by spring terminals**											
11	18.5	22	22	22	30		**40**	1	1	**LC1 D40A3●●** *(6)*	0.850
15	22	25	30	30	33		**50**	1	1	**LC1 D50A3●●** *(6)*	0.855
18.5	30	37	37	37	37		**65**	1	1	**LC1 D65A3●●** *(6)*	0.860

Connection by Faston connectors

These contactors are fitted with Faston connectors: 2 x 6.35 mm on the power poles and 1 x 6.35 mm on the coil and auxiliary terminals.
For contactors LC1 D09 and LC1 D12 only, replace the figure **3** with a **9** in the references selected above.
Example: **LC1 D093●●** becomes **LC1 D099●●**.

Separate components

Auxiliary contact blocks and add-on modules: see pages 5/78 to 5/85.

(1) LC1 D09 to D32: clip-on mounting on 35 mm ⊔ rail AM1 DP or screw fixing.
(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

a.c. supply												
Volts	**24**	**42**	**48**	**110**	**115**	**220**	**230**	**240**	**380**	**400**	**415**	**440**
LC1 D09…D65A												
50/60 Hz	B7	D7	E7	F7	FE7	M7	P7	U7	Q7	V7	N7	R7
d.c. supply												
Volts	**12**	**24**	**36**	**48**	**60**	**72**	**110**	**125**	**220**	**250**	**440**	
LC1 D09…D65A (coils with built-in suppression as standard, by bi-directional peak limiting diode)												
U 0.75…1.25 Uc	JD	BD	CD	ED	ND	SD	FD	GD	MD	UD	RD	
Low consumption												
Volts ⎓	**5**	**12**	**20**	**24**	**48**	**110**	**220**	**250**				
LC1 D09...D32 (coils with integral suppression device fitted as standard)												
U 0.8…1.25 Uc	AL	JL	ZL	BL	EL	FL	ML	UL				

For other voltages between 5 and 690 V, see pages 5/86 to 5/91.
(3) The weights indicated are for contactors with a.c. control circuit.
*For d.c. or low consumption control circuit, add 0.160 kg from **LC1 D09** to **D32** and 0.075 kg from **LC1 D40A** to **D65A**.*
*(4) Must be wired with 2 x 4 mm² cables in parallel on the upstream side. On the downstream side, outgoing terminal block **LAD 331** may be used (Quickfit technology, see page 1/197). When wired with a single cable, the product is limited to 25 A (11 kW/400 V motors).*
*(5) BTR screws: hexagon socket head. In accordance with local electrical wiring regulations, a size 4 insulated Allen key must be used (reference **LAD ALLEN4**, see page 5/85).*
*(6) For low consumption kit **LA4 DBL** (see page 5/83).*

5

TeSys contactors

TeSys D, 3-pole contactors
for control in category AC-1, from 25 to 200 A

526230

LC1 D09●●

526231

LC1 D65A●●

5

3-pole contactors

Non inductive loads maximum current ($\theta \leq 60$ °C) utilisation category AC-1	Number of poles	Instantaneous auxiliary contacts		Basic reference, to be completed by adding the control voltage code *(1)* / Fixing *(2)*	Weight *(3)*
A					**kg**
Connection by screw clamp terminals					
25	3	1	1	**LC1 D09●●**	0.320
				or **LC1 D12●●**	0.325
32	3	1	1	**LC1 D18●●**	0.330
40	3	1	1	**LC1 D25●●**	0.370
50	3	1	1	**LC1 D32●●**	0.375
				or **LC1 D38●●**	0.380
Connection by EverLink®, BTR screw connectors *(4)*					
60	3	1	1	**LC1 D40A●●** *(7)*	0.850
80	3	1	1	**LC1 D50A●●** *(7)*	0.855
				or **LC1 D65A●●** *(5) (7)*	0.860
Connection by screw clamp terminals or connectors					
125	3	1	1	**LC1 D80●●**	1.590
				or **LC1 D95●●** *(5)*	1.610
200	3	1	1	**LC1 D115●●**	2.500
				or **LC1 D150●●** *(6)*	2.500

3-pole contactors for connection by lugs

In the references selected above, insert a figure **6** before the voltage code.
Example: **LC1 D09●●** becomes **LC1 D096●●**.

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

a.c. supply													
Volts	**24**	**42**	**48**	**110**	**115**	**220**	**230**	**240**	**380**	**400**	**415**	**440**	**500**
LC1 D09...D150 (coils D115 and D150 fitted with integral suppression device as standard)													
50/60 Hz	B7	D7	E7	F7	FE7	M7	P7	U7	Q7	V7	N7	R7	–
LC1 D80...D150													
50 Hz	B5	D5	E5	F5	FE5	M5	P5	U5	Q5	V5	N5	R5	S5
60 Hz	B6	–	E6	F6	–	M6	–	U6	Q6	–	–	R6	–
d.c. supply													
Volts	**12**	**24**	**36**	**48**	**60**	**72**	**110**	**125**	**220**	**250**	**440**		
LC1 D09...D65A (coils with integral suppression device fitted as standard)													
U 0.7…1.25 Uc	JD	BD	CD	ED	ND	SD	FD	GD	MD	UD	RD		
LC1 or LP1 D80 and **D95**													
U 0.85…1.1 Uc	JD	BD	CD	ED	ND	SD	FD	GD	MD	UD	RD		
U 0.75…1.2 Uc	JW	BW	CW	EW	–	SW	FW	–	MW	–	–		
LC1 D115 and **D150** (coils with integral suppression device fitted as standard)													
U 0.75…1.2 Uc	–	BD	–	ED	ND	SD	FD	GD	MD	UD	RD		
Low consumption													
Volts ⎓	**5**	**12**	**20**	**24**	**48**	**110**	**220**	**250**					
LC1 D09...D38 (coils with integral suppression device fitted as standard)													
U 0.8…1.25 Uc	AL	JL	ZL	BL	EL	FL	ML	UL					

For other voltages between 5 and 690 V, see pages 5/86 to 5/91.
*(2) **LC1 D09** to **D65A**: clip-on mounting on 35 mm ⊔ rail **AM1 DP** or screw fixing.*
__LC1 D80__ and __D95__ ∿: clip-on mounting on 35 mm ⊔ rail __AM1 DP__ or 75 mm ⊔ rail __AM1 DL__ or screw fixing.
__LC1__ or __LP1 D80__ to __D95__ ⎓: clip-on mounting on 75 mm ⊔ rail __AM1 DL__ or screw fixing.
__LC1 D115__ and __D150__: clip-on mounting on 2 x 35 mm ⊔ rails __AM1 DP__ or screw fixing.
(3) The weights indicated are for contactors with a.c. control circuit. For d.c. or low consumption control circuit, add 0.160 kg from __LC1 D09__ to __D38__, 0.075 kg from __LC1 D40A__ to __D65A__ and 1 kg for __LC1 D80__ and __D95__.
(4) BTR screws: hexagon socket head. In accordance with local electrical wiring regulations, a size 4 insulated Allen key must be used (reference __LAD ALLEN4__, see page 5/85).
(5) Selection according to the number of operating cycles, see AC-1 curve, page 5/198.
(6) 32 A with 2 x 4 mm² cables connected in parallel.
(7) For low consumption kit __LA4 DBL__ (see page 5/83).

Selection : pages 5/194 to 5/225 | Characteristics : pages 5/50 to 5/55 | Dimensions : pages 5/92 to 5/95 | Schemes : pages 5/96 and 5/97

TeSys contactors
TeSys D, 3-pole contactors
For control in category AC-1, 25 to 200 A

526232

LC1 D123●●

3-pole contactors for connection by Faston connectors

These contactors are fitted with Faston connectors: 2 x 6.35 mm on the power poles and 1 x 6.35 mm on the coil terminals. For contactors LC1 D09 and LC1 D12 only, in the references selected from the previous page, insert a figure **9** before the voltage code. Example: **LC1 D09●●** becomes **LC1 D099●●**.

3-pole contactors

Non inductive loads maximum current ($\theta \leq 60$ °C) utilisation category AC-1	Number of poles	Instantaneous auxiliary contacts			Basic reference, to be completed by adding the control voltage code *(1)* / Fixing *(2)*	Weight *(3)*
A						**kg**
Connection by spring terminals						
16	3	1	1		**LC1 D093●●** *(4)*	0.320
				or	**LC1 D123●●** *(4)*	0.325
25	3	1	1		**LC1 D183●●** *(5)*	0.335
				or	**LC1 D253●●** *(6)*	0.325
				or	**LC1 D323●●** *(6)*	0.325
Power connections by EverLink® BTR screw connectors *(7)* **and control by spring terminals**						
60	3	1	1		**LC1 D40A3●●** *(9)*	0.850
80	3	1	1		**LC1 D50A3●●** *(8)* *(9)*	0.855
				or	**LC1 D65A3●●** *(8)* *(9)*	0.860

526233

LC1 D65A3●●

Separate components

Auxiliary contact blocks and add-on modules: see pages 5/78 to 5/85.

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

a.c. supply													
Volts	**24**	**42**	**48**	**110**	**115**	**220**	**230**	**240**	**380**	**400**	**415**	**440**	**500**
LC1 D09...D65A													
50/60 Hz	B7	D7	E7	F7	FE7	M7	P7	U7	Q7	V7	N7	R7	S7
d.c. supply													
Volts	**12**	**24**	**36**	**48**	**60**	**72**	**110**	**125**	**220**	**250**	**440**		
LC1 D09...D65A (coils with integral suppression device fitted as standard)													
U 0.75…1.25 Uc	JD	BD	CD	ED	ND	SD	FD	GD	MD	UD	RD		
Low consumption													
Volts ⎓	**5**	**12**	**20**	**24**	**48**	**110**	**220**	**250**					
LC1 D09...D38 (coils with integral suppression device fitted as standard)													
U 0.8…1.25 Uc	AL	JL	ZL	BL	EL	FL	ML	UL					

For other voltages between 5 and 690 V, see pages 5/86 to 5/91.
*(2) **LC1 D09** to **D65A**: clip-on mounting on 35 mm ⊥ rail **AM1 DP** or screw fixing.*
*(3) The weights indicated are for contactors with a.c. control circuit. For d.c. or low consumption control circuit, add 0.160 kg from **LC1 D09** to **D38** and 0.075 kg from **LC1 D40A** to **D65A**.*
(4) 20 A with 2 x 2.5 mm² cables connected in parallel.
(5) 32 A with 2 x 4 mm² cables connected in parallel.
(6) 40 A with 2 x 4 mm² cables connected in parallel.
*(7) BTR screws: hexagon socket head. In accordance with local electrical wiring regulations, a size 4 insulated Allen key must be used (reference **LAD ALLEN4**, see page 5/85).*
(8) Selection according to the number of operating cycles, see AC-1 curve, page 5/198.
*(9) For low consumption kit **LA4 DBL** (see page 5/83).*

5

TeSys contactors

TeSys D, 4-pole contactors

For control in category AC-1, 25 to 200 A

526227

LC1 DT20●●

526228

LC1 DT80A●●

526229

LC1 D65008●●

4-pole contactors for connection by screw clamp terminals or connectors

Non inductive loads maximum current ($\theta \leq 60$ °C) utilisation category AC-1	Number of poles		Instantaneous auxiliary contacts		Basic reference, to be completed by adding the control voltage code *(1)* / Fixing *(2)*	Weight *(3)*
A						kg
Connection by screw clamp terminals						
20	4	–	1	1	**LC1 DT20●●**	0.365
	2	2	1	1	**LC1 D098●●**	0.365
25	4	–	1	1	**LC1 DT25●●**	0.365
	2	2	1	1	**LC1 D128●●**	0.365
32	4	–	1	1	**LC1 DT32●●**	0.425
	2	2	1	1	**LC1 D188●●**	0.425
40	4	–	1	1	**LC1 DT40●●**	0.425
	2	2	1	1	**LC1 D258●●**	0.425
Connection by EverLink®, BTR screw connectors						
60	4	–	1	1	**LC1 DT60A●●**	1.090
80	4	–	1	1	**LC1 DT80A●●**	1.150
Connection by screw clamp terminals or connectors						
60	2	2	–	–	**LC1 D40008●●**	1.440
					or **LP1 D40008●●**	2.210
80	2	2	–	–	**LC1 D65008●●**	1.450
					or **LP1 D65008●●**	2.220
125	4	–	–	–	**LC1 D80004●●**	1.760
					or **LP1 D80004●●**	2.685
	2	2	–	–	**LC1 D80008●●**	1.840
					or **LP1 D80008●●**	2.910
200	4	–	–	–	**LC1 D115004●●**	2.860

4-pole contactors for connection by lugs or bars

In the references selected above, insert a figure **6** before the voltage code.
Example: **LC1 DT20●●** becomes **LC1 DT206●●**.

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

a.c. supply													
Volts	**24**	**42**	**48**	**110**	**115**	**220**	**230**	**240**	**380**	**400**	**415**	**440**	**500**
LC1 D09...D150 and LC1 DT20...DT80A (coils D115 and D150 fitted with integral suppression device as standard)													
50/60 Hz	B7	D7	E7	F7	FE7	M7	P7	U7	Q7	V7	N7	R7	–
LC1 D80...D115													
50 Hz	B5	D5	E5	F5	FE5	M5	P5	U5	Q5	V5	N5	R5	S5
60 Hz	B6	–	E6	F6	–	M6	–	U6	Q6	–	–	R6	–
d.c. supply													
Volts	**12**	**24**	**36**	**48**	**60**	**72**	**110**	**125**	**220**	**250**	**440**		
LC1 D09...D65A and LC1 DT20...DT80A (coils with integral suppression device fitted as standard)													
U 0.7…1.25 Uc	JD	BD	CD	ED	ND	SD	FD	GD	MD	UD	RD		
LC1 or LP1 D80													
U 0.85…1.1 Uc	JD	BD	CD	ED	ND	SD	FD	GD	MD	UD	RD		
U 0.75…1.2 Uc	JW	BW	CW	EW	–	SW	FW	–	MW	–	–		
LC1 D115 (coils with integral suppression device fitted as standard)													
U 0.75…1.2 Uc	–	BD	–	ED	ND	SD	FD	GD	MD	UD	RD		
Low consumption													
Volts ⎓	**5**	**12**	**20**	**24**	**48**	**110**	**220**	**250**					
LC1 D09...D38 and LC1 DT20...DT40 (coils with integral suppression device fitted as standard)													
U 0.8…1.25 Uc	AL	JL	ZL	BL	EL	FL	ML	UL					

For other voltages between 5 and 690 V, see pages 5/86 to 5/91.

*(2) **LC1 D09** to **D38** and **LC1 DT20** to **DT80A**: clip-on mounting on 35 mm ⊔ rail **AM1 DP** or screw fixing.*
*__LC1 D80__ ∿: clip-on mounting on 35 mm ⊔ rail **AM1 DP** or 75 mm ⊔ rail **AM1 DL** or screw fixing.*
*__LC1__ or __LP1 D80__ ⎓: clip-on mounting on 75 mm ⊔ rail **AM1 DL** or screw fixing.*
*__LC1 D115__ and __D150__: clip-on mounting on 2 x 35 mm ⊔ rails **AM1 DP** or screw fixing.*

*(3) The weights indicated are for contactors with a.c. control circuit. For d.c. or low consumption control circuit, add 0.160 kg from **LC1 D09** to **D38**, 0.075 kg from **LC1 DT60A** and **D80A** and 1 kg for **LC1 D80**.*

Selection : pages 5/194 to 5/225
Characteristics : pages 5/50 to 5/55
Dimensions : pages 5/92 to 5/95
Schemes : pages 5/96 and 5/97

Schneider Electric

TeSys contactors
TeSys D, 4-pole contactors
For control in category AC-1, 25 to 200 A

4-pole contactors

Non inductive loads maximum current ($\theta \leq 60$ °C) utilisation category AC-1	Number of poles		Instantaneous auxiliary contacts		Basic reference, to be completed by adding the voltage code *(1)* Fixing *(2)*	Weight *(3)*
A						kg
Connection by spring terminals						
20	4	–	1	1	**LC1 DT203●●**	0.380
	2	2	1	1	**LC1 D0983●●**	0.380
25	4	–	1	1	**LC1 DT253●●**	0.380
	2	2	1	1	**LC1 D1283●●**	0.380
32	4	–	1	1	**LC1 DT323●●**	0.425
	2	2	1	1	**LC1 D1883●●**	0.425
40	4	–	1	1	**LC1 DT403●●**	0.425
	2	2	1	1	**LC1 D2583●●**	0.425
Connection by by EverLink®, BTR screw connectors and control circuit by spring terminals						
60	4	–	1	1	**LC1 DT60A3●●**	1.090
80	4	–	1	1	**LC1 DT80A3●●**	1.150

Separate components

Auxiliary contact blocks and add-on modules: see pages 5/78 to 5/85.

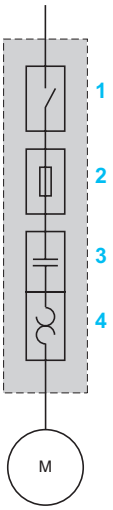
(1) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

a.c. supply													
Volts	**24**	**42**	**48**	**110**	**115**	**220**	**230**	**240**	**380**	**400**	**415**	**440**	**500**
LC1 D09...D25 and LC1 DT20...DT80A (coils with integral suppression device fitted as standard)													
50/60 Hz	B7	D7	E7	F7	FE7	M7	P7	U7	Q7	V7	N7	R7	–
d.c. supply													
Volts	**12**	**24**	**36**	**48**	**60**	**72**	**110**	**125**	**220**	**250**	**440**		
LC1 D09...D25 and LC1 DT20...DT80A (coils with integral suppression device fitted as standard)													
U 0.7…1.25 Uc	JD	BD	CD	ED	ND	SD	FD	GD	MD	UD	RD		
Low consumption													
Volts ⎓	**5**	**12**	**20**	**24**	**48**	**110**	**220**	**250**					
LC1 D09...D25 and LC1 DT20...DT40 (coils with integral suppression device fitted as standard)													
U 0.8…1.25 Uc	AL	JL	ZL	BL	EL	FL	ML	UL					

For other voltages between 5 and 690 V, see pages 5/86 to 5/91.
*(2) **LC1 D09** to **D38** and **LC1 DT20** to **DT80A**: clip-on mounting on 35 mm ⊔ rail **AM1DP** or screw fixing.*
*(3) The weights indicated are for contactors with a.c. control circuit. For d.c. or low consumption control circuit, add 0.160 kg from **LC1 D09** to **D38**, 0.075 kg for **LC1 DT60A** and **DT80A**.*

5

TeSys contactors
for the North American market, conforming to UL and CSA



1 Motor Disconnect (Disconnect switch)
2 Motor Branch Circuit Protection (Short-circuit protection)
3 Motor Controller (Contactor)
4 Motor Overload Protection (Thermal overload relay)

Starters for the North American market

In recent years, the North American market has started to harmonise UL, CSA and ANCE standards, as well as the industrial installation codes provided by national regulations (NEC for the United States, CEC for Canada and MEC for Mexico). *(1)*

Major improvements, carried out by the Canena *(2)* are aimed at harmonising product requirements based on IEC *(3)* standards.

However, the North American codes use specific terminology for defining the functions of a starter.

These functions can be fulfilled by standard IEC products, accompanied by appropriate certifications.

Combination Starters

Combination Starters are the most common type of packaged motor starter. They are called "Combination" because of their structure and their combined functions.

The figure opposite shows the four combined functions that constitute a complete motor starter circuit, defined as a “Motor branch circuit” by the NEC (US National Electric Code) in article 430. Standard UL508 currently gives different types of combination starter that meet the requirements of a "Motor branch circuit".

Type E, called “**self-protected combination starter**”, covers all these functions and can be controlled manually (thermal-magnetic circuit-breaker) or remotely (starter-controller). Type E starters withstand faults within their declared nominal rating without sustaining damage, after which they can be put back into service. In addition, they can withstand more severe short-circuit and durability performance tests without welding or excessive wear of the contact tips.

Type F, called “**Combination motor starter**”, consists of a type E manual starter (thermal-magnetic circuit-breaker) combined with a contactor.
These starters are evaluated by means of basic short-circuit tests, but are not considered as “self-protected”.

For this combination, the type E starter must be marked “Combination Motor Controller when used with ...”, followed by the reference of the load side contactor.

*(1) **UL**: Underwriters Laboratories, **CSA**: Canadian Standards Association, **ACNE**: Association of Standardization and Certification, **NEC**: National Electric Code, **CEC**: Canadian Electrical Code, **MEC**: Mexican Electrical Code.*
*(2) **Canena**: Council for Harmonization of Electrotechnical Standardization of North America.*
*(3) **IEC**: International Electrotechnical Commission.*

Control panels

To help users properly coordinate their motor control equipment with their distribution system in the event of a fault, article 409 of the 2005 NEC requires panel builders to list the short-circuit withstand rating of their motor control panels.

According to standard UL508A, manufacturers must use the short-circuit withstand value of the lowest rated device as the nominal withstand rating of the panel, unless the devices have been tested together for a higher coordinated rating.
The minimum "**short-circuit current rating**" (SCCR), on motor control components for horsepower ratings of 50 hp or below is 5 000 A.

Using a **type E** or **type F** combination starter eliminates the coordination problems of using individual components for the "motor branch circuit protection", "motor controller" and "motor overload protection" functions.

The panel builder uses the declared short-circuit current rating for the combination starter. This value is generally higher than 5 000 A.
This makes it easier to list the short-circuit current ratings and to check the compatibility of a UL508A motor control panel within a given distribution system.

Group protection

Article 430.53 of the NEC allows a single short-circuit protection device to be used for more than one motor circuit if the components used are marked and listed for such use.

Components suitable for use in group protection, known as "**motor group installations**", can be marked in one of the following two ways:

Case n° 1

The contactor and the motor overload relay are both listed as suitable for group installation.
An inverse time circuit-breaker can be used as the short-circuit protection device if it is also listed as suitable for group installation.

The panel builder must therefore make sure that the short-circuit protection device selected (fuses or inverse time circuit-breaker) does not exceed the value allowed by article 430.40 for the smallest overload relay used in the circuit.

Once these conditions have been met, the panel builder can reduce the size of the conductor connecting the short-circuit protection device to the individual motor contactor/overload relay, to one third of the size of the upstream circuit conductor supplying the protection device.

The panel builder must limit the length of the motor starter conductor (connecting the short-circuit protection device to the motor contactor/overload relay) to a maximum of 7.6 m (25 feet).

Case n° 2

The motor contactor and overload relay are listed as suitable for "**tap conductor protection**" in group installations.
This category allows the panel designer to reduce the size of the conductor connecting the short-circuit protection device to the individual motor contactor/overload relay, to one tenth of the size of the upstream circuit conductor supplying the protection device.
The designer must limit the length of this conductor to a maximum of 3.05 m (10 feet).

In both cases, the supply circuits must not be less than 125 % of the connected motor FLA (Full Load Amps) rating.

For panel builders, using **type F** combination starters in group installations simplifies group motor considerations.
Each starter is a fully coordinated motor branch circuit.

The panel builder follows the same NEC requirements for sizing the supply conductors as those required for single motor branch circuits.
The size of the supply conductors can be reduced in accordance with the specifications of article 430.28.
This allows the same flexibility in conductor sizing as that offered in article 430.53 (D), without a requirement to check the short-circuit protection rating marked on the components and the overload relay limit.

A UL508A panel does not need a short-circuit protection device when each motor starter installed is a **type F**.
The upstream short-circuit protection device supplying the starter protects the panel.
The panel builder only has to consider the panel/enclosure disconnect requirements specified by the NEC or local codes.

TeSys contactors
for the North American market,
conforming to UL and CSA standards, 20 to 200 A

526168

LC1 D09●●

526169

LC1 D25●●

526170

LC1 D65A●●

526171

LC1 D95●●

Contactors

Standard power ratings of motors 50/60 Hz						Size	Associated cable type 75 °C-Cu	Continuous current	Type of contactor required Basic reference, to be completed *(1)*
Single-phase 1 Ø		3-phase 3 Ø							Fixing, connection *(2)*
115 V	230 V 240 V	200 V 208 V	230 V 240 V	460 V 480 V	575 V 600 V				
HP	HP	HP	HP	HP	HP			A	
Connection by screw clamp terminals									
0.5	1	2	2	5	7.5	*00*	AWG10	**20**	**LC1 D09●●**
1	2	3	3	7.5	10	*0*	AWG10	**25**	**LC1 D12●●**
1	3	5	5	10	15	*0*	AWG8	**32**	**LC1 D18●●**
2	3	5	7.5	15	20	*1*	AWG6	**40**	**LC1 D25●●**
2	5	7.5	10	20	30	*1*	AWG6	**50**	**LC1 D32●●**
Power connections by EverLink® BTR screw connectors (4) and control by spring terminals									
3	5	10	10	30	30	*2*	AWG3	**60**	**LC1 D40A●●**
3	7.5	15	15	40	40	*2*	AWG3	**70**	**LC1 D50A●●**
5	10	20	20	40	50	*2*	AWG3	**80**	**LC1 D65A●●**
Connection by screw clamp terminals or connectors									
7.5	15	20	25	60	60	*2*	AWG2	**110**	**LC1 D80●●**
7.5	15	20	25	60	60	*2*	AWG2	**110**	**LC1 D95●●**
–	–	30	40	75	100	*3*	AWG2/0	**175**	**LC1 D115●●**
–	–	40	50	100	125	*4*	AWG3/0	**200**	**LC1 D150●●**

Applications with High-Fault Short-Circuit ratings

For contactors **LC1 D40A** to **LC1 D65A**, the High-Fault Short-Circuit ratings are 50 kA at 480 V and 25 kA at 600 V.
If these contactors are used, stick the **LAD UL1** warning sticker on the enclosure door..

Description	Language	Sold in lots of	Reference
Warning sticker	English, Spanish, French	10	**LAD UL1**

Application example

For a 15 HP-230 V motor

Select a contactor type **LC1 D50A**.
Information: the contactor rating selected corresponds to "size 2", the associated cable is type AWG3 75 °C-Cu.

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

a.c. supply													
Volts	**24**	**42**	**48**	**110**	**115**	**220**	**230**	**240**	**380**	**400**	**415**	**440**	**500**
LC1 D09…D150 (D115 and D150 coils with integral suppression device fitted as standard)													
50/60 Hz	B7	D7	E7	F7	FE7	M7	P7	U7	Q7	V7	N7	R7	S7
LC1 D80…D115													
50 Hz	B5	D5	E5	F5	FE5	M5	P5	U5	Q5	V5	N5	R5	S5
60 Hz	B6	–	E6	F6	–	M6	–	U6	Q6	–	–	R6	–
d.c. supply													
Volts	**12**	**24**	**36**	**48**	**60**	**72**	**110**	**125**	**220**	**250**	**440**		
LC1 D09…D65A (coils with integral suppression device fitted as standard)													
U 0.7…1.25 Uc	JD	BD	CD	ED	ND	SD	FD	GD	MD	UD	RD		
LC1 D80 and D95													
U 0.85…1.1 Uc	JD	BD	CD	ED	ND	SD	FD	GD	MD	UD	RD		
U 0.75…1.2 Uc	JW	BW	CW	EW	–	SW	FW	–	MW	–	–		
LC1 D115 and D150 (coils with integral suppression device fitted as standard)													
U 0.75…1.2 Uc	–	BD	–	ED	ND	SD	FD	GD	MD	UD	RD		
Low consumption													
Volts ⎓	**5**	**12**	**20**	**24**	**48**	**110**	**220**	**250**					
LC1 D09…D38 (coils with integral suppression device fitted as standard)													
U 0.7…1.25 Uc	AL	JL	ZL	BL	EL	FL	ML	UL					

*(2) **LC1 D09** to **D65A**: clip-on mounting on 35 mm ⊥ rail **AM1 DP** or screw fixing.*
__LC1 D80__ and __LC1 D95__: clip-on mounting on 35 mm ⊥ rail __AM1 DP__ or 75 mm ⊥ rail __AM1 DL__ or screw fixing.
__LC1 D115__ and __D150__: clip-on mounting on 2 x 35 mm ⊥ rails __AM1 DP__ or screw fixing.

TeSys contactors

TeSys F contactors for motor control in utilisation category AC-3 (115 to 800 A)

Control circuit: a.c. or d.c.

813080

LC1 F225

813079

LC1 F630

5

3-pole contactors

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3							Rated operational current in AC-3	Basic reference, to be completed by adding the voltage code (2)	Weight
220 V 230 V	380 V 400 V	415 V	440 V	500 V	660 V 690 V	1000 V	440 V up to	Screw fixing, cabling (1)	
kW	kW	kW	kW	kW	kW	kW	A		kg
30	55	59	59	75	80	65	**115**	**LC1 F115●●**	3.430
40	75	80	80	90	100	65	**150**	**LC1 F150●●**	3.430
55	90	100	100	110	110	100	**185**	**LC1 F185●●**	4.650
63	110	110	110	129	129	100	**225**	**LC1 F225●●**	4.750
75	132	140	140	160	160	147	**265**	**LC1 F265●●**	7.440
100	160	180	200	200	220	160	**330**	**LC1 F330●●**	8.600
110	200	220	250	257	280	185	**400**	**LC1 F400●●**	9.100
147	250	280	295	355	335	335	**500**	**LC1 F500●●**	11.350
200	335	375	400	400	450	450	**630**	**LC1 F630●●**	18.600
220	400	425	425	450	475	450	**780**	**LC1 F780●●**	39.500
250	450	450	450	450	475	450	**800**	**LC1 F800●●**	18.750

Note: *auxiliary contact blocks, modules and accessories: see pages 5/122 to 5/127.*

(1) Power terminals can be protected against direct finger contact by the addition of shrouds, to be ordered separately, except on contactors LC1 F780 (see page 5/126).

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

Volts ∼	**24**	**48**	**110**	**115**	**120**	**208**	**220**	**230**	**240**	**380**	**400**	**415**	**440**
LC1 F115…F225													
50 Hz (coil LX1)	B5	E5	F5	FE5	–	–	M5	P5	U5	Q5	V5	N5	–
60 Hz (coil LX1)	–	E6	F6	–	G6	L6	M6	–	U6	Q6	–	–	R6
40…400 Hz (coil LX9)	–	E7	F7	FE7	G7	L7	M7	P7	U7	Q7	V7	N7	R7
LC1 F265…F330													
40…400 Hz (coil LX1)	B7	E7	F7	FE7	G7	L7	M7	P7	U7	Q7	V7	N7	R7
LC1 F400…F630													
40…400 Hz (coil LX1)	–	E7	F7	FE7	G7 *(3)*	L7	M7	P7	U7	Q7	V7	N7	R7
LC1 F780													
40…400 Hz (coil LX1)	–	–	F7	FE7	F7	L7	M7	P7	U7	Q7	V7	N7	R7
LC1 F800													
40…400 Hz (coil LX4) *(4)*	–	–	FW	FW	FW	–	MW	MW	MW	QW	QW	QW	–

Volts ⎓	**24**	**48**	**110**	**125**	**220**	**230**	**250**	**400**	**440**
LC1 F115…F330									
(coil LX4 F)	BD	ED	FD	GD	MD	MD	UD	–	RD
LC1 F400…F630									
(coil LX4 F)	–	ED	FD	GD	MD	–	UD	–	RD
LC1 F780									
(coil LX4 F)	–	–	FD	GD	MD	–	UD	–	RD
LC1 F800									
(coil LX4 F)	–	–	FW	FW	MW	MW	–	QW	–

*(3) F7 for **LC1 F630**.*

(4) Coil LX4 F8●● + rectifier DR5TE●●.

Selection : pages 5/194 to 5/217 | Characteristics : pages 5/106 to 5/113 | Dimensions : pages 5/140 to 5/142 | Schemes : page 5/146

TeSys contactors

TeSys F contactors for control in category AC-1, (200 to 2100 A)

Control circuit: a.c. or d.c.

813082

LC1 F1854

813084

LC1 F4004

813083

LC1 F6304

568674

LC1 F1700

568675

LC1 F2100

2, 3 or 4-pole contactors

Maximum current in AC-1 (θ ≤ 40 °C)	Number of poles	Basic reference, to be completed by adding the voltage code *(2)* Screw fixing, cabling *(1)*	Weight
A			kg
200	3	**LC1 F115●●**	3.430
	4	**LC1 F1154●●**	3.830
250	3	**LC1 F150●●**	3.430
	4	**LC1 F1504●●**	3.830
275	3	**LC1 F185●●**	4.650
	4	**LC1 F1854●●**	5.450
315	3	**LC1 F225●●**	4.750
	4	**LC1 F2254●●**	5.550
350	3	**LC1 F265●●**	7.440
	4	**LC1 F2654●●**	8.540
400	3	**LC1 F330●●**	8.600
	4	**LC1 F3304●●**	9.500
500	2	**LC1 F4002●●**	8.000
	3	**LC1 F400●●**	9.100
	4	**LC1 F4004●●**	10.200
700	2	**LC1 F5002●●**	9.750
	3	**LC1 F500●●**	11.350
	4	**LC1 F5004●●**	12.950
1000	2	**LC1 F6302●●**	15.500
	3	**LC1 F630●●**	18.600
	4	**LC1 F6304●●**	21.500
1250	2	**LC1 F6302●●S011**	15.500
	3	**LC1 F630●●S011**	18.600
	4	**LC1 F6304●●S011**	21.500
1600	3	**LC1 F780●●**	39.500
	4	**LC1 F7804●●**	48.000
1700	3	**LC1 F1700**	30.000
2100 *(3)*	3	**LC1 F2100**	31.000

Note: *auxiliary contact blocks, modules and accessories: see pages 5/122 to 5/127*

*(1) Power terminals can be protected against direct finger contact by the addition of shrouds, to be ordered separately (except **LC1 F780, LC1 F1700 and LC1 F2100**), see page 5/126 .*
(2) Standard control circuit voltages, see previous page.
*(3) With set of right-angled connectors **LA9 F2100** (see page 5/125).*

TeSys contactors

TeSys F reversing contactors for motor control in utilisation category AC-3 (115 to 265 A), pre-assembled

Control circuit: a.c. or d.c.

523097

LC2 F115

3-pole reversing contactors (horizontally mounted) *(1)*

Pre-wired power connections

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3							Operational current in AC-3	Maximum operational voltage	Contactors supplied without coil *(2)* Complete reference	Weight
220 V 230 V	380 V 400 V	415 V	440 V	500 V	660 V 690 V	1000 V	440 V up to		Fixing, cabling *(3)*	
kW	kW	kW	kW	kW	kW	kW	A	V		kg
30	55	59	59	75	80	65	**115**	1000	**LC2 F115**	7.560
40	75	80	80	90	100	65	**150**	1000	**LC2 F150**	7.560
55	90	100	100	110	110	100	**185**	1000	**LC2 F185**	10.100
63	110	110	110	129	129	100	**225**	1000	**LC2 F225**	14.200
75	132	140	140	160	160	147	**265**	1000	**LC2 F265**	16.480

Accessories (to be ordered separately)

Description	For reversing contactors	Quantity required	Reference	Weight kg
Power terminal protection shrouds	LC2 F115	2	**LA9 F701**	0.250
	LC2 F150, F185	2	**LA9 F702**	0.250
	LC2 F225, F265	2	**LA9 F703**	0.250
Auxiliary contact blocks and add-on modules	–	–	See pages 5/122 to 5/127	

*(1) Fitted with a mechanical interlock without electrical interlocking. Order separately 2 auxiliary contact blocks **LAD N●1** to obtain electrical interlocking between the 2 contactors, see page 5/123 For accessories, see pages 5/124 to 5/127*

(2) Coils to be ordered separately:
- a.c. supply, see pages 5/130 and 5/131,
- d.c. supply, see page 5/133

(3) Screw fixing.
Power terminals can be protected against direct finger contact by the addition of shrouds, to be ordered separately, see above.

5

Selection: pages 5/194 to 5/217
Dimensions: pages 5/148 to 5/150
Schemes: page 5/151

TeSys contactors

TeSys F changeover contactor pairs for control in utilisation category AC-1 (200 to 350 A), pre-assembled

Control circuit: a.c. or d.c.

526098

LC2 F1854

4-pole changeover contactor pairs (horizontally mounted) *(1)*

Pre-wired power connections

Utilisation category AC-1 Non inductive loads Maximum operational current θ < 40 °C	Maximum operational voltage	Contactors supplied without coil *(2)* Complete reference Fixing, cabling *(3)*	Weight
A	V		kg
200	1000	**LC2 F1154**	8.860
250	1000	**LC2 F1504**	8.860
275	1000	**LC2 F1854**	12.100
315	1000	**LC2 F2254**	15.200
350	1000	**LC2 F2654**	19.480

Accessories (to be ordered separately)

Description	For changeover pairs	Quantity required	Reference	Weight kg
Power terminal protection shrouds	LC2 F1154	2	**LA9 F706**	0.250
	LC2 F1504, F1854	2	**LA9 F707**	0.250
	LC2 F2254, F2654	2	**LA9 F708**	0.250
Auxiliary contact blocks and add-on modules	–	–	See pages 5/122 to 5/127	

*(1) Fitted with a mechanical interlock without electrical interlocking. Order separately 2 auxiliary contact blocks **LAD N●1** to obtain electrical interlocking between the 2 contactors, see page 5/123 For accessories, see pages 5/124 to 5/127*

(2) Coils to be ordered separately:
- a.c. supply, see page 5/130,
- d.c. supply, see page 5/136.

(3) Screw fixing.
Power terminals can be protected against direct finger contact by the addition of shrouds, to be ordered separately, see above.

5

TeSys contactors

TeSys F reversing contactors and changeover contactor pairs

Components for assembling 3-pole reversing contactors and changeover contactor pairs, for customer assembly

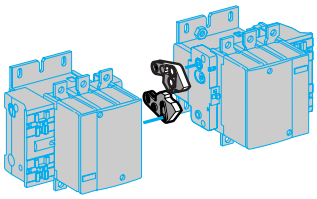
Horizontally mounted

Reversers assembled using 2 contactors of identical rating, type :

LC1 F115
LC1 F150
LC1 F185
LC1 F225
LC1 F265
LC1 F330
LC1 F400
LC1 F500
LC1 F630
LC1 F800

Mechanical interlocks

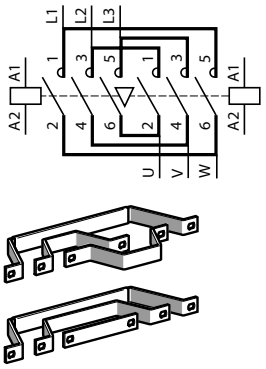
LA9 F●970 *(2)*



Sets of power connections

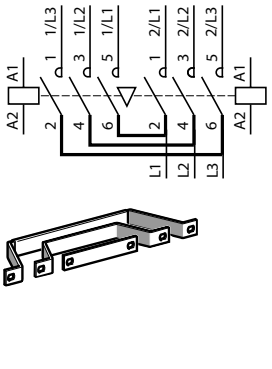
Reversing contactors

LA9 F●●●76 *(2)*



3-pole changeover contactor pairs *(1)*

LA9 F●●●82 *(2)*



Vertically mounted

Reversers assembled using 2 contactors of identical rating, type :

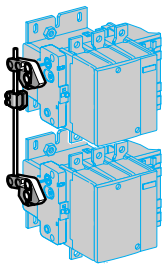
LC1 F115
LC1 F150
LC1 F185
LC1 F225
LC1 F265
LC1 F330
LC1 F400
LC1 F500
LC1 F630
LC1 F800

Reversers assembled using 2 contactors of different ratings, see page 5/120

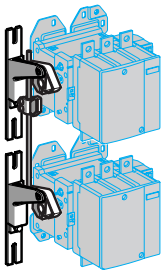
LC1 F780

Mechanical interlocks

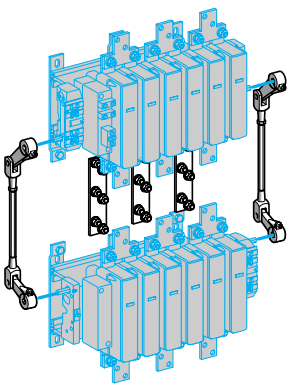
LA9 FF4F
LA9 FG4G



LA9 FH4H
LA9 FJ4J
LA9 FK4K
LA9 FL4L



LA9 FX970



(1) For 4-pole changeover contactor pairs, see pages 5/120 and 5/121
(2) Complete references: see page 5/119.

TeSys contactors

TeSys F reversing contactors and changeover pairs

Components for assembling 3-pole reversing contactors and changeover contactor pairs, for customer assembly
Control circuit: a.c. or d.c.

Reversers assembled using 2 contactors of identical rating

Contactor type (1)	Set of power connections		Mechanical interlock	
	Reference	Weight kg	Kit reference	Weight kg
For assembly of 3-pole reversing contactors for motor control				
Horizontally mounted				
LC1 F115	**LA9 FF976**	0.600	**LA9 FF970**	0.060
LC1 F150	**LA9 F15076**	0.600	**LA9 FF970**	0.060
LC1 F185	**LA9 FG976**	0.780	**LA9 FG970**	0.060
LC1 F225	**LA9 F22576**	1.500	**LA9 FG970**	0.060
LC1 F265	**LA9 FH976**	1.500	**LA9 FJ970**	0.140
LC1 F330	**LA9 FJ976**	2.100	**LA9 FJ970**	0.140
LC1 F400	**LA9 FJ976**	2.100	**LA9 FJ970**	0.140
LC1 F500	**LA9 FK976**	2.350	**LA9 FJ970**	0.140
LC1 F630 or **F800**	**LA9 FL976**	3.800	**LA9 FL970**	0.150
Vertically mounted				
LC1 F115 or **F150**	*(2)*	–	**LA9 FF4F**	0.345
LC1 F185	*(2)*	–	**LA9 FG4G**	0.350
LC1 F225	*(2)*	–	**LA9 FG4G**	0.350
LC1 F265 or **F330**	*(2)*	–	**LA9 FH4H**	1.060
LC1 F400	*(2)*	–	**LA9 FJ4J**	1.200
LC1 F500	*(2)*	–	**LA9 FK4K**	1.200
LC1 F630 or **F800**	*(2)*	–	**LA9 FL4L**	1.220
LC1 F780	*(3)*	–	**LA9 FX970** *(3)*	6.100
For assembly of 3-pole changeover contactor pairs *(4)*				
Horizontally mounted				
LC1 F115	**LA9 FF982**	0.460	**LA9 FF970**	0.060
LC1 F150	**LA9 F15082**	0.460	**LA9 FF970**	0.060
LC1 F185	**LA9 FG982**	0.610	**LA9 FG970**	0.060
LC1 F225	**LA9 F22582**	1.200	**LA9 FG970**	0.060
LC1 F265	**LA9 FH982**	1.200	**LA9 FJ970**	0.140
LC1 F330	**LA9 FJ982**	1.800	**LA9 FJ970**	0.140
LC1 F400	**LA9 FJ982**	1.800	**LA9 FJ970**	0.140
LC1 F500	**LA9 FK982**	2.300	**LA9 FJ970**	0.140
LC1 F630 or **F800**	**LA9 FL982**	3.400	**LA9 FL970**	0.150
Vertically mounted				
LC1 F115 or **F150**	*(2)*	–	**LA9 FF4F**	0.345
LC1 F185	*(2)*	–	**LA9 FG4G**	0.350
LC1 F225	*(2)*	–	**LA9 FG4G**	0.350
LC1 F265 or **F330**	*(2)*	–	**LA9 FH4H**	1.060
LC1 F400	*(2)*	–	**LA9 FJ4J**	1.200
LC1 F500	*(2)*	–	**LA9 FK4K**	1.200
LC1 F630 or **F800**	*(2)*	–	**LA9 FL4L**	1.220
LC1 F780	*(3)*	–	**LA9 FX970** *(3)*	7.800

*(1) To order the 2 contactors: see pages 5/114 and 5/115.For the 2 auxiliary contact blocks **LAD N●1** required to obtain electrical interlocking between the 2 contactors, see page 5/123 For accessories, see pages 5/124 to 5/127*
*(2) With the exception of contactors **LC1 F780**, all power connections are to be made by the customer.*
(3) Double mechanical interlock mechanism with 2 interlock connecting rods and 3 power connecting links.
(4) For assembly of 4-pole changeover contactor pairs, see pages 5/120 and 5/121

5

TeSys contactors

TeSys F changeover contactor pairs

Components for assembling 3 and 4-pole changeover contactor pairs, for customer assembly

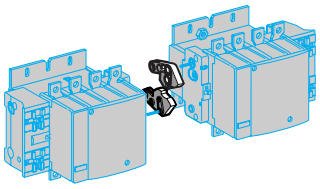
Horizontally mounted

Contactor pairs assembled using 2 contactors of identical rating, type :

LC1 F1154
LC1 F1504
LC1 F1854
LC1 F2254
LC1 F2654
LC1 F3304
LC1 F4004
LC1 F5004
LC1 F6304

Mechanical interlocks

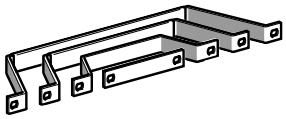
LA9 F●970

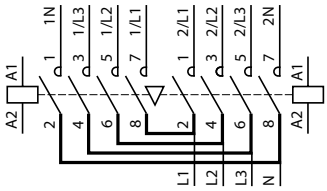


Sets of power connections

4-pole changeover contactor pairs *(1)*

LA9 F●●●77





Vertically mounted

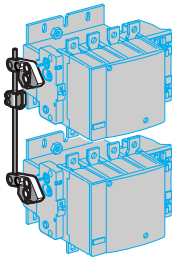
Contactor pairs assembled using 2 contactors of identical rating, type :

LC1 F1154
LC1 F1504
LC1 F1854
LC1 F2254
LC1 F2654
LC1 F3304
LC1 F4004
LC1 F5004
LC1 F6304

Mechanical interlocks

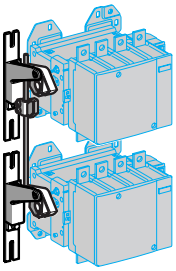
Assembly A

LA9 FF4F
LA9 FG4G



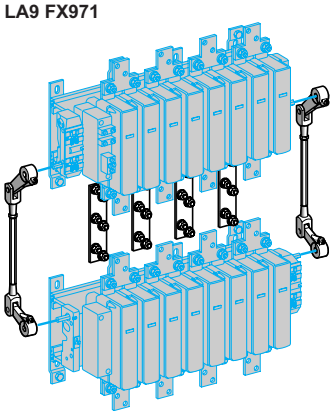
Assembly B

LA9 FH4H
LA9 FJ4J
LA9 FK4K
LA9 FL4L



Assembly C

LA9 FX971



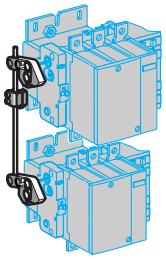
5

Contactor pairs assembled using 2 contactors of different ratings, type :

LC1 F115 or **F1154**
LC1 F150 or **F1504**
LC1 F185 or **F1854**
LC1 F225 or **F2254**
LC1 F265 or **F2654**
LC1 F330 or **F3304**
LC1 F400 or **F4004**
LC1 F500 or **F5004**
LC1 F630 or **F6304**
LC1 F800

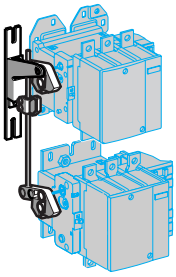
Assembly A

LA9 FG4F



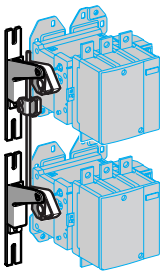
Assembly B

LA9 FH4F, LA9 FH4G
LA9 FJ4F, LA9 FJ4G
LA9 FK4F, LA9 FK4G
LA9 FL4F, LA9 FL4G



Assembly C

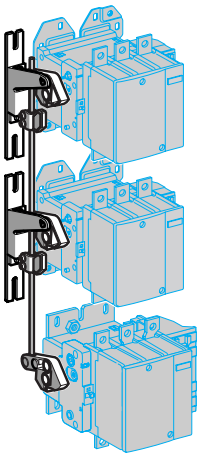
LA9 FJ4H
LA9 FK4H, LA9 FK4J
LA9 FL4H, LA9 FL4J and LA9 FL4K



Contactor pairs assembled using 3 contactors of identical or different ratings, type :

LC1 F115 or **F1154**
LC1 F150 or **F1504**
LC1 F185 or **F1854**
LC1 F225 or **F2254**
LC1 F265 or **F2654**
LC1 F330 or **F3304**
LC1 F400 or **F4004**
LC1 F500 or **F5004**
LC1 F630 or **F6304**
LC1 F800

LA9 F●4●4● : see pages 5/128 and 5/129



Important: the contactor ratings must be in decreasing size from top to bottom.

(1) For 3-pole changeover contactor pairs, see pages 5/118 and 5/119.

TeSys contactors

TeSys F changeover contactor pairs

Components for assembling 3 and 4-pole changeover contactor pairs, for customer assembly
Control circuit: a.c. or d.c.

Contactor pairs assembled using 2 contactors of identical rating

For assembly of 4-pole changeover contactor pairs *(1)*

Contactor type *(2)*	Set of power connections		Mechanical interlock	
	Reference	Weight kg	Kit reference	Weight kg
Horizontally mounted				
LC1 F1154	**LA9 FF977**	0.460	**LA9 FF970**	0.060
LC1 F1504	**LA9 F15077**	0.460	**LA9 FF970**	0.060
LC1 F1854	**LA9 FG977**	0.610	**LA9 FG970**	0.060
LC1 F2254	**LA9 F22577**	1.200	**LA9 FG970**	0.060
LC1 F2654	**LA9 FH977**	1.200	**LA9 FJ970**	0.140
LC1 F3304	**LA9 FJ977**	1.800	**LA9 FJ970**	0.140
LC1 F4004	**LA9 FJ977**	1.800	**LA9 FJ970**	0.140
LC1 F5004	**LA9 FK977**	2.300	**LA9 FJ970**	0.140
LC1 F6304	**LA9 FL977**	3.400	**LA9 FL970**	0.150
Vertically mounted				
LC1 F1154 or **F1504**	*(3)*	–	**LA9 FF4F**	0.345
LC1 F1854	*(3)*	–	**LA9 FG4G**	0.350
LC1 F2254	*(3)*	–	**LA9 FG4G**	0.350
LC1 F2654 or **F3304**	*(3)*	–	**LA9 FH4H**	1.060
LC1 F4004	*(3)*	–	**LA9 FJ4J**	1.200
LC1 F5004	*(3)*	–	**LA9 FK4K**	1.200
LC1 F6304	*(3)*	–	**LA9 FL4L**	1.220
LC1 F7804	*(4)*	–	**LA9 FX971** *(4)*	7.800

Contactor pairs assembled using 2 contactors of different ratings

For assembly of 3 or 4-pole changeover contactor pairs

Contactor type *(1)*		Mechanical interlock	
At bottom	At top	Kit reference	Weight kg
Vertically mounted			
LC1 F115 or **F1154** or **LC1 F150** or **F1504**	**LC1 F185** or **F1854**	**LA9 FG4F**	0.350
	LC1 F225 or **F2254**	**LA9 FG4F**	0.350
	LC1 F265 or **F2654**	**LA9 FH4F**	0.870
	LC1 F330 or **F3304**	**LA9 FH4F**	0.870
	LC1 F400 or **F4004**	**LA9 FJ4F**	0.930
	LC1 F500 or **F5004**	**LA9 FK4F**	0.940
	LC1 F630, F6304 or **F800**	**LA9 FL4F**	0.940
LC1 F185 or **F1854** or **LC1 F225** or **F2254**	**LC1 F265** or **F2654**	**LA9 FH4G**	0.860
	LC1 F330 or **F3304**	**LA9 FH4G**	0.860
	LC1 F400 or **F4004**	**LA9 FJ4G**	0.940
	LC1 F500 or **F5004**	**LA9 FK4G**	0.940
	LC1 F630, F6304 or **F800**	**LA9 FL4G**	0.950
LC1 F265 or **F2654** or **LC1 F330** or **F3304**	**LC1 F400** or **F4004**	**LA9 FJ4H**	1.130
	LC1 F500 or **F5004**	**LA9 FK4H**	1.130
	LC1 F630, F6304 or **F800**	**LA9 FL4H**	1.140
LC1 F400 or **F4004**	**LC1 F500** or **F5004**	**LA9 FK4J**	1.200
	LC1 F630 or **F6304** or **F800**	**LA9 FL4J**	1.210
LC1 F500 or **F5004**	**LC1 F630** or **F6304** or **F800**	**LA9 FL4K**	1.210

For assembly of reversers using 3 contactors, vertically mounted

See pages 5/128 and 5/129.

(1) For assembly of 3-pole changeover contactor pairs, see pages 5/118 and 5/120
(2) To order the 2 contactors: see pages 5/114 and 5/115. For the 2 auxiliary contact blocks ***LAD N●1*** *required to obtain electrical interlocking between the 2 contactors, see page 5/123. For accessories, see pages 5/124 to 5/127*
(3) All power connections are to be made by the customer.
(4) Double mechanical interlock mechanism with 2 interlock connecting rods and 4 power connecting links.

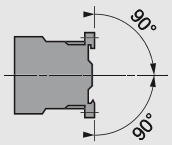
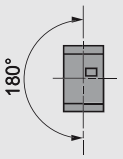
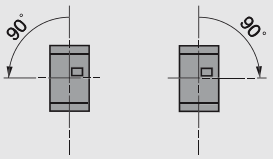
TeSys contactors
From 6 to 16 A

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

5

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
–	–	–
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				**Vertical axis**  Without derating	**Horizontal axis**  Without derating	 Possible positions for **LC● K** only. Contactor pull-in voltage: 0.85 Uc
Connection				**Min.**	**Max.**	**Max. to IEC 60947**
	Screw clamp terminals	Solid conductor	**mm²**	1 x 1.5	2 x 4	1 x 4 + 1 x 2.5
		Flexible conductor without cable end	**mm²**	1 x 0.75	2 x 4	2 x 2.5
		Flexible conductor with cable end	**mm²**	1 x 0.34	1 x 1.5 + 1 x 2.5	1 x 1.5 + 1 x 2.5
	Spring terminals	Solid conductor	**mm²**	1 x 0.75	1 x 1.5	2 x 1.5
		Flexible conductor without cable end	**mm²**	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		Self-extinguishing materials V1		
		Conforming to NF F 16-101 and 16-102		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		

5

References : pages 5/14 to 5/21
Dimensions : pages 5/26 and 5/28
Schemes : pages 5/27 and 5/29

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			
	Maximum rated operational current for a temperature ≤ 70 °C		**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 %

References : pages 5/14 to 5/21
Dimensions : pages 5/26 and 5/28
Schemes : pages 5/27 and 5/29

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.

5

References : pages 5/14 to 5/21
Dimensions : pages 5/26 and 5/28
Schemes : pages 5/27 and 5/29

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).

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

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.

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

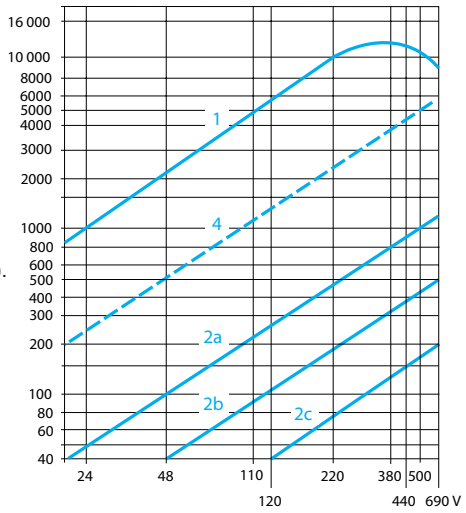
1 Breaking limit of contacts valid for:
- maximum of 50 operating cycles at 10 s intervals (power broken = making current x cos φ 0.7).

2 Electrical durability of contacts for:
- 1 million operating cycles (2a)
- 3 million operating cycles (2b)
- 10 million operating cycles (2c).

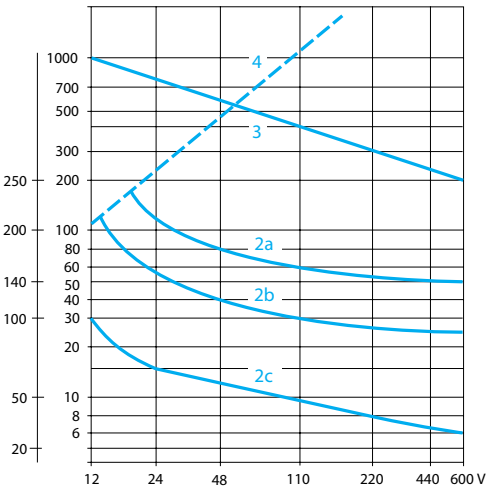
3 Breaking limit of contacts valid for:
- maximum of 20 operating cycles at 10 s intervals with current passing for 0.5 s per operating cycle.

4 Thermal limit.

Power broken in VA



Power broken in W



References : page 5/23
Dimensions : pages 5/26 and 5/28
Schemes : pages 5/27 and 5/29

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.


511137

LC1 K0910●●


511138

LC1 K09103●●


511139

LC1 K09107●●


511140

LC1 K09105●●


511141

LC7 K0910●●

Contactor 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 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	–	**LC1 K0610●●**	0.180
				–	1	**LC1 K0601●●**	0.180
2.2	4	4	**9**	1	–	**LC1 K0910●●**	0.180
				–	1	**LC1 K0901●●**	0.180
3	5.5	4 (> 440)	**12**	1	–	**LC1 K1210●●**	0.180
		5.5 (440)		–	1	**LC1 K1201●●**	0.180
4	7.5	4 (> 440)	**16**	1	–	**LC1 K1610●●**	0.180
		5.5 (440)		–	1	**LC1 K1601●●**	0.180

Spring terminal 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

Selection : pages 5/194 and 5/196 | Characteristics : pages 5/10 to 5/13 | Dimensions : page 5/26 | Schemes : page 5/27

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●●

Contactor 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

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 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	–	**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.

Selection : pages 5/194 and 5/196
Characteristics : pages 5/10 to 5/13
Dimensions : page 5/26
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