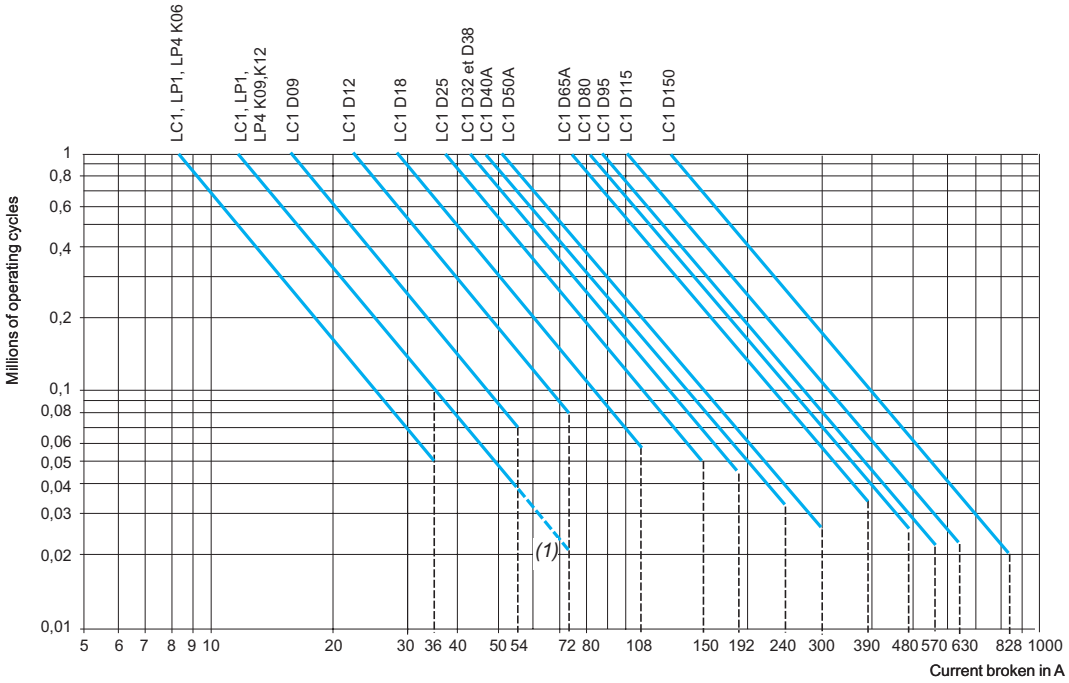
	LC1 D50A	LC1 D65A	LC1 D80	LC1 D95	LC1 D115	LC1 D150	LC1 F185	LC1 F225	LC1 F26	LC1 F330	LC1 F40	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 BL	LC1 BM	LC1 BP	LC1 BR
	300	390	480	570	630	830	1020	1230	1470	1800	2220	2760	3360	4260	3690	4320	5000	7500	9000
	170	210	250	250	540	640	708	810	1020	1410	1830	2130	2760	2910	2910	4000	4800	5400	6600
SFIb	140	160	200	200	280	310	380	420	560	670	780	1100	1400	1600	1600	2250	3000	4500	5400
SFIb	120	148	170	170	250	280	350	400	500	600	700	950	1250	1400	1400	2000	2400	3750	5000
SFIb	100	132	145	145	215	240	300	330	400	500	600	750	950	1100	1100	1500	2000	3000	3600
SFIb	80	110	120	120	150	170	240	270	320	390	450	600	720	820	820	1000	1500	2000	2500
SFIb	70	90	100	100	125	145	170	190	230	290	350	500	660	710	710	750	1000	1500	1800

	LC● D50A	LC● D65A	LC● D80	LC● D95	LC1 D115	LC1 D150	LC1 F185	LC1 F225	LC1 F265	LC1 F330	LC1 F400	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 BL	LC1 BM	LC1 BP	LC1 BR
	5.5	7.5	7.5	9	9	11	18.5	22	28	33	40	45	55	63	63	90	110	150	200
	11	11	15	15	18.5	22	33	40	51	59	75	80	100	110	110	160	160	220	250
	11	11	15	15	18.5	22	37	45	55	63	80	90	100	110	110	160	160	250	280
	11	15	15	15	18.5	22	37	45	59	63	80	100	110	132	132	160	200	250	315
	15	15	22	22	30	37	45	55	63	75	90	110	132	150	150	180	200	250	355
	15	18.5	25	25	30	45	63	75	90	110	129	140	160	185	185	200	250	315	450

TeSys contactors
For utilisation categories AC-2 or AC-4

Selection according to required electrical durability, in categories AC-2 or AC-4 (Ue ⩽ 440 V)

Control of 3-phase asynchronous squirrel cage motors (AC-4) or slip ring motors (AC-2) with breaking whilst motor stalled.
The current broken (Ic) in AC-2 is equal to 2.5 x Ie.
The current broken (Ic) in AC-4 is equal to 6 x Ie. (Ie = rated operational current of the motor).



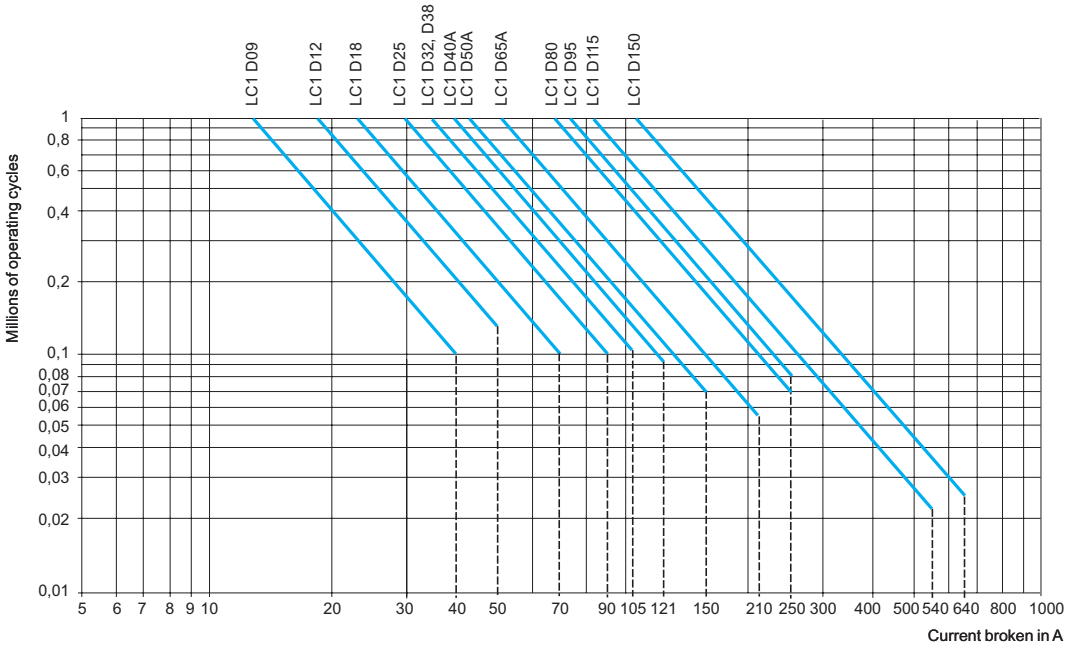
Example:

- Asynchronous motor with P = 5.5 kW - Ue = 400 V - Ie = 11 A. Ic = 6 x Ie = 66 A
- or asynchronous motor with P = 5.5 kW - Ue = 415 V - Ie = 11 A. Ic = 6 x Ie = 66 A.
- 200 000 operating cycles required.
- The above selection curves show the contactor rating needed: LC1 D25.

(1) The dotted lines are only applicable to LC1, LP1 K12 contactors.

Selection according to required electrical durability, use in category AC-4 (440 V < Ue ⩽ 690 V)

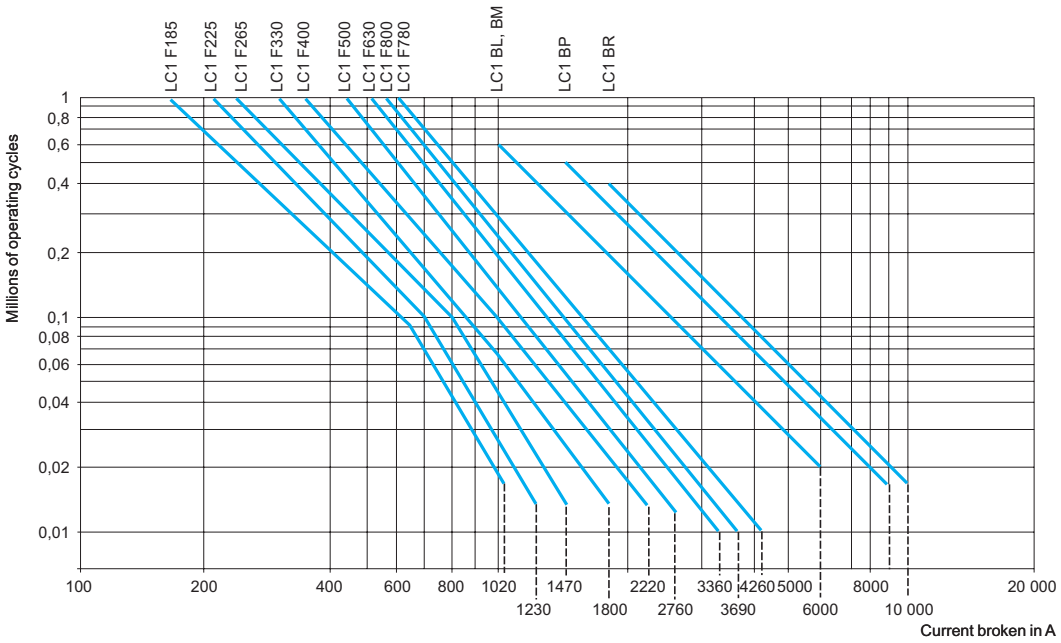
Control of 3-phase asynchronous squirrel cage motors with breaking whilst motor stalled
The current broken (Ic) in AC-2 is equal to 2.5 x Ie.
The current broken (Ic) in AC-4 is equal to 6 x Ie. (Ie = rated operational current of the motor).



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Selection according to required electrical durability, in categories AC-2 or AC-4 (Ue ≤ 440 V)

Control of 3-phase asynchronous squirrel cage motors (AC-4) or slip ring motors (AC-2) with breaking whilst motor stalled.
The current broken (Ic) in AC-4 is equal to 6 x Ie.
(Ie = rated operational current of the motor).



Example:

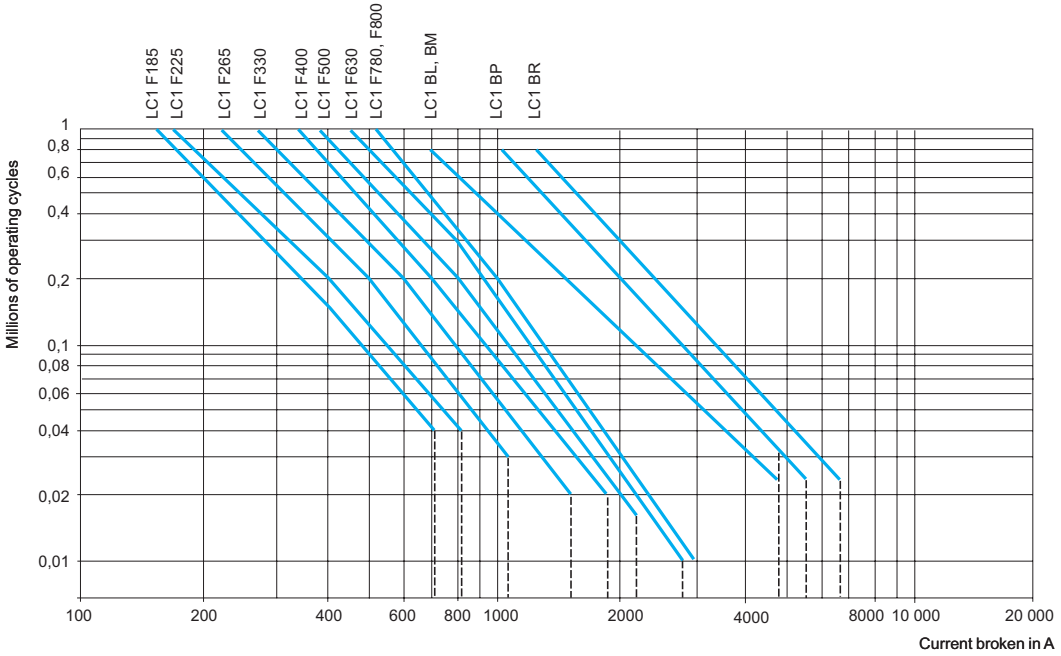
- Asynchronous motor with P = 90 kW - Ue = 380 V - Ie = 170 A. Ic = 6 x Ie = 1020 A

or asynchronous motor with P = 90 kW - Ue = 415 V - Ie = 165 A. Ic = 6 x Ie = 990 A.

- 60 000 operating cycles required.
- The above selection curves show the contactor rating needed: LC1 F265.

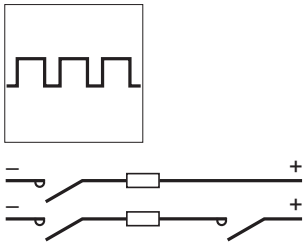
Selection according to required electrical durability, use in category AC-4 (440 V < Ue ≤ 690 V)

Control of 3-phase asynchronous squirrel cage motors with breaking whilst motor stalled.
The current broken (Ic) in AC-4 is equal to 6 x Ie.
(Ie = rated operational current of the motor).



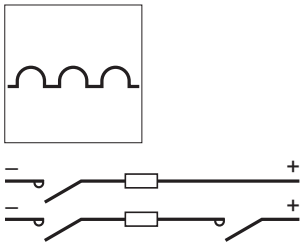
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TeSys contactors
For utilisation categories DC-1 to DC-5



Rated operational current (Ie) in Amperes, in utilisation category DC-1, resistive loads: time constant ≤ 1 ms, ambient temperature ≤ 60 °C

Rated operational voltage Ue	No. of poles connected in series	Contactor rating (1)									
		LC1 D09	LC1 DT20	LC1 D12 DT25	LC1 D18 DT32	LC1 D25 DT40	LC1 DT60	LC1 D32	LC1 D38	LC1 D40A	LC1 DT60A
V											
24	1	20	20	20	25	32	40	40	40	50	50
	2	20	20	20	25	32	40	40	40	50	50
	3	20	20	20	20	32	40	40	40	50	50
	4	–	20	20	–	32	40	–	–	50	50
48/75	1	20	20	20	25	32	40	40	40	50	50
	2	20	20	20	25	32	40	40	40	50	50
	3	20	20	20	25	32	40	40	40	50	50
	4	–	20	20	–	32	40	–	–	50	50
125	1	4	4	4	4	7	7	7	7	7	7
	2	20	20	20	25	32	40	40	40	50	50
	3	20	20	20	25	32	40	40	40	50	50
	4	–	20	20	–	32	40	–	–	50	50
225	1	1	1	1	1	1	1	1	1	1	1
	2	4	4	4	4	7	7	7	7	7	7
	3	20	20	20	25	32	40	40	40	50	50
	4	–	20	20	–	32	40	–	–	50	50
300	3	–	–	–	–	–	–	–	–	–	–
	4	–	20	20	–	32	40	–	–	50	50
460	1	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–
900	2	–	–	–	–	–	–	–	–	–	–
1200	3	–	–	–	–	–	–	–	–	–	–
1500	4	–	–	–	–	–	–	–	–	–	–



Rated operational current (Ie) in Amperes, in utilisation category DC-2 to DC-5, inductive loads: time constant ≤ 15 ms, ambient temperature ≤ 60 °C

Rated operational voltage Ue	No. of poles connected in series	Contactor rating (1)									
		LC1 D09	LC1 DT20	LC1 D12 DT25	LC1 D18 DT32	LC1 D25 DT40	LC1 DT60	LC1 D32	LC1 D38	LC1 D40A	LC1 DT60A
V											
24	1	20	20	20	25	32	40	40	40	50	50
	2	20	20	20	25	32	40	40	40	50	50
	3	20	20	20	25	32	40	40	40	50	50
	4	–	20	20	–	32	40	–	–	50	50
48/75	1	8	8	8	8	32	40	40	40	50	50
	2	20	20	20	25	32	40	40	40	50	50
	3	20	20	20	25	32	40	40	40	50	50
	4	–	20	20	–	32	40	–	–	50	50
125	1	2	2	2	2	3	3	3	3	4	4
	2	15	15	15	15	32	40	40	40	50	50
	3	20	20	20	25	32	40	40	40	50	50
	4	–	20	20	–	32	40	–	–	50	50
225	1	0.5	0.5	0.5	0.5	1	1	1	1	1	1
	2	2	2	2	2	3	3	3	3	4	4
	3	8	8	8	8	32	40	40	40	50	50
	4	–	20	20	–	32	40	–	–	50	50
300	3	–	–	–	–	–	–	–	–	–	–
	4	–	8	8	–	32	40	–	–	50	50
460	1	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–
900	2	–	–	–	–	–	–	–	–	–	–
1200	3	–	–	–	–	–	–	–	–	–	–
1500	4	–	–	–	–	–	–	–	–	–	–

(1) For rated operational currents of contactors LC1 and LP1 K: please consult your Regional Sales Office.

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LC1 D50A	LC1 D65A	LC1 DT80A	LC1/ LP1 D80	LC1 D95	LC1 D115	LC1 D150	LC1 F185	LC1 F225	LC1 F265	LC1 F330	LC1 F400	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 BL	LC1 BM	LC1 BP	LC1 BR
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
–	65	65	100	–	200	–	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
–	65	65	100	–	200	–	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
7	7	7	12	12	200	200	210	230	270	320	380	520	760	1180	760	700	1100	1750	2400
65	65	65	100	100	200	200	210	230	270	320	380	520	760	1180	760	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
–	65	65	100	–	200	–	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
1	1.5	1.5	1.5	1.5	10	10	–	–	–	–	–	–	–	–	–	700	1100	1750	2400
7	7	7	12	12	200	200	190	200	250	280	350	450	700	1000	700	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
–	65	65	100	–	200	–	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
–	–	–	–	–	200	200	190	200	250	280	350	450	700	1000	700	700	1100	1750	2400
–	65	65	100	–	200	–	240	260	300	360	430	580	850	1000	850	700	1100	1750	2400
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	700	1100	1750	2400
–	–	–	–	–	200	–	190	200	250	280	350	450	700	1000	700	700	1100	1750	2400
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	700	1100	1750	2400
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	700	1100	1750	2400
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	700	1100	1750	2400

LC1 D50A	LC1 D65A	LC1 DT80A	LC1 LP1 D80	LC1 D95	LC1 D115	LC1 D150	LC1 F185	LC1 F225	LC1 F265	LC1 F330	LC1 F400	LC1 F500	LC1 F630	LC1 F780	LC1 F800	LC1 BL	LC1 BM	LC1 BP	LC1 BR
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
–	65	65	100	–	200	–	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	–	–	–	–
65	65	65	100	100	200	200	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
–	65	65	100	–	200	–	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
4	4	4	5	5	200	200	–	–	–	–	–	–	–	–	–	700	1100	1750	2400
65	65	65	40	40	200	200	160	180	250	300	350	500	700	1000	700	700	1100	1750	2400
65	65	65	60	60	200	200	240	240	280	310	350	550	850	1000	850	700	1100	1750	2400
–	65	65	72	–	200	–	240	240	280	310	350	550	850	1000	850	700	1100	1750	2400
1	1.5	1.5	2	2	3	3	–	–	–	–	–	–	–	–	–	700	1100	1750	2400
4	4	4	5	5	200	200	140	160	220	280	310	480	680	900	680	700	1100	1750	2400
65	65	65	100	100	200	200	160	180	250	300	350	500	700	1000	700	700	1100	1750	2400
–	65	65	100	–	200	–	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
–	–	–	–	–	200	200	140	160	220	280	310	480	680	900	680	700	1100	1750	2400
–	65	65	100	–	200	–	240	260	300	360	430	580	850	1300	850	700	1100	1750	2400
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	700	1100	1750	2400
–	–	–	–	–	200	–	140	160	220	280	310	480	680	800	680	700	1100	1750	2400
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	700	1100	1750	2400
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	700	1100	1750	2400
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	700	1100	1750	2400

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TeSys contactors
For utilisation categories DC-1 to DC-5

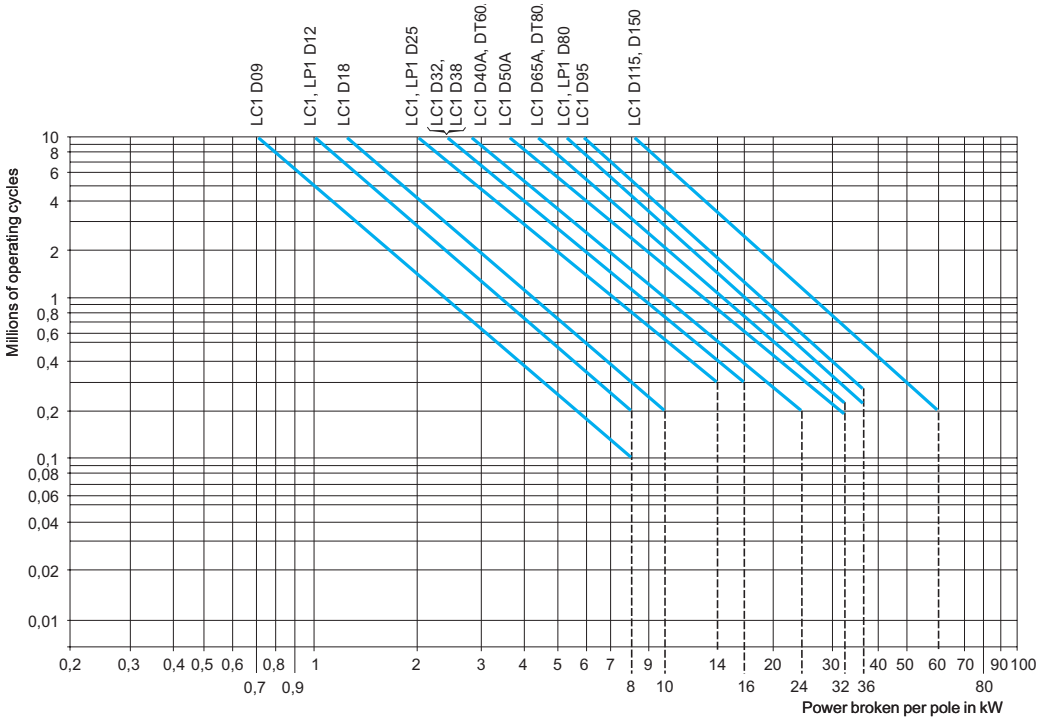
Selection according to required electrical durability, use in categories DC-1 to DC-5

The criteria for contactor selection are:
- the rated operational current Ie,
- the rated operational voltage Ue,
- the utilisation category and the time constant L/R,
- the required electrical durability.

Maximum operating rate (operating cycles)

The following limits must not be exceeded: 120 operating cycles/hour at rated operational current Ie.

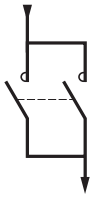
Electrical durability



Example

Series wound motor - P = 1.5 kW - Ue = 200 V - Ie = 7.5 A. Utilisation: reversing, inching.
- Utilisation category = DC-5.
- Select contactor LC1 D25 or LP1 D25 with 3 poles in series.
- The power broken is: Pc total = 2.5 x 200 x 7.5 = 3.75 kW.
- The power broken per pole is: 1.25 kW.
- The electrical durability read from the curve is $\geq 10^6$ operating cycles.

Use of poles in parallel



Electrical durability can be increased by using poles connected in parallel.

With N poles connected in parallel, the electrical durability becomes: electrical durability read from the curves x N x 0.7.

Note; 1

When the poles are connected in parallel, the maximum operational currents indicated on page 134 and 135 must not be exceeded.

Note: 2

Ensure that the connections are made in such a way as to equalise the currents in each pole.

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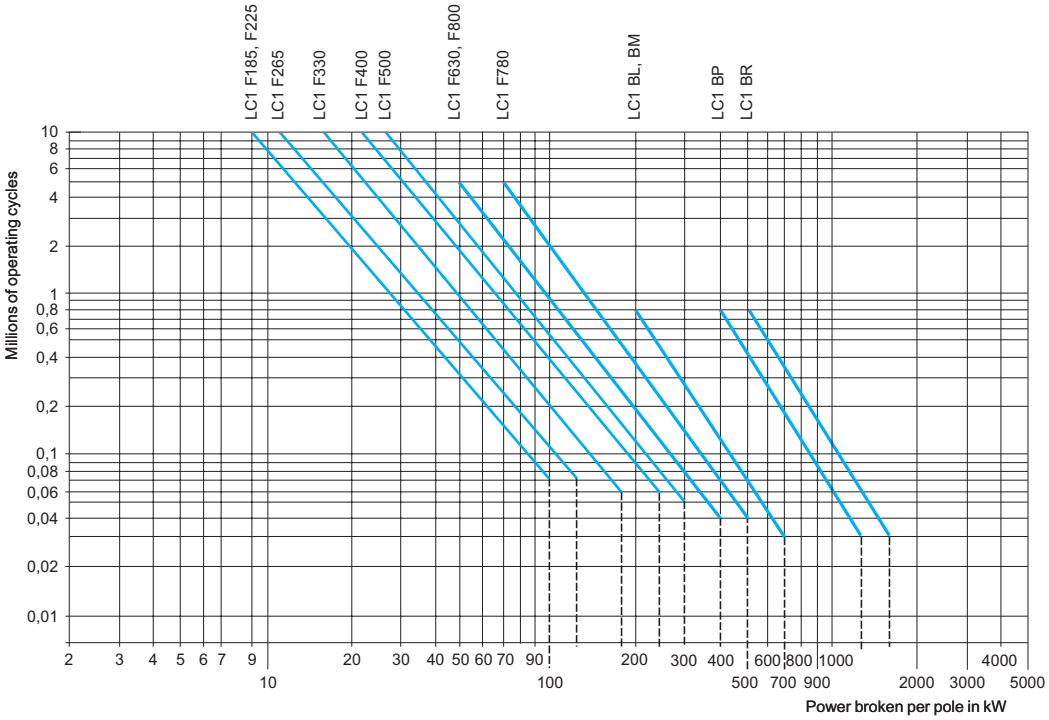
Selection according to required electrical durability, use in categories DC-1 to DC-5

Determining the electrical durability

The electrical durability can be read directly from the curves below, having previously calculated the power broken as follows:
P broken = U broken x I broken.
The tables below give the values of Uc and Ic for the various utilisation categories.

Power broken

Utilisation categories	U broken	I broken	P broken
DC-1 Non inductive or slightly inductive loads	Ue	Ie	Ue x Ie
DC-2 Shunt wound motors, breaking whilst motor running	0.1 Ue	Ie	0.1 Ue x Ie
DC-3 Shunt wound motors, reversing, inching	Ue	2.5 Ie	Ue x 2.5 Ie
DC-4 Series wound motors, breaking whilst motor running	0.3 Ue	Ie	0.3 Ue x Ie
DC-5 Series wound motors, reversing, inching	Ue	2.5 Ie	Ue x 2.5 Ie

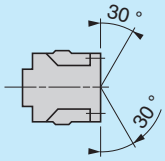
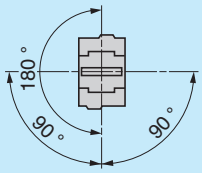
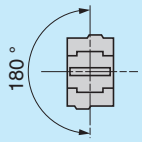
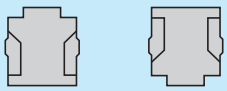


Example

Series wound motor: P = 40 kW - Ue = 200 V - Ie = 200 A. Utilisation: reversing, inching.
Utilisation category = DC-5.

- Select contactor LC1 F265 with 2 poles in series.
- The power broken is: Pc total = 2.5 x 200 x 200 = 100 kW.
- The power broken per pole is 50 kW.
- The electrical durability read from the curve is 400 000 operating cycles.

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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. CCC, GL, DNV, RINA, BV, LROS (pending for contactors LC1 D40A to D65A)				
Degree of protection *(1)* (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 *(2)*	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**	960				
Shock resistance *(3)* 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 *(3)* 5…300 Hz	Contactor open		2 gn				
	Contactor closed		4 gn	4 gn	4 gn	3 gn	4 gn

(1) Protection provided for the cabling c.s.a.'s indicated on the next page and for connection by cable.
(2) When mounting on a vertical rail, use a stop.
(3) Without modifying the contact states, in the most unfavourable direction (coil energised at Ue).

TeSys contactors
TeSys d contactors

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	1.5…10	2.5…10		2.5…10	1…35	4…50	10…120
	2 conductors	mm²	1…4	1.5…6	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…6	1…10		2.5…10	1…35	4…50	10…120
	2 conductors	mm²	1…2.5	1…4	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…6	1.5…10		2.5…16	1…35	4…50	10…120
	2 conductors	mm²	1…4	1.5…6	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		N° 2	–	–	–
	Flat screwdriver Ø		Ø 6	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	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 *(3)*	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 173).*
(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.
*(3) To connect cables with a c.s.a. > 4mm² and up to 10 mm², it is essential to use special connectors, sold in bags of 100 (reference: **LAD 96180**).*

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				250		250		300		450	
Rated breaking capacity (440 V)	Conforming to IEC 60947				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 204 and 205, 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 at 50 Hz and 0.85…1.1 Uc at 60 Hz and 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.

Selection : pages 124 to 137
References: pages 150 to 155
Dimensions: pages 180 to 183
Schemes: pages 184 and 185

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 204 and 205 for aM or gG fuse ratings corresponding to the associated thermal overload relay										
2	2	1.5	1.5	1.5	1	1	0.8	0.8	0.6	0.6
2	3	2.4	–	3.7	4.2	–	5.1	7.2	7.9	13.5
5	5	5.4	5.8	6.0	6.4	6.4	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 DT60 and DT80	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

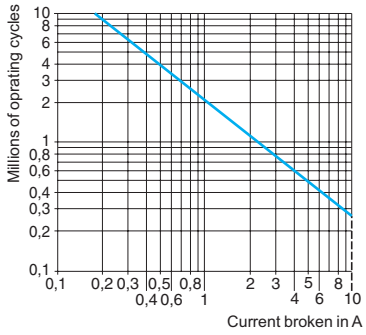
Mechanically linked contacts	Conforming to IEC 60947-5-1			Each contactor has 2 N/O and N/C contacts mechanically linked on the same movable contact holder
Mirror contact	Conforming to IEC 60947-4-1			The N/C contact on each contactor represents the state of the power contacts and can be connected to 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

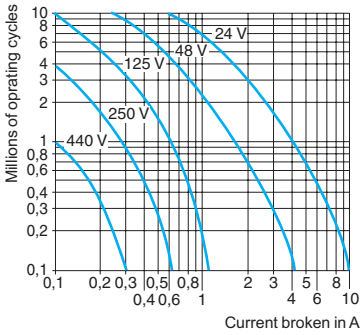
AC-15



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



Selection :
pages 124 to 137

References:
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Dimensions:
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Schemes:
pages 184 and 185

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 146			

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Dimensions : page 180
Schemes : page 184

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**	17	17	17	3
		I min	**mA**	4	4	5	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**

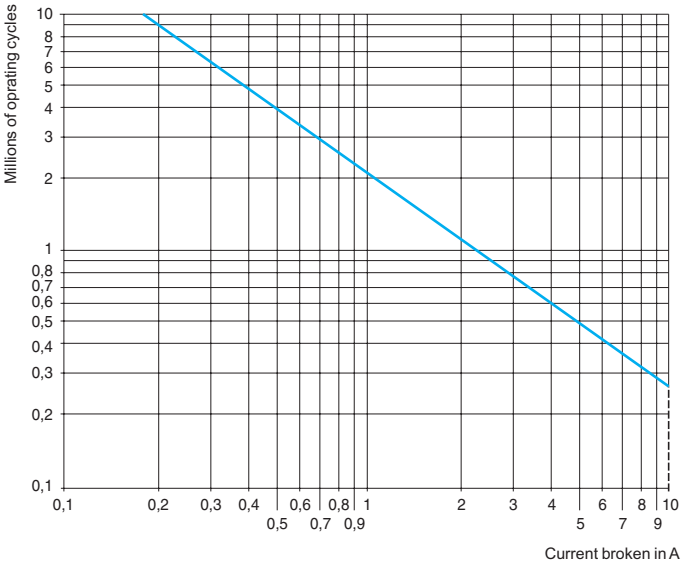
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Rated operational power of contacts (conforming to IEC 60947-5-1)

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).

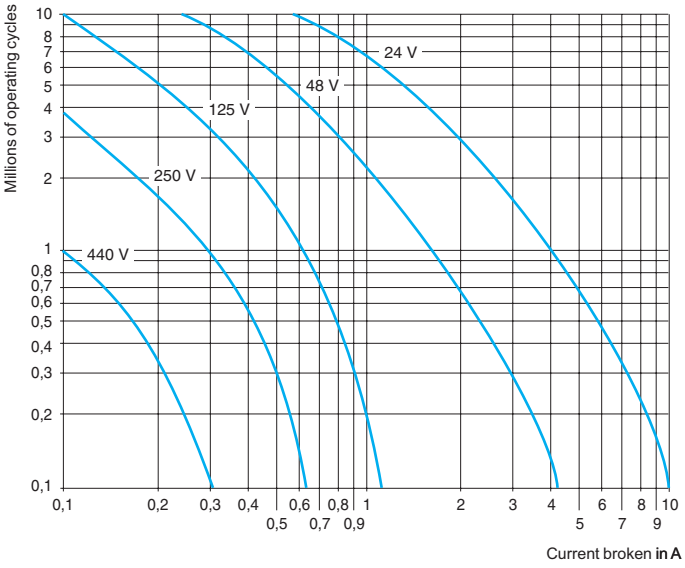
	V	24	48	115	230	400	440	600
1 million operating cycles	VA	60	120	280	560	960	1050	1440
3 million operating cycles	VA	16	32	80	160	280	300	420
10 million operating cycles	VA	4	8	20	40	70	80	100



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 : page 167
Dimensions : page 180
Schemes : page 184

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

Auto-Man-Stop control modules

Recommendation			The Auto - Man selector switch must only be operated with the Start - Stop ("O" "I") switch in position "O"
Rated insulation voltage	Conforming to IEC 60947-5-1	**V**	250
Rated operational voltage	Conforming to IEC 60947-5-1	**V**	250
Protection	Against electric shocks	**kV**	2
Built-in protection	Contactor coil suppression		By varistor
Display	By built-in LED		Illuminates when the contactor coil is energised
Electrical durability	In operating cycles		20 000

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.*

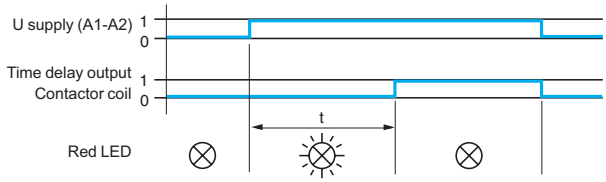
References : page 168 | Dimensions : page 180 | Schemes : page 184

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 171
Dimensions : page 180
Schemes : page 185

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
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 171
Dimensions : page 180
Schemes : page 185

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

810356



LC1 D09●●

810353



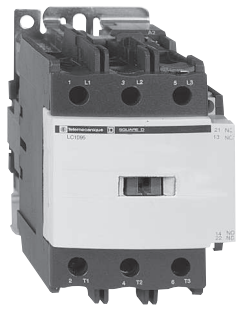
LC1 D25●●

106896



LC1 D65A●●

810352



LC1 D95●●

105517



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 or connectors											
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
11	18.5	22	22	22	30	–	**40**	1	1	**LC1 D40A●●** *(4)*	0.850
15	22	25	30	30	33	–	**50**	1	1	**LC1 D50A●●** *(4)*	0.855
18.5	30	30	30	37	37	–	**65**	1	1	**LC1 D65A●●** *(4)*	0.860
22	37	45	45	55	45	45	**80**	1	1	**LC1 D80●●** *(4)*	1.590
25	45	45	45	55	45	45	**95**	1	1	**LC1 D95●●** *(4)*	1.610
30	55	59	59	75	80	65	**115**	1	1	**LC1 D115●●** *(4)*	2.500
40	75	80	80	90	100	75	**150**	1	1	**LC1 D150●●** *(4)*	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 167 to 173.

(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

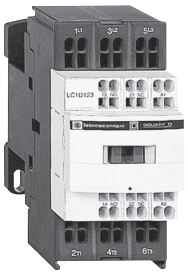
Low consumption								
Volts ⎓	**5**	**12**	**20**	**24**	**48**	**110**	**220**	**250**
LC1 D09...D38 (coils with integral suppression device fitted as standard)								
U 0.8…1.25 Uc	AL	JL	ZL	BL	EL	FL	ML	UL

For other voltages between 5 and 690 V, see pages 174 to 179.
*(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**, 0.100 kg from **LC1 D40A** to **D65A** and 1 kg for **LC1 D80** and **D95**.*
*(4) For low consumption kit **LA4 DBL** (see page 171).*

TeSys contactors

TeSys d contactors
for motor control up to 30 kW at 400 V, in category AC-3
For connection by spring terminals

510671



LC1 D123●●

510670



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 connection by EverLink® BTR screw connectors *(5)* **and control by spring terminals**											
11	18.5	22	22	22	30		**40**	1	1	**LC1 D40A3●●**	0.850
15	22	25	30	30	33		**50**	1	1	**LC1 D50A3●●**	0.855
18.5	30	30	30	37	37		**65**	1	1	**LC1 D65A3●●**	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. It is possible to make 2 x 6.35 mm connections to the coil terminals by using a double Faston connector, reference: LA9 6180, to be ordered separately (sold in lots of 100).
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 167 to 173.

(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 174 to 179.
*(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**.*
*(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 223). 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 173).*

TeSys contactors

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

810356



LC1 D09●●

106896



LC1 D65A●●

3-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 voltage code *(1)* / Fixing *(2)*	Weight *(3)*
A						**kg**
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
60	3	1	1		**LC1 D40A●●** *(6)*	0.850
80	3	1	1		**LC1 D50A●●** *(6)*	0.855
				or	**LC1 D65A●●** *(4) (6)*	0.860
125	3	1	1		**LC1 D80●●**	1.590
				or	**LC1 D95●●** *(4)*	1.610
200	3	1	1		**LC1 D115●●**	2.500
				or	**LC1 D150●●** *(5)*	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 and LC1 DT20...DT40 (coils with integral suppression device fitted 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 D40...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 174 to 179.
*(2) **LC1 D09** to **D38** and **LC1 DT20** to **DT40**: clip-on mounting on 35 mm ⊔ rail **AM1DP** or screw fixing*
*__LC1 D40__ to __D95__ ∿: clip-on mounting on 35 mm ⊔ rail **AM1 DP** or 75 mm ⊔ rail **AM1 DL** or screw fixing.*
*__LC1__ or __LP1 D40__ to __D95__ ⎓: clip-on mounting on 75 mm ⊔ rail **AM1 DL** or screw fixing.*
*__LC1 D115__ and __D150__: clip-on mounting on two 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**, 0.785 kg from **LC1 D40** to **D65** and 1 kg for **LC1 D80** and **D95**.*
(4) Selection according to the number of operating cycles, see AC-1 curve, page 128.
(5) 32 A with 2 x 4 mm² cables connected in parallel.
*(6) For low consumption kit **LA4 DBL** (see page 171).*

Selection : pages 124 to 137
Characteristics : pages 138 to 143
Dimensions : page 180
Schemes : page 184

TeSys contactors

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

102862



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. It is possible to make 2 x 6.35 mm connections to the coil terminals by using a double Faston connector, reference: LAD 99635, to be ordered separately (sold in lots of 100).
For contactors LC1 D09 and LC1 D12 only, in the references selected page 24502/2, insert a figure **9** before the voltage code. Example: **LC1 D09●●** becomes **LC1 D099●●**.

3-pole contactors for connection by spring terminals

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**
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
60	3	1	1		**LC1 D40A3●●** *(8)*	0.850
80	3	1	1		**LC1 D50A3●●** *(8)*	0.855
				or	**LC1 D65A3●●** *(7)* *(8)*	0.860

510670



LC1 D65A3●●

Component parts

Auxiliary contact blocks and add-on modules: see pages 168 to 173.

(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 and LC1 DT20...DT40 (coils with integral suppression device fitted 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 D40...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 174 to 179.
*(2) **LC1 D09** to **D38** and **LC1 DT20** to **DT40**: clip-on mounting on 35 mm ⊔ rail rail **AM1DP** or screw fixing.*
*__LC1 D40__ to __D95__ ∿: clip-on mounting on 35 mm ⊔ rail **AM1 DP** or 75 mm ⊔ rail **AM1 DL** or screw fixing.*
*__LC1__ or __LP1 D40__ to __D95__ ⎓: clip-on mounting on 75 mm ⊔ rail **AM1 DL** or screw fixing.*
*__LC1 D115__ and __D150__: 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**, 0.785 kg from **LC1 D40** to **D65** and 1 kg for **LC1 D80** and **D95**.*
(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) Selection according to the number of operating cycles, see AC-1 curve, page 128.
*(8) For low consumption kit **LA4 DBL** (see page 171).*

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

565131



LC1 DT20●●

537728



LC1 D65●●●

106903



LC1 DT80●●

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 voltage code *(1)* / Fixing *(2)*	Weight *(3)*
A						kg
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
60	4	–	1	1	**LC1 DT60A●●** *(4)*	1.090
	2	2	–	–	**LC1 D40008●●**	1.440
					or **LP1 D40008●●**	2.210
80	4	–	1	1	**LC1 DT80A●●** *(4)*	1.150
	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 Sales Office):

a.c. supply													
Volts	**24**	**42**	**48**	**110**	**115**	**220**	**230**	**240**	**380**	**400**	**415**	**440**	**500**
LC1 D09...D150 and LC1 DT20...DT40 (coils with integral suppression device fitted 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 D40...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 174 to 179.
*(2) **LC1 D09** to **D38** and **LC1 DT20** to **DT40**: clip-on mounting on 35 mm ⊔ rail **AM1DP** or screw fixing.*
__LC1 D40__ to __D95__ ∿: clip-on mounting on 35 mm ⊔ rail __AM1 DP__ or 75 mm ⊔ rail __AM1 DL__ or screw fixing.
__LC1__ or __LP1 D40__ to __D95__ ⎓: clip-on mounting on 75 mm ⊔ rail __AM1 DL__ or screw fixing.
__LC1 D115__ and __D150__: 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__, 0.785 kg from __LC1 D40__ to __D65__ and 1 kg for __LC1 D80__ and __D95__.
*(4) For low consumption kit **LA4 DBL** (see page 171).*

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

4-pole contactors for connection by spring terminals

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
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

4-pole contactors for connection by EverLink®, BTR screw connectors and control circuit by spring terminals

60	4	–	1	1	**LC1 DT60A3●●** *(4)*	1.090
80	4	–	1	1	**LC1 DT80A3●●** *(4)*	1.150

Component parts

Auxiliary contact blocks and add-on modules: see pages 168 to 173.

(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 and LC1 DT20...DT40 (coils with integral suppression device fitted 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 D40...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

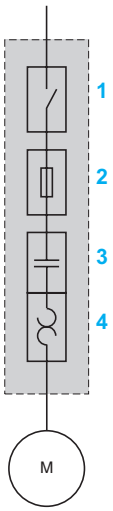
For other voltages between 5 and 690 V, see pages 174 to 179.

*(2) **LC1 D09** to **D38** and **LC1 DT20** to **DT40**: clip-on mounting on 35 mm ⊔ rail **AM1DP** or screw fixing.*
__LC1 D40__ to __D95__ ∿: clip-on mounting on 35 mm ⊔ rail __AM1 DP__ or 75 mm ⊔ rail __AM1 DL__ or screw fixing.
__LC1__ or __LP1 D40__ to __D95__ ⎓: clip-on mounting on 75 mm ⊔ rail __AM1 DL__ or screw fixing.
__LC1 D115__ and __D150__: 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__, 0.785 kg from __LC1 D40__ to __D65__ and 1 kg for __LC1 D80__ and __D95__.

*(4) For low consumption kit **LA4 DBL** (see page 171).*

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

534278



LC1 D09●●

510667



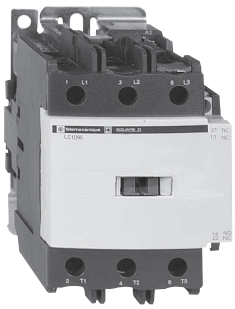
LC1 D25●●

106896



LC1 D40●●

534280



LC1 D95●●

Selection

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	
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●●**
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●●**
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●●**

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…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 D80 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 **D32**: clip-on mounting on 35 mm ⊥ rail **AM1 DP** or screw fixing.*
__LC1 D40A__ to __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 d 3-pole reversing contactors for motor control up to 75 kW at 400 V, in category AC-3
Horizontally mounted, pre-assembled

810369



LC2 D12●●

106905



LC2 D65A●●

113119



LC2 D115●●

3-pole reversing contactors for connection by screw clamp terminals

Pre-wired power connections.

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 per contactor		Contactors supplied with coil 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
With mechanical interlock, without electrical interlocking, for connection by screw clamp terminals or connectors											
2.2	4	4	4	5.5	5.5	–	**9**	1	1	**LC2 D09●●** *(4)*	0.687
3	5.5	5.5	5.5	7.5	7.5	–	**12**	1	1	**LC2 D12●●** *(4)*	0.697
4	7.5	9	9	10	10	–	**18**	1	1	**LC2 D18●●** *(4)*	0.707
5.5	11	11	11	15	15	–	**25**	1	1	**LC2 D25●●** *(4)*	0.787
7.5	15	15	15	18.5	18.5	–	**32**	1	1	**LC2 D32●●** *(4)*	0.797
9	18.5	18.5	18.5	18.5	18.5	–	**38**	1	1	**LC2 D38●●** *(4)*	0.807
11	18.5	22	22	22	30	–	**40**	1	1	**LC2 D40A●●** *(5)*	1.870
15	22	25	30	30	33	–	**50**	1	1	**LC2 D50A●●** *(5)*	1.880
18.5	30	30	30	37	37	–	**65**	1	1	**LC2 D65A●●** *(5)*	1.890
22	37	45	45	55	45	–	**80**	1	1	**LC2 D80●●**	3.200
25	45	45	45	55	45	–	**95**	1	1	**LC2 D95●●**	3.200
With mechanical interlock and electrical interlocking, for connection by screw clamp terminals or connectors											
30	55	59	59	75	80	65	**115**	1	1	**LC2 D115●●**	6.350
40	75	80	80	90	100	75	**150**	1	1	**LC2 D150●●**	6.400

Connection by lugs or bars

For reversing contactors LC2 D09 to LC2 D38, LC2 D115 and LC2 D150, in the references selected above, insert a figure **6** before the voltage code. Example: **LC2 D09●●** becomes **LC2 D096●●**.
To build a 40 to 65 A reversing contactor, for connection by lugs, order 2 contactors **LC1 D●●A6** and mechanical interlock **LAD 4CM** (see page 164).

Component parts

Auxiliary contact blocks and add-on modules: see pages 167 to 173.

*(1) LC2 D09 to D38: clip-on mounting on 35 mm ⊔ rail **AM1 DP** or screw fixing.*
*LC2 D40 to D95: clip-on mounting on 35 mm ⊔ rail **AM1 DP** or 75 mm ⊔ rail **AM1 DL** or screw fixing.*
*LC2 D115 and D150: clip-on mounting on 35 mm ⊔ rail **AM1 DP** or screw fixing.*
(2) Standard control circuit voltages (for other voltages between 16 and 690 V, please consult your Regional Sales Office):

a.c. supply													
Volts	**24**	**42**	**48**	**110**	**115**	**220**	**230**	**240**	**380**	**400**	**415**	**440**	**500**
LC2 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
LC2 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**
LC2 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**
LC2 D09...D38 (coils with integral suppression device fitted as standard)								
U 0.8…1.25 Uc	AL	JL	ZL	BL	EL	FL	ML	UL

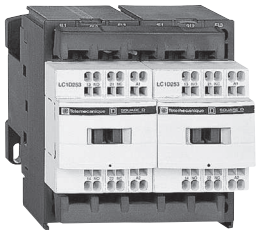
For other voltages between 5 and 690 V, see pages 174 to 179.
*(3) The weights indicated are for contactors with a.c. control circuit. For d.c. or low consumption control circuit, add 0.330 kg for **LC2 D09** to **D38**, 0.200 kg for **LC1 D40A** to **D65A**..*
*(4) For reversing contactors with electrical interlocking pre-wired at the factory, add suffix **V** to the references selected above.*
*Example: **LC2 D09P7** becomes **LC2 D09P7V**.*
*(5) For low consumption kit **LA4 DBL** (see page 171).*

***Note:** when assembling a reversing contactor, it is good practice to incorporate a 50 ms time delay.*

TeSys contactors

TeSys d 3-pole reversing contactors for motor control up to 15 kW at 400 V, in category AC-3
Horizontally mounted, pre-assembled

565133



LC2 D123●●

3-pole reversing contactors, for connection by spring terminals

Pre-wired power connections.
Mechanical interlock without electrical interlocking.

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 per contactor		Contactors supplied with coil Basic reference, to be completed by adding the voltage code *(2)*	Weight *(3)*
220 V 230 V	380 V 400 V	415 V	440 V	500 V	660 V 690 V				Fixing *(1)*	
kW	kW	kW	kW	kW	kW	A				kg
For connection by spring terminals										
2.2	4	4	4	5.5	5.5	**9**	1	1	**LC2 D093●●**	0.687
3	5.5	5.5	5.5	7.5	7.5	**12**	1	1	**LC2 D123●●**	0.697
4	7.5	9	9	10	10	**18**	1	1	**LC2 D183●●**	0.707
5.5	11	11	11	15	15	**25**	1	1	**LC2 D253●●**	0.787
7.5	15	15	15	18.5	18.5	**32**	1	1	**LC2 D323●●**	0.797
Power connection by EverLink®, BTR screw connectors *(4)* and control by spring terminals										
11	18.5	22	22	22	30	**40**	1	1	**LC2 D40A3●●** *(5)*	1.870
15	22	25	30	30	33	**50**	1	1	**LC2 D50A3●●** *(5)*	1.880
18.5	30	30	30	37	37	**65**	1	1	**LC2 D60A3●●** *(5)*	1.890

For connection by Faston connectors

All power connections are to be made by the customer.
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. It is possible to make 2 x 6.35 mm connections to the coil terminals by using a double Faston connector, reference: LAD 99635, to be ordered separately (sold in lots of 100).
For reversing contactors LC2 D09 and LC2 D12 only, in the references selected above, replace the figure **3** before the voltage code with a figure **9**.
Example: **LC2 D093●●** becomes **LC2 D099●●**.

Component parts

Auxiliary contact blocks and add-on modules: see pages 167 to 173.

*(1) LC2 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**	**500**
LC2 D09…D65													
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**		
LC2 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**					
LC2 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 174 to 179.
(3) The weights indicated are for reversing contactors with a.c. control circuit. For d.c. or low consumption control circuit, add 0.330 kg.
*(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 173).*
*(5) For low consumption kit **LA4 DBL** (see page 171).*

TeSys contactors

TeSys d 4-pole changeover contactor pairs for control in category AC-1, 20 to 200 A

537835



LC2 DT20●●

Pre-assembled. Pre-wired power connections.

For connection by screw clamp terminals or connectors

LC2 DT20 to LC2 DT40: mechanical interlock without electrical interlocking.
LC2 D80004: order separately 2 auxiliary contact blocks LAD N●1 to obtain electrical interlocking between the 2 contactors (see page page 167). For electrical interlocking incorporated in the mechanical interlock, please consult your Regional Sales Office.
LC2 D115004: mechanical interlock with integral, pre-wired electrical interlocking.

Utilisation category AC-1 Non-inductive loads Maximum rated operational current ($\theta \leq 60$ °C)	Instantaneous auxiliary contacts per contactor		Contactors supplied with coil Basic reference, to be completed by adding the voltage code *(1)* Fixing *(2)*	Weight
A				kg
20	1	1	**LC2 DT20●●**	0.730
25	1	1	**LC2 DT25●●**	0.730
32	1	1	**LC2 DT32●●**	0.850
40	1	1	**LC2 DT40●●**	0.850
125	–	–	**LC2 D80004●●**	3.200
200	–	–	**LC2 D115004●●**	7.400
For connection by lugs or bars				
20	1	1	**LC2 DT206●●**	0.730
25	1	1	**LC2 DT256●●**	0.730
32	1	1	**LC2 DT326●●**	0.850
40	1	1	**LC2 DT406●●**	0.850

For customer assembly.

For connection by screw clamp terminals or connectors

60	1	1	**LC1 DT60A●●** *(3)*	–
80	1	1	**LC1 DT80A●●** *(3)*	–
For connection by lugs or bars				
60	1	1	**LC1 DT60A6●●** *(3)*	–
80	1	1	**LC1 DT80A6●●** *(3)*	–

Accessories

Auxiliary contact blocks and add-on modules: see pages 167 to 173.

(1) See note (1) on next page.
*(2) **LC2 DT20** to **LC2 DT80**: clip-on mounting on 35 mm ⊔ rail **AM1 DP** or screw fixing.*
*   **LC2 D80:** clip-on mounting on 35 mm ⊔ rail **AM1 DP** or 75 mm ⊔ rail **AM1 DL** or screw fixing.*
*   **LC2 D115**: clip-on mounting on 2 x 35 mm ⊔ rails **AM1 DP** or screw fixing.*
*(3) For these operational currents, order 2 identical contactors and a mechanical interlock **LAD 4CM** (see page 165).*

***Note**: when assembling changeover contactor pairs, it is good practice to incorporate a 50 ms time delay.*

TeSys contactors

TeSys d 4-pole changeover contactor pairs for control in category AC-1, 20 A

Pre-assembled. Pre-wired power connections.

For connection by spring terminals.

Utilisation category AC-1 Non-inductive loads Maximum rated operational current ($\theta \leq 60$ °C)	Instantaneous auxiliary contacts per contactor		Contactors supplied with coil Basic reference, to be completed by adding the control voltage code *(1)* Fixing *(2)*	Weight
A				kg
20	1	1	**LC2 DT203●●**	0.760

For customer assembly.

Power connection by EverLink®, BTR screw connectors *(3)* and control by spring terminals

60	1	1	**LC1 DT60A3●●** *(4)*	–
80	1	1	**LC1 DT80A3●●** *(4)*	–

Separate components

Auxiliary contact blocks and add-on modules: see pages 167 to 173.

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

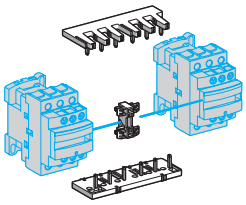
a.c. supply													
Volts	**24**	**42**	**48**	**110**	**115**	**220**	**230**	**240**	**380**	**400**	**415**	**440**	**500**
LC2 DT20…DT40, LC1 DT60…DT80													
50/60 Hz	B7	D7	E7	F7	FE7	M7	P7	U7	Q7	V7	N7	R7	–
LC2 D80004…D115004													
50 Hz	B5	D5	E5	F5	FE5	M5	P5	U5	Q5	V5	N5	R5	S5
60 Hz	B6	–	E6	F6	–	M6	–	U6	Q6	–	–	R6	–
d.c. supply													
Volts	**12**	**24**	**36**	**48**	**60**	**72**	**110**	**125**	**220**	**250**	**440**		
LC2 DT20…DT40, LC1 DT60…DT80 (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**					
LC2 DT20...DT40 (coils with integral suppression device fitted as standard)													
U 0.7…1.25 Uc	AL	JL	ZL	BL	EL	FL	ML	UL					

For other voltages between 5 and 690 V, see pages 174 to 179
*(2) Clip-on mounting on 35 mm ⊔ rail **AM1 DP** or screw fixing.*
*(3) 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 173).*
*(4) For these operational currents, order 2 identical contactors and a mechanical interlock **LAD 4CM** (see page 165).*

TeSys contactors

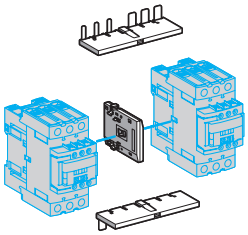
Component parts for assembling
reversing contactors for motor control,
low-speed/high-speed starters and star-delta starters

537729



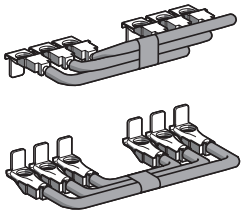
LAD 9R1

537730



LAD 9R3

537731



LA9 D8069

For 3-pole reversing contactors for motor control

Contactors with screw clamp terminals or connectors. Horizontally mounted, assembled by customer

Description	For contactors *(1)* (2 identical contactors)	Reference	Weight kg
Kits for assembly of reversing contactors			
Kit comprising: ■ a mechanical interlock **LAD 9V2** with electrical interlocking **LAD 9V1**. ■ a set of power connections **LAD 9V5** (parallel) and **LAD 9V6** (reversing)	LC1 D09 to D38	**LAD 9R1V**	0.045
Kit comprising: ■ a mechanical interlock **LAD 9V2** without electrical interlocking ■ a set of power connections **LAD 9V5** (parallel) and **LAD 9V6** (reversing)	LC1 D09 to D38	**LAD 9R1**	0.045
Kit comprising: ■ a mechanical interlock **LAD 4CM**, ■ a set of power connections **LA9 D65A69**.	LC1 D40A to D65A	**LAD 9R3**	0.170
Mechanical interlocks			
Mechanical interlock with integral electrical interlocking	LC1 D80 and D95 (~)	**LA9 D4002**	0.170
	LC1 D80 and D95 (⎓)	**LA9 D8002**	0.170
	LC1 D115 and D150	**LA9 D11502**	0.290
Mechanical interlock without integral electrical interlocking	LC1 D09 to D38	**LAD 9V2**	0.040
	LC1 D40A to D65A	**LAD 4CM**	0.040
	LC1 D80 and D95 (~)	**LA9 D50978**	0.170
	LC1 D80 and D95 (⎓)	**LA9 D80978**	0.170
Sets of power connections			
Comprising: ■ a set of parallel bars, ■ a set of reverser bars.	LC1 D09 to D38 with screw clamp terminals or connectors	**LAD 9V5** + **LAD 9V6**	–
	LC1 D09…D32 with spring terminal connections	**LAD 9V12** + **LAD 9V13** *(2)*	–
	LC1 D40A to D65A	**LA9 D65A69**	0.130
	LC1 D80 and D95 (~)	**LA9 D8069**	0.490
	LC1 D80 and D95 (⎓)	**LA9 D8069**	0.490
	LC1 D115 and D150	**LA9 D11569**	1.450

For low-speed/high-speed starter

Description	For contactors with connection type	Reference	Weight kg
Connection kit enabling reversing of low and high speed directions using a reversing contactor and a 2N/O + 2N/C main pole contactor	Screw clamps or connectors	**LAD 9PVGV**	0.016
	Power connection module with spring terminal connections	**LAD 3PVGV**	0.034
	Outgoing terminal block with spring terminal connections	**LAD 3PVGV10**	0.034

For star-delta starter

Description	For contactors	Reference	Weight kg
Mounting kit comprising: ■ 1 time delay contact block **LAD S2** (LC1 D09…D80), ■ power circuit connections (LC1 D09…D80), ■ hardware required for fixing the contactors onto the mounting plate plate (LC1 D40…D80).	LC1 D09 and D12	**LAD 91217**	0.180
	LC1 D18 and D32	**LAD 93217**	0.310
	LC1 D40A and D50A	**LAD 9SD3**	0.380
	LC1 D80	**LA9 D8017**	0.680
Equipment mounting plates	LC1 D09, D12 and D18	**LA9 D12974**	0.150
	LC1 D32	**LA9 D32974**	0.180
	LC1 D40 and D50	**LA9 D40973**	0.300
	LC1 D80	**LA9 D80973**	0.300

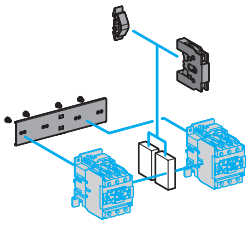
(1) To order the 2 contactors: see pages 153 and 160.

(2) To assemble a reversing contactor with spring terminal connections, the following components must be ordered:
*- 1 mechanical interlock **LAD 9V2**,*
- 1 upstream power connection kit and 1 downstream power connection kit..
*Upstream power connection kit **LAD 9V10**: installed in the Quickfit system with power connection module **LAD 34**.*
*(If module **LAD 34** is not used, replace **LAD 9V10** with **LAD 9V12**).*
*Downstream power connection kit **LAD 9V11**: installed in the Quickfit system with outgoing terminal block **LAD 331**.*
*(If **LAD 331** is not used, replace **LAD 9V11** with **LAD 9V13**).*

TeSys contactors

Component parts for assembling changeover contactor pairs

537732



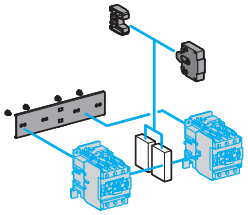
LA9 D4002

For 4-pole changeover contactor pairs (3-phase distribution + neutral)

Contactors with screw clamp terminals or connectors. Horizontally mounted, assembled by customer.

Description	For contactors *(1)* (2 identical contactors)	Reference	Weight kg
Kits for assembly of changeover contactor pairs			
Kit comprising: ■ a mechanical interlock **LAD 9V2** with electrical interlocking **LAD 9V**, ■ a set of power connections (changeover) **LAD 9V71**.	LC1 DT20 to DT40 with screw clamps or connectors	**LAD T9R1V**	0.045
Kit comprising: ■ a mechanical interlock **LAD 9V2** without electrical interlocking, ■ a set of power connections (changeover) **LAD 9V7**.	LC1 DT20 to DT40 with screw clamps or connectors	**LAD T9R1**	0.045

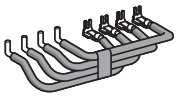
537733



LA9 D50978

Mechanical interlocks			
With integral electrical interlocking	LC1 D65004	**LA9 D4002**	0.170
	LC1 D80004	**LA9 D4002**	0.170
	LP1 D80004	**LA9 D8002**	0.170
	LC1 D115004	**LA9 D11502**	0.280
Without integral electrical interlocking	LC1 DT20 to DT40 with screw clamps or connectors	**LAD 9V2** *(2)*	0.040
	LC1 DT203 to DT403 with spring terminals	**LAD 9V2** *(2)*	0.040
	LC1 DT60A and DT80A	**LAD 4CM**	0.040
	LC1 D80004	**LA9 D50978**	0.155
	LP1 D80004	**LA9 D80978**	0.180

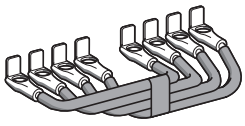
537734



LA9 D6570

Sets of power connections			
Comprising a set of parallel bars	LC1 D65004	**LA9 D6570**	0.150
	LC1 D80004	**LA9 D8070**	0.280
	LP1 D80004	**LA9 D8070**	0.280
	LC1 D115004	**LA9 D11570**	1.100
	LC1 DT203 to DT403 with spring terminals	**LAD 9V9**	0.100
	LC1 D80004	**LA9 D8070** *(2)*	–
	LP1 D80004	**LA9 D8070** *(2)*	–

537735



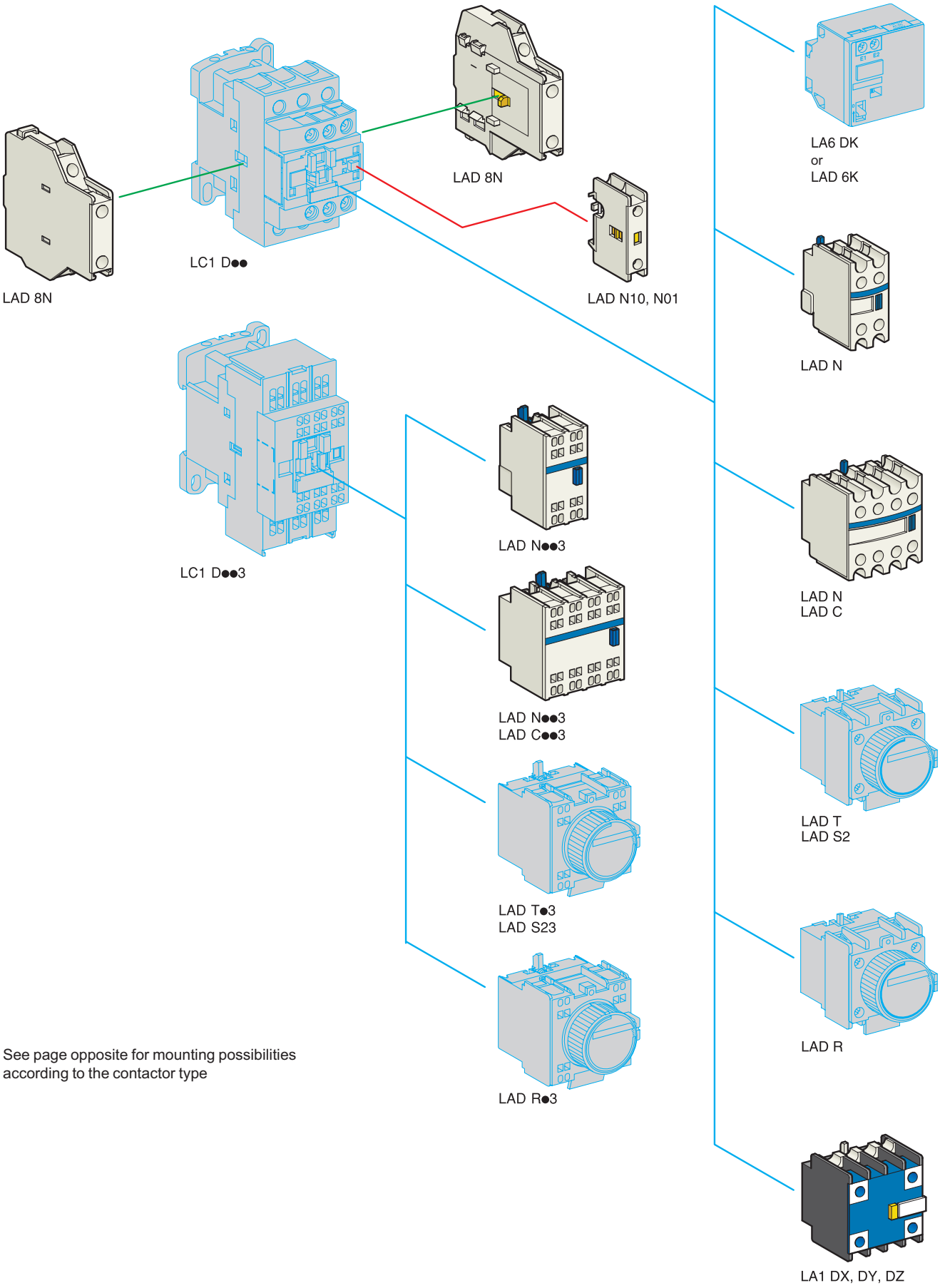
LA9 D8070

For 3-pole changeover contactor pairs

Contactors with screw clamp terminals or connectors. Horizontally mounted, assembled by customer.

Description	For contactors *(1)* (2 identical contactors)	Reference	Weight kg
Mechanical interlocks			
Without integral electrical interlocking	LC1 D40A…D65A	**LAD 9R3S**	0.105
With integral electrical interlocking	LC1 D115 and D150	**LA9 D11502**	0.280
Sets of power connections			
Comprising a set of parallel bars,	LC1 D115 and D150	**LA9 D11571**	0.960

(1) To order the 2 contactors: see pages 153 and 160.
*(2) Order 2 contact blocks **LAD N●1** to build the electrical interlock, see page 167.*



See page opposite for mounting possibilities according to the contactor type

TeSys contactors
TeSys d contactors and reversing contactors
Instantaneous auxiliary contact blocks

Instantaneous auxiliary contact blocks for connection by screw clamp terminals

For use in normal operating environments

In order to mount an LAD 8N on an LC1 D80 to D95, a set of shims must be ordered separately, see page 173

Clip-on mounting *(1)*	Number of contacts per block	Composition					Reference	Weight kg
Front	1	–	–	–	1	–	**LAD N10**	0.020
		–	–	–	–	1	**LAD N01**	0.020
	2	–	–	–	1	1	**LAD N11**	0.030
		–	–	–	2	–	**LAD N20**	0.030
		–	–	–	–	2	**LAD N02**	0.030
	4	–	–	–	2	2	**LAD N22**	0.050
		–	–	–	1	3	**LAD N13**	0.050
		–	–	–	4	–	**LAD N40**	0.050
		–	–	–	–	4	**LAD N04**	0.050
		–	–	–	3	1	**LAD N31**	0.050
	4 incl. 1 N/O & 1 N/C make before break	–	–	–	2	2	**LAD C22**	0.050
Side	2	–	–	–	1	1	**LAD 8N11** *(2)*	0.030
		–	–	–	2	–	**LAD 8N20** *(2)*	0.030
		–	–	–	–	2	**LAD 8N02** *(2)*	0.030
For terminal referencing conforming to EN 50012								
Front on 3P contactors and 4P contactors 20 to 80 A	2	–	–	–	1	1	**LAD N11G**	0.030
	4	–	–	–	2	2	**LAD N22G**	0.050
Front on 4P contactors 125 to 200 A	2	–	–	–	1	1	**LAD N11P**	0.030
	4	–	–	–	2	2	**LAD N22P**	0.050
With dust and damp protected contacts, for use in particularly harsh industrial environments								
Front	2	–	2	–	–	–	**LA1 DX20**	0.040
		1	1	–	–	–	**LA1 DX11**	0.040
		2	–	–	–	–	**LA1 DX02**	0.040
		–	2	2	–	–	**LA1 DY20** *(3)*	0.040
	4	–	2	–	2	–	**LA1 DZ40**	0.050
		–	2	–	1	1	**LA1 DZ31**	0.060

Instantaneous auxiliary contact blocks for connection by lugs

This type of connection is not possible for blocks with 1 contact or blocks with dust and damp protected contacts.
For all other instantaneous auxiliary contact blocks, add the figure **6** to the end of the references selected above.
Example: **LAD N11** becomes **LAD N116**.

Instantaneous auxiliary contact blocks for connection by spring terminals

This type of connection is not possible for LAD 8, LAD N with 1 contact or blocks with dust and damp protected contacts. For all other contact blocks, add the figure **3** to the end of the references selected above.
Example: **LAD N11** becomes **LAD N113**.

Instantaneous auxiliary contact blocks for connection by Faston connectors

This type of connection is not possible for LAD 8, LAD N with 1 contact or blocks with dust and damp protected contacts. For all other contact blocks, add the figure **9** to the end of the references selected above.
Example: **LAD N11** becomes **LAD N119**.

(1) Maximum number of auxiliary contacts that can be fitted

Contactors			Instantaneous auxiliary contacts					Time delay Front mounted
Type	Number of poles and size		Side mounted		Front mounted			
					1 contact	2 contacts	4 contacts	
~	3P	LC1 D09…D38	1 on LH side	**and**	–	1	or 1	or 1
		LC1 D80…D95 (50/60 Hz)	1 on each side	**or**	2	and 1	or 1	or 1
		LC1 D40A…D65A	1 on LH or 1 on RH side	**and**	–	1	or 1	or 1
		LC1 D80 and D95 (50 or 60 Hz)	1 on each side	**and**	2	and 1	or 1	or 1
		LC1 D115 and D150	1 on LH side	**and**	–	1	or 1	or 1
	4P	LC1 DT20…DT40	1 on LH side	**and**	–	1	or 1	or 1
		LC1 DT60A…D80A	1 on LH side or 1 on RH side	**and**	–	1	or 1	or 1
		LC1 D115	1 on each side	**and**	1	or 1	or 1	or 1
⎓	3P	LC1 D09…D38	–		–	1	or 1	or 1
		LC1 D40A…D65A	1 on LH or 1 on RH side	**and**	–	1	or 1	or 1
		LC1 D80 and D95	–		1	or 1	or 1	or 1
		LC1 D115 and D150	1 on LH side	**and**	–	1	or 1	or 1
	4P	LC1 DT20…DT40	–		–	1	or 1	or 1
		LC1 DT60A…D80A	–		–	1	or 1	or 1
		LC1 D115	1 on each side		–	and 1	or 1	or 1
LC *(4)*	3P	LC1 D09…D38	–		–	1	–	–
	4P	LC1 DT20…DT40	–		–	1	–	–

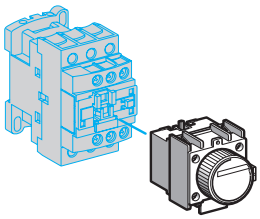
(2) Not compatible with LC1 D40A…LC1 D95 d.c. contactors.
(3) Device fitted with 4 earth screen continuity terminals.
(4) LC: low consumption.

TeSys contactors

TeSys d contactors and reversing contactors

Time delay auxiliary contact blocks

Mechanical latch blocks

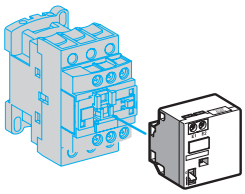


LAD T

Time delay auxiliary contact blocks for connection by screw clamp terminals

Maximum number of auxiliary contact blocks that can be fitted per contactor, see page 167.
Sealing cover to be ordered separately, see page 173.
LAD T0 and LAD R0: with extended scale from 0.1 to 0.6 s.
LAD S2: with switching time of 40 ms ± 15 ms between opening of the N/C contact and closing of the N/O contact.

Clip-on mounting	Number of contacts	Time delay		Reference	Weight
		Type	Setting range		kg
Front	1 N/O + 1 N/C	On-delay	0.1…3 s	**LAD T0**	0.060
			0.1…30 s	**LAD T2**	0.060
			10…180 s	**LAD T4**	0.060
			1…30 s	**LAD S2**	0.060
		Off-delay	0.1…3 s	**LAD R0**	0.060
			0.1…30 s	**LAD R2**	0.060
			10…180 s	**LAD R4**	0.060



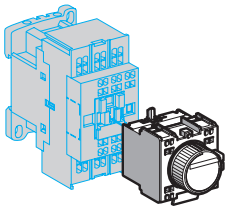
LA6 DK

Time delay auxiliary contact blocks for connection by lugs

Add the figure **6** to the end of the references selected above. Example: **LAD T0** becomes **LAD T06**.

Time delay auxiliary contact blocks for connection by spring terminals

Add the figure **3** to the end of the references selected above. Example: **LAD T0** becomes **LAD T03**



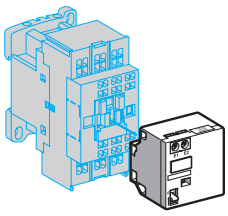
LAD T●3

Time delay auxiliary contact blocks for connection by Faston connectors

Add the figure **9** to the end of the references selected above. Example: **LAD T0** becomes **LAD T09**.

Mechanical latch blocks *(1)*

Clip-on mounting	Unlatching control	For use on contactor	Basic reference, to be completed by adding the control voltage code *(2)*	Weight kg
Front	Manual or electric	LC1 D09…D38 (∿ or ⎓) LC1 DT20…DT40 (∿ or ⎓)	**LAD 6K10●**	0.070
		LC1 D40A…D65A (3 P ∿ or ⎓) LC1 DT60A and DT80A (4 P ∿ or ⎓)	**LAD 6K10●**	0.070
		LC1 D80…D150 (3 P ∿) LC1 D80 and D115 (3 P ⎓) LC1 D80 (4 P ∿) LC1 D80 and D115 (4 P ∿) LP1 D80 and LC1 D115(4 P ⎓)	**LA6 DK20●**	0.090



LA6 DK

(1) The mechanical latch block must not be powered up at the same time as the contactor.
The duration of the control signal for the mechanical latch block and the contactor should be:
≥ 100 ms for a contactor operating on an a.c. supply,
≥ 250 ms for a contactor operating on a d.c. supply.
(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office).

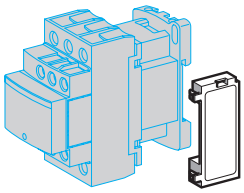
Volts 50/60 Hz, ⎓	24	32/36	42/48	60/72	100	110/127	220/240	256/277	380/415
Code	B	C	E	EN	K	F	M	U	Q

Characteristics: page 144
Dimensions: page 180
Schemes: page 184

TeSys contactors

TeSys d contactors and reversing contactors

Suppressor modules

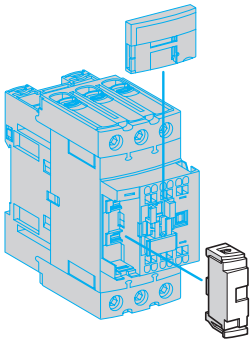


LAD 4●●

RC circuits (Resistor-Capacitor)

Effective protection for circuits highly sensitive to "high frequency" interference. For use only in cases where the voltage is virtually sinusoidal. i.e. less than 5% total harmonic distortion. Voltage limited to 3 Uc max. and oscillating frequency limited to 400 Hz max. Slight increase in drop-out time (1.2 to 2 times the normal time).

Mounting	For use with contactor *(1)*			Reference	Weight
	Rating	Type			
		V ∼	V ⎓		kg
Clip-on side mounting *(3)*	D09…D38 (3P) DT20…DT40	24…48	–	**LAD 4RCE**	0.012
		50…127	–	**LAD 4RCG**	0.012
		110…240	–	**LAD 4RCU**	0.012
Clip-on front mounting *(3)*	D40A…D65A (3P) DT60A…DT80A (4P)	24…48	–	**LAD 4RC3E**	0.020
		50…127	–	**LAD 4RC3G**	0.020
		110…240	–	**LAD 4RC3U**	0.020
		380…415	–	**LAD 4RC3N**	0.040
Screw fixing *(4)*	D80…D150 (3P) D40…D115 (4P)	24…48	–	**LA4 DA2E**	0.018
		50…127	–	**LA4 DA2G**	0.018
		110…240	–	**LA4 DA2U**	0.018
		380…415	–	**LA4 DA2N**	0.018

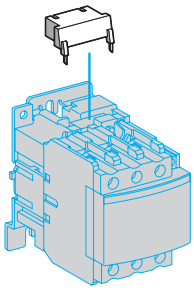


LAD 4RC3●, LAD 4V3●, LAD 4D3U, LAD 4T3●

Varistors (peak limiting)

Protection provided by limiting the transient voltage to 2 Uc max. Maximum reduction of transient voltage peaks. Slight increase in drop-out time (1.1 to 1.5 times the normal time).

Clip-on side mounting *(3)*	D09…D38 (3P) DT20…DT40	24…48	–	**LAD 4VE**	0.012
		50…127	–	**LAD 4VG**	0.012
		110…250	–	**LAD 4VU**	0.012
Clip-on front mounting *(3)*	D40A…D65A (3P) DT60A…DT80A (4P)	24…48	–	**LAD 4V3E**	0.020
		50…127	–	**LAD 4V3G**	0.020
		110…250	–	**LAD 4V3U**	0.020
Screw fixing *(4)*	D80…D115 (3P) D80…D115 (4P)	24…48	–	**LA4 DE2E**	0.018
		50…127	–	**LA4 DE2G**	0.018
		110…250	–	**LA4 DE2U**	0.018
	D80…D95 (3P) D80 (4P)	–	24…48	**LA4 DE3E**	0.018
		–	50…127	**LA4 DE3G**	0.018
		–	110…250	**LA4 DE3U**	0.018



LA4 D●●

Flywheel diodes

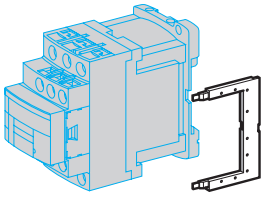
No overvoltage or oscillating frequency. Increase in drop-out time (6 to 10 times the normal time). Polarised component.

Clip-on side mounting *(5)*	D09…D38 (3P). DT20…DT40	–	24…250	**LAD 4DDL**	0.012
Clip-on front mounting *(5)*	D40A…D65A (3P). DT60A…DT80A (4P)	–	24…250	**LAD 4D3U**	0.020
Screw fixing *(4)*	D80 and D95 (3P). D40…D80 (4P)	–	24…250	**LA4 DC3U**	0.018

Bidirectional peak limiting diodes

Protection provided by limiting the transient voltage to 2 Uc max. Maximum reduction of transient voltage peaks.

Clip-on side mounting *(3) (5)*	D09…D38 (3P) DT20…DT40 (4P) *(2)*	24	–	**LAD 4TB**	0.012
		–	24	**LAD 4TBDL**	0.012
		72	–	**LAD 4TS**	0.012
		–	72	**LAD 4TSDL**	0.012
		–	125	**LAD 4TGDL**	0.012
		–	250	**LAD 4TUDL**	0.012
		–	600	**LAD 4TXDL**	0.012
Clip-on front mounting *(3)*	D40A…D65A (3P) DT60A…DT80A (4P) *(2)*	24	24	**LAD 4T3B**	0.020
		72	72	**LAD 4T3S**	0.020
		125	125	**LAD 4T3G**	0.020
		250	250	**LAD 4T3U**	0.020
		440	440	**LAD 4T3R**	0.020
Screw fixing *(4)*	D80…D95 (3P) D40…D80 (4P)	24	–	**LA4 DB2B**	0.018
		72	–	**LA4 DB2S**	0.018
		–	24	**LA4 DB3B**	0.018
		–	72	**LA4 DB3S**	0.018



LAD 4DDL or LAD 4T●DL

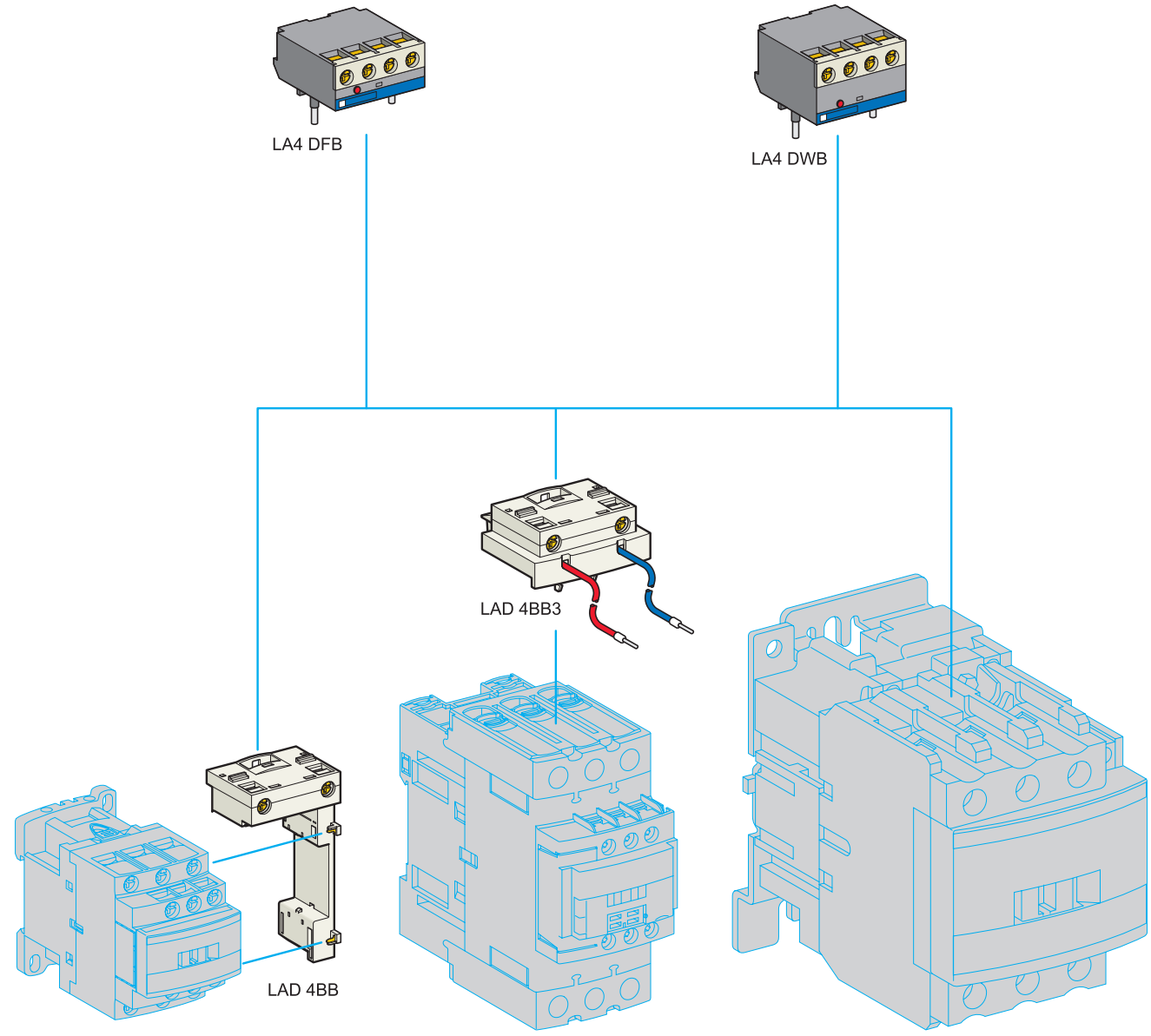
(1) For satisfactory protection, a suppressor module must be fitted across the coil of each contactor.

*(2) From D09 to D65A and from LC1 DT20 to DT80A, d.c. and low consumption 3-pole contactors are fitted with a built-in bidirectional peak limiting diode suppressor as standard. This bidirectional peak limiting diode is removable and can therefore be replaced by the user. (See reference above). If a d.c. or low consumption contactor is used without suppression. the standard suppressor should be replaced with a blanking plug (reference **LAD 9DL** for LC1 D09 to D38 and LC1 DT20 to DT40; reference **LAD 9DL3** for LC1 D40A to D65A and LC1 DT60A to DT80A).*

(3) Clipping-on makes the electrical connection. The overall size of the contactor remains unchanged.

(4) Mounting at the top of the contactor on coil terminals A1 and A2.

(5) In order to install these accessories, the existing suppression device must first be removed.



See page opposite for mounting possibilities
according to the contactor type

TeSys contactors
TeSys d contactors and reversing contactors
Accessories

Electronic serial timer modules *(1)*

■ 3-pole contactors LC1 D09 to D38 and 4-pole contactors LC1 DT20 to DT40: mounted using adapter LAD 4BB, to be ordered separately, see below.
■ 3-pole contactors LC1 D40A to D65A and 4-pole contactors LC1 DT60A to DT80A: mounted using adapter LAD 4BB3, to be ordered separately, see below.
■ 3-pole contactors LC1 D80 to D150 and 4-pole contactors LC1 D40 to D115: mounted directly across terminals A1 and A2 of the contactor.

On-delay type

Operational voltage ∿		Time delay	Reference	Weight
24…250 V	**100…250 V**			**kg**
LC1 D09…D65A (3P). LC1 DT20…DT80A (4P)	LC1 D80…D150 (3P)	0.1…2 s	**LA4 DT0U**	0.040
		1.5…30 s	**LA4 DT2U**	0.040
		25…500 s	**LA4 DT4U**	0.040

Interface modules

■ 3-pole contactors LC1 D09 to D38 and 4-pole contactors LC1 DT20 to DT40: mounted using adapter LAD 4BB, to be ordered separately, see below
■ 3-pole contactors LC1 D40A to D65A: mounted using adapter LAD4 BB3, to be ordered separately, see below.

Relay interface

Operational voltage ∿		Supply voltage E1-E2 (⎓)	Reference	Weight
24…250 V	**380…415 V**			**kg**
LC1 D09…D150 (3P). LC1 DT20…DT80A (4P)	–	24 V	**LA4 DFB**	0.050

Relay interface with "AUTO-I" manual override switch (output forced "ON"), solid state type

Operational voltage ∿		Supply voltage E1-E2 (⎓)	Reference	Weight
24…250 V	**100…250 V**			**kg**
LC1 D09…D65A (3P). LC1 DT20…DT80A (4P)	LC1 D80…D115 (3P)	24 V	**LA4 DWB**	0.045

Low consumption kit

For use on contactors	Composition	Reference	Weight
			kg
LC1 D40A…D65A (3P)	Kit comprising: ■ a retrofit coil LAD 4BB3. ■ a relay interface module LA4 DFB.	**LA4 DBL**	0.077

Retrofit: coil for 3-pole contactor

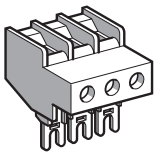
For adapting existing wiring to a new product

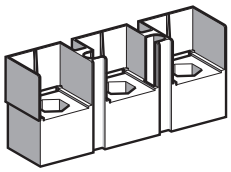
For use on contactors			Reference	Weight
				kg
LC1 D09…D38 LC1 DT20…DT25	Without coil suppression		**LAD 4BB**	0.019
	With coil suppression	∿ 24…48 V	**LAD 4BBVE**	0.014
		∿ 50…127 V	**LAD 4BBVG**	0.014
		∿ 110…250 V	**LAD 4BBVU**	0.014
LC1 D40A…65A	Without coil suppression		**LAD 4BB3**	0.027

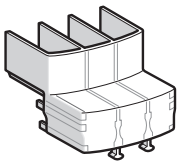
(1) For 24 V operation, the contactor must be fitted with a 21 V coil (code Z). See pages 174 to 179.

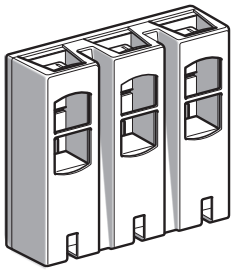
Characteristics: page 148
Dimensions: page 180
Schemes: page 184

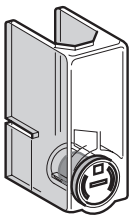
TeSys contactors
TeSys d contactors and reversing contactors
Accessories

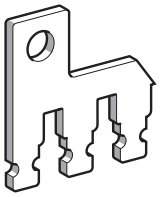

LA9 D3260

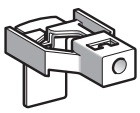

LA9 D11550●


LAD 96570


LA9 D11560●


LA9 D11570●


LA9 D80962


LA9 D11567

Accessories for main pole and control connections

Description		For use with contactors LC1 ~	For use with contactors LC1 ⎓	Sold in lots of	Unit reference	Weight kg
Connectors for cable, size (1 connector)	4-pole 10 mm²	DT20, DT25	DT20, DT25	1	**LAD 92560**	0.030
	3-pole 25 mm²	D09…D38	D09…D38	1	**LA9 D3260**	0.040
EverLink® terminal block	3-pole	D40A…D65A	D40A…D65A	1	**LAD 96560**	0.087
Connectors for cables (2 connectors)	3-pole 120 mm²	D115, D150	D115, D150	1	**LA9 D115603**	0.560
	4-pole 120 mm²	D115	D115	1	**LA9 D115604**	0.740
Connectors for lug type terminals (2 connectors)	3-pole	D115, D150	D115, D150	1	**LA9 D115503**	0.300
	4-pole	D115	D115	1	**LA9 D115504**	0.360
Protective covers for connectors for lug type terminals	3-pole	D40A…D65A	D40A…D65A	1	**LAD 96570**	0.021
		D115, D150	D115, D150	1	**LA9 D115703** *(1)*	0.250
	4-pole	D60A…D80A	D60A…D80A	1	**LAD 96580**	0.027
		D115, D150	D115, D150	1	**LA9 D115704**	0.300
IP 20 covers for lug type terminals (for use when mounted with circuit-breakers GV3 P●●6 and GV3 P●●6	–	D40A…D65A	D40A…D65A	1	**LAD 96575**	0.010
Links for parallel connection of	2 poles	D09…D38	D09…D38	10	**LA9 D2561**	0.060
		DT20, DT25 (4P)	DT20, DT25 (4P)	10	**LA9 D1261**	0.012
		DT32, DT40 (4P)	DT32, DT40 (4P)	10	**LAD 96061**	0.060
		D40A…D65A	D40A…D65A	1	**LAD 9P32**	0.021
		D80, D95	D80	2	**LA9 D80961**	0.060
	3 poles (star connection)	D09…D38	D09…D38	10	**LAD 9P3** *(2)*	0.005
		D40A…D65A	D40A…D65A	1	**LAD 9P33**	0.021
		D80, D95	D80, D95	1	**LA9 D80962**	0.080
	4 poles	DT20, DT25	DT20, DT25	2	**LA9 D1263**	0.024
		D80, D95	D80	2	**LA9 D80963**	0.100
Staggered coil connection		–	D80	10	**LA9 D09966**	0.006
Control circuit take-off from main pole		D80, D95	D80, D95	10	**LA9 D8067**	0.010
		D115, D150	D115, D150	10	**LA9 D11567**	0.014
Spreaders for increasing the pole pitch to 45 mm		D115, D150	D115, D150	3	**GV7 AC03**	0.180

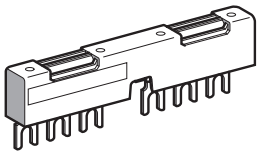
(1) For 3-pole contactors: 1 set of 6 covers, for 4-pole contactors: 1 set of 8 covers.
(2) Separate connecting bar for connecting 2 poles in parallel.

Dimensions: page 180
Schemes: page 184

TeSys contactors

TeSys d contactors and reversing contactors

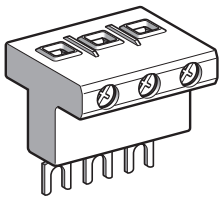
Accessories



GV2 G245

Sets of contacts and arc chambers

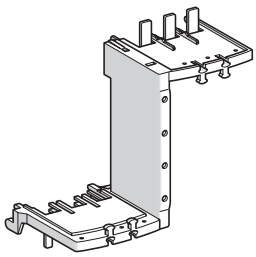
Description	For contactor		Reference	Weight kg
Sets of contacts	3-pole	LC1 D115	**LA5 D1158031**	0.260
		LC1 D150	**LA5 D150803**	0.260
	4-pole	LC1 D115004	**LA5 D115804**	0.330
Arc chambers	3-pole	LC1 D115	**LA5 D11550**	0.395
		LC1 D150	**LA5 D15050**	0.395
	4-pole	LC1 D115004	**LA5 D115450**	0.470



GV1 G09

Power connection accessories

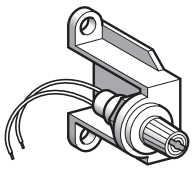
Terminal block	For supply to one or more GV2 G busbar sets	**GV1 G09**	0.040
Set of 63 A busbars for parallelling of contactors	2 contactors LC1 D09…D18 or D25…D38	**GV2 G245**	0.036
	4 contactors LC1 D09…D18 or D25…D38	**GV2 G445**	0.077
Set of 115 A busbars for parallelling of contactors	2 contactors LC1 D40A…D65A	**GV3 G264**	0.150
	3 contactors LC1 D40A…D65A	**GV3 G364** *(1)*	0.250
Set of S-shape busbars	For circuit-breakers GV3 P●● and GV3 L●● and contactors LC1 D40A…D65A	**GV3 S**	0.104



GV3 S

Protection accessories

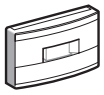
Description	Use	Sold in lots of	Reference	Weight kg
Miniature control circuit fuse holder	5 x 20 with 4 A-250 V fuse	1	**LA9 D941**	0.025
Sealing cover	For LAD T, LAD R	1	**LA9 D901**	0.005
Safety cover preventing access to the moving contact carrier	LC1 D09…D65A and DT20…DT80A	1	**LAD 9ET1**	0.026
	LC1 D80 and D95	1	**LAD 9ET3**	0.004
	LC1 D115 and D150	1	**LAD 9ET4**	0.004



LA9 D941

Marking accessories

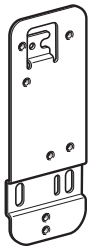
Description	Use	Sold in lots of	Unit reference	Weight kg
Sheet of 64 blank legends, self-adhesive, 8 x 33 mm *(2)*	Contactors (except 4P) LC1 D80…D115 , LAD N (4 contacts), LA6 DK	10	**LAD 21**	0.020
Sheet of 112 blank legends, self-adhesive, 8 x 12 mm *(2)*	LAD N (2 contacts), LAD T, LAD R, LRD	10	**LAD 22**	0.020
Sheet of 64 blank legends for marking using plotter or 8 x 33 mm engraver	Contactors (except 4P) LC1 D80…D115, LAD (4 contacts), LA6 DK	10	**LAD 23**	0.050
Sheet of 440 blank legends for marking using plotter or 8 x 12 mm engraver	All products	35	**LAD 24**	0.200
Marker holder snap-in, 8 x 22 mm	4-pole contactors, LC1 D80...D115, LA6 DK	100	**LA9 D92**	0.001
Marker holder snap-in, 8 x 18 mm	LC1 D09...D65A, LC1 DT20...DT80A, LAD N (4 contacts), LAD T, LAD R	100	**LAD 90**	0.001
Bag of 300 blank legends self-adhesive, 7 x 21 mm	On holder LA9 D92	1	**LA9 D93**	0.001
"SIS Label" labelling software supplied on CD-Rom	Multi-language version: English, French, German, Italian, Spanish	1	**XBY 2U**	0.100



LAD 9ET●

Mounting accessories

Retrofit plate for screw fixing	For replacement of LC1 D40 to D65 with LC1 D40A to D65A	1	**LAD 7X3**	0.150
Mounting plate	For replacement of LC1 F115 or F150 with LC1 D115 or D150	1	**LA9 D730**	0.360
Set of shims	For fitting side mounting blocks LAD 8N on LC1 D80 and D95	1	**LA9 D511**	0.020
Size 4 Allen key, insulated, 1000 V	For use on contactors LC1 D40A to LC1 D150	5	**LAD ALLEN4**	0.026



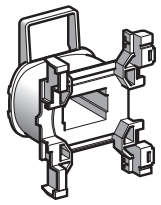
LAD 7X3

(1) With this set of busbars, any one contactor can be supplied directly by its EverLink® double cage power terminal block. The other two contactors are supplied by the busbar set. The 115 A limitation is therefore applied to these two contactors. Example: 1 LC1 D65A supplied directly + 1 contactor LC1 D65A and 1 contactor LC1 D50 A supplied via the busbar set = 115 A. This combination is compatible with busbar set GV3 G364.

(2) These legends are for sticking onto the safety cover of the contactors or add-on block, if fitted.

TeSys contactors
a.c. coils
for TeSys d 3 or 4-pole contactors

537496



LXD 1●●

For ∼ contactors LC1 D09...D38 and LC1 DT20…DT40

Specifications

Average consumption at 20 °C:
- inrush (cos φ = 0.75) 70 VA,
- sealed (cos φ = 0.3) 50 Hz: 7 VA, 60 Hz: 7.5 VA

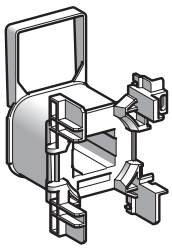
Operating range (θ ≤ 60 °C): 50 Hz: 0.8…1.1 Uc, 60 Hz: 0.85…1.1 Uc.

Control circuit voltage Uc	Average resistance at 20 °C ± 10 %	Inductance of closed circuit	Reference *(1)*	Weight
V	Ω	H		kg
			50/60 Hz	
12	6.3	0.26	**LXD 1J7**	0.070
21 *(2)*	5.6	0.24	**LXD 1Z7**	0.070
24	6.19	0.26	**LXD 1B7**	0.070
32	12.3	0.48	**LXD 1C7**	0.070
36	–	–	**LXD 1CC7**	0.070
42	19.15	0.77	**LXD 1D7**	0.070
48	25	1	**LXD 1E7**	0.070
60	–	–	**LXD 1EE7**	0.070
100	–	–	**LXD 1K7**	0.070
110	130	5.5	**LXD 1F7**	0.070
115	–	–	**LXD 1FE7**	0.070
120	159	6.7	**LXD 1G7**	0.070
127	192.5	7.5	**LXD 1FC7**	0.070
200	–	–	**LXD 1L7**	0.070
208	417	16	**LXD 1LE7**	0.070
220	539	22	**LXD 1M7** *(3)*	0.070
230	595	21	**LXD 1P7**	0.070
240	645	25	**LXD 1U7**	0.070
277	781	30	**LXD 1W7**	0.070
380	1580	60	**LXD 1Q7** *(4)*	0.070
400	1810	64	**LXD 1V7**	0.070
415	1938	74	**LXD 1N7**	0.070
440	2242	79	**LXD 1R7**	0.070
480	2300	85	**LXD 1T7**	0.070
500	2499	–	**LXD 1S7**	0.070
575	3432	119	**LXD 1SC7**	0.070
600	3600	135	**LXD 1X7**	0.070
690	5600	190	**LXD 1Y7**	0.070

(1) The last 2 digits in the reference represent the voltage code.
(2) Voltage for special coils fitted in contactors with serial timer modules, with 24 V supply.
(3) Suitable for use on 230 V / 50 Hz. In this case, apply a coefficient of 0.6 to the mechanical durability of the contactor (see page 140).
(4) Suitable for use on 400 V / 50 Hz. In this case, apply a coefficient of 0.6 to the mechanical durability of the contactor (see page 140).

TeSys contactors
a.c. coils
for TeSys d 3 or 4-pole contactors

503984



LXD 3●●

For ∼ contactors LC1 D40A…D65A, LC1 DT60A and LC1 DT80A

Specifications

Average consumption at 20 °C:
- inrush (cos φ = 0.75) 70 VA.
- sealed (cos φ = 0.3) 50 Hz: 7 VA, 60 Hz: 7.5 VA

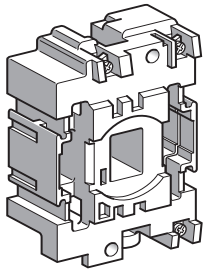
Operating range (θ ≤ 60 °C): 50 Hz: 0.8…1.1 Uc, 60 Hz: 0.85…1.1 Uc.

Control circuit voltage Uc	Average resistance at 20 °C ± 10%	Inductance of closed circuit	Reference *(1)*	Weight
V	Ω	H		kg
			50/60 Hz	
12	0.49	0.03	**LXD 3J5** *(2)*	0.070
24	1.98	0.12	**LXD 3B7**	0.070
32	3.76	0.22	**LXD 3C7**	0.070
42	6.18	0.37	**LXD 3D7**	0.070
48	7.97	0.48	**LXD 3E7**	0.070
100	37.63	2.07	**LXD 3K7**	0.070
110	42.28	2.50	**LXD 3F7**	0.070
115	48.76	2.74	**LXD 3FE7**	0.070
120	37.63	2.07	**LXD 3G7**	0.070
127	60.29	3.34	**LXD 3FC7**	0.070
200	149	8.27	**LXD 3L7**	0.070
208	105	6.22	**LXD 3LE7**	0.070
220	182	10	**LXD 3M7** *(3)*	0.070
230	192	10.9	**LXD 3P7**	0.070
240	202	11.9	**LXD 3U7**	0.070
277	193	11	**LXD 3W7**	0.070
380	512	29.9	**LXD 3Q7** *(4)*	0.070
400	607	33.1	**LXD 3V7**	0.070
415	635	35.6	**LXD 3N7**	0.070
440	682	40.1	**LXD 3R7**	0.070
480	607	33.1	**LXD 3T7**	0.070
500	878	51.7	**LXD 3S7**	0.070
575	1238	68.4	**LXD 3SC7**	0.070
600	1304	74.5	**LXD 3X7**	0.070
660	1593	90.1	**LXD 3YC7**	0.070
690	1683	98.5	**LXD 3Y7**	0.070

(1) The last 2 digits in the reference represent the voltage code.
(2) This coil can only be used on 50 Hz.
(3) Suitable for use on 230 V / 50 Hz. In this case, apply a coefficient of 0.6 to the mechanical durability of the contactor (see page 140).
(4) Suitable for use on 400 V / 50 Hz. In this case, apply a coefficient of 0.6 to the mechanical durability of the contactor (see page 140).

TeSys contactors
a.c. coils
for TeSys d 3 or 4-pole contactors

537497



LX1 D6●●

For 3 or 4-pole contactors LC1D40, D50, D65, D80, D95

Specifications

Average consumption at 20 °C:
- inrush (cos φ = 0.75) 50 Hz: 200 VA, 60 Hz: 220 VA,
- sealed (cos φ = 0.3) 50 Hz: 20 VA, 60 Hz: 22 VA

Operating range (θ ≤ 55 °C): 0.85…1.1 Uc.

Control circuit voltage Uc	Average resistance at 20°C ± 10 %	Inductance of closed circuit	Reference (1)	Average resistance at 20°C ± 10 %	Inductance of closed circuit	Reference (1)	Weight
V	Ω	H		Ω	H		kg
			50 Hz			60 Hz	
24	1.4	0.09	**LX1 D6B5**	1.05	0.06	**LX1 D6B6**	0.280
32	2.6	0.16	**LX1 D6C5**	–	–	–	0.280
42	4.4	0.27	**LX1 D6D5**	–	–	–	0.280
48	5.5	0.35	**LX1 D6E5**	4.2	0.23	**LX1 D6E6**	0.280
110	31	1.9	**LX1 D6F5**	22	1.2	**LX1 D6F6**	0.280
115	31	1.9	**LX1 D6FE5**	–	–	–	0.280
120	–	–	–	28	1.5	**LX1 D6G6**	0.280
127	41	2.4	**LX1 D6G5**	–	–	–	0.280
208	–	–	–	86	4.3	**LX1 D6L6**	0.280
220	–	–	–	98	4.8	**LX1 D6M6**	0.280
220/230	127	7.5	**LX1 D6M5**	–	–	–	0.280
230	133	8.1	**LX1 D6P5**	–	–	–	0.280
240	152	8.7	**LX1 D6U5**	120	5.7	**LX1 D6U6**	0.280
256	166	10	**LX1 D6W5**	–	–	–	0.280
277	–	–	–	157	8	**LX1 D6W6**	0.280
380	–	–	–	300	14	**LX1 D6Q6**	0.280
380/400	381	22	**LX1 D6Q5**	–	–	–	0.280
400	411	25	**LX1 D6V5**	–	–	–	0.280
415	463	26	**LX1 D6N5**	–	–	–	0.280
440	513	30	**LX1 D6R5**	392	19	**LX1 D6R6**	0.280
480	–	–	–	480	23	**LX1 D6T6**	0.280
500	668	38	**LX1 D6S5**	–	–	–	0.280
575	–	–	–	675	33	**LX1 D6S6**	0.280
600	–	–	–	775	36	**LX1 D6X6**	0.280
660	1220	67	**LX1 D6Y5**	–	–	–	0.280

Specifications

Average consumption at 20 °C:
- inrush (cos φ = 0.75) 50/60 Hz: 245 VA at 50 Hz,
- sealed (cos φ = 0.3) 50/60 Hz: 26 VA at 50 Hz.

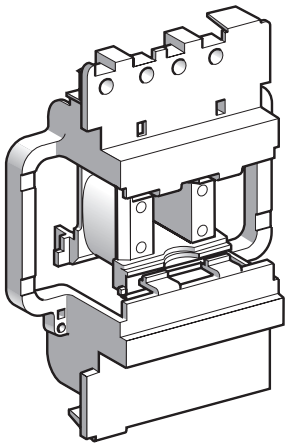
Operating range (θ ≤ 55 °C): 0.85…1.1 Uc.

						50/60 Hz	
24	–	–	–	1.22	0.08	**LX1 D6B7**	0.280
42	–	–	–	3.5	0.25	**LX1 D6D7**	0.280
48	–	–	–	5	0.32	**LX1 D6E7**	0.280
110	–	–	–	26	1.7	**LX1 D6F7**	0.280
115	–	–	–	–	–	**LX1 D6FE7**	0.280
120	–	–	–	32	2	**LX1 D6G7**	0.280
220/230 *(2)*	–	–	–	102	6.7	**LX1 D6M7**	0.280
230	–	–	–	115	7.7	**LX1 D6P7**	0.280
230/240 *(3)*	–	–	–	131	8.3	**LX1 D6U7**	0.280
380/400 *(4)*	–	–	–	310	20	**LX1 D6Q7**	0.280
400	–	–	–	349	23	**LX1 D6V7**	0.280
415	–	–	–	390	24	**LX1 D6N7**	0.280
440	–	–	–	410	27	**LX1 D6R7**	0.280

(1) The last 2 digits in the reference represent the voltage code.
(2) For use on 230 V 50 Hz, apply a coefficient of 0.6 to the mechanical durability of the contactor, see page 140 . This coil can be used on 240 V at 60 Hz.
(3) This coil can be used on 220/240 V at 50 Hz and on 240 V only at 60 Hz.
(4) For use on 400 V 50 Hz, apply a coefficient of 0.6 to the mechanical durability of the contactor, see page 140.

TeSys contactors
a.c. coils
for TeSys d 3 or 4-pole contactors

537502



LX1 D8●●

For 3 or 4-pole contactors LC1 D115

Specifications

Average consumption at 20 °C:
- inrush (cos φ = 0.8) 50 or 60 Hz: 300 VA,
- sealed (cos φ = 0.3) 50 or 60 Hz: 22 VA

Operating range (θ ≤ 55 °C): 0.85…1.1 Uc.

Control circuit voltage Uc	Average resistance at 20°C ± 10 %	Inductance of closed circuit	Reference (1)	Average resistance at 20°C ± 10 %	Inductance of closed circuit	Reference (1)	Weight
V	Ω	H		Ω	H		kg
			50 Hz			60 Hz	
24	1.24	0.09	LX1 D8B5	0.87	0.07	LX1 D8B6	0.260
32	2.14	0.17	LX1 D8C5	–	–	–	0.260
42	3.91	0.28	LX1 D8D5	–	–	–	0.260
48	4.51	0.36	LX1 D8E5	3.91	0.28	LX1 D8E6	0.260
110	26.53	2.00	LX1 D8F5	19.97	1.45	LX1 D8F6	0.260
115	26.53	2.00	LX1 D8FE5	–	–	–	0.260
120	–	–	–	24.02	1.70	LX1 D8G6	0.260
127	32.75	2.44	LX1 D8FC5	–	–	–	0.260
208	–	–	–	67.92	5.06	LX1 D8L6	0.260
220	104.77	7.65	LX1 D8M5	79.61	5.69	LX1 D8M6	0.260
230	104.77	8.29	LX1 D8P5	–	–	–	0.260
240	125.25	8.89	LX1 D8U5	97.04	6.75	LX1 D8U6	0.260
277	–	–	–	125.75	8.89	LX1 D8W6	0.260
380	338.51	22.26	LX1 D8Q5	243.07	17.04	LX1 D8Q6	0.260
400	368.43	25.55	LX1 D8V5	–	–	–	0.260
415	368.43	27.65	LX1 D8N5	–	–	–	0.260
440	441.56	30.34	LX1 D8R5	338.51	22.26	LX1 D8R6	0.260
480	–	–	–	368.43	25.55	LX1 D8T6	0.260
500	566.62	38.12	LX1 D8S5	–	–	–	0.260

For 3 or 4-pole contactors LC1 D115, LC1 D150

Specifications

Average consumption at 20 °C:
- inrush: cos φ = 0.9 - 280 to 350 VA,
- sealed: cos φ = 0.9 - 2 to 18 VA.

Operating range (θ ≤ 55 °C): 0.8…1.15 Uc.

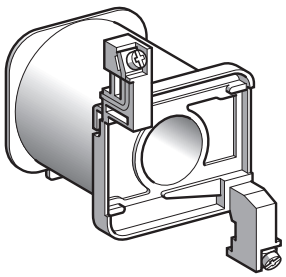
Coils with integral suppression device fitted as standard, class B.

Control circuit voltage Uc	Average resistance at 20°C ± 10 %	Inductance of closed circuit	Reference (1)	Average resistance at 20°C ± 10 %	Inductance of closed circuit	Reference (1)	Weight
V	Ω	H		Ω	H		kg
						50/60 Hz	
24	–	–	–	147	3.03	LX1 D8B7	0.290
32	–	–	–	301	8.28	LX1 D8C7	0.290
42	–	–	–	498	13.32	LX1 D8D7	0.290
48	–	–	–	1061	24.19	LX1 D8E7	0.290
110	–	–	–	4377	109.69	LX1 D8F7	0.290
115	–	–	–	4377	109.69	LX1 D8FE7	0.290
120	–	–	–	4377	109.69	LX1 D8G7	0.290
127	–	–	–	6586	152.65	LX1 D8FC7	0.290
208	–	–	–	10 895	260.15	LX1 D8LE7	0.290
220	–	–	–	9895	210.72	LX1 D8M7	0.290
230	–	–	–	9895	210.72	LX1 D8P7	0.290
240	–	–	–	9895	210.72	LX1 D8U7	0.290
277	–	–	–	21 988	533.17	LX1 D8UE7	0.290
380	–	–	–	21 011	482.42	LX1 D8Q7	0.290
400	–	–	–	21 011	482.42	LX1 D8V7	0.290
415	–	–	–	21 011	482.42	LX1 D8N7	0.290
440	–	–	–	21 501	507.47	LX1 D8R7	0.290
480	–	–	–	32 249	938.41	LX1 D8T7	0.290
500	–	–	–	32 249	938.41	LX1 D8S7	0.290

(1) The last 2 digits in the reference represent the voltage code.

TeSys contactors
d.c. coils
for TeSys d 3 or 4-pole contactors

537503



LX4 D7●D

For 3-pole contactors LC1 D80 or 4-pole contactors LP1 D80

Specifications

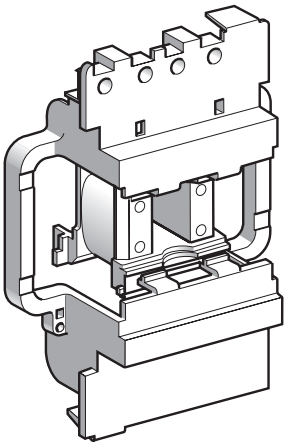
Average consumption: 22 W.
Operating range: 0.85…1.1 Uc.

Control circuit voltage Uc	Average resistance at 20 °C ± 10%	Inductance of closed circuit	Reference *(1)*	Weight
V	Ω	H		kg
12	6.6	0.46	**LX4 D7JD**	0.680
24	27	1.89	**LX4 D7BD**	0.680
36	57	4	**LX4 D7CD**	0.680
48	107	7.5	**LX4 D7ED**	0.680
60	170	11.9	**LX4 D7ND**	0.680
72	230	16.1	**LX4 D7SD**	0.680
110	564	39.5	**LX4 D7FD**	0.680
125	718	50.3	**LX4 D7GD**	0.680
220	2215	155	**LX4 D7MD**	0.680
250	2850	200	**LX4 D7UD**	0.680
440	9195	640	**LX4 D7RD**	0.680

(1) The last 2 digits in the reference represent the voltage code.

TeSys contactors
d.c. coils
for TeSys d 3 or 4-pole contactors

537504



LX4 D8●D

For contactors LC1 D115, D150

Specifications

Consumption: inrush 270 to 365 W, sealed 2.4 to 5.1 W.
Operating range: 0.7…1.2 Uc.
Coils with integral suppression device fitted as standard, class B.

Control circuit voltage Uc	Average resistance at 20 °C ± 10 %	Inductance of closed circuit	Reference *(1)*	Weight
V	Ω	H		kg
24	147	3.03	**LX4 D8BD**	0.300
48	1061	24.19	**LX4 D8ED**	0.300
60	1673	38.44	**LX4 D8ND**	0.300
72	2500	56.27	**LX4 D8SD**	0.300
110	4377	109.69	**LX4 D8FD**	0.300
125	6586	152.65	**LX4 D8GD**	0.300
220	9895	210.72	**LX4 D8MD**	0.300
250	18 022	345.40	**LX4 D8UD**	0.300
440	21 501	684.66	**LX4 D8RD**	0.300

For 3-pole contactors LC1 D80 or 4-pole contactors LP1 D80

Specifications

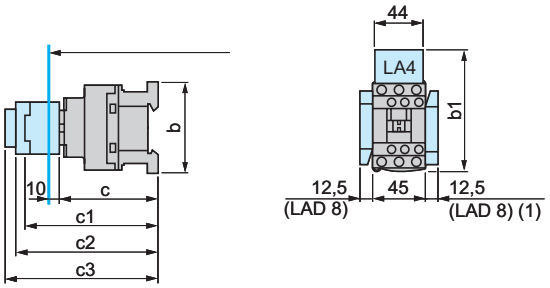
Wide range coils for specific applications
Average consumption: 23 W.
Operating range: 0.75 to 1.2 Uc.
Coils with "TH" treatment as standard.

Control circuit voltage Uc	Average resistance at 20 °C ± 10 %	Inductance of closed circuit	Reference *(1)*	Weight
V	Ω	H		kg
12	6.2	0.49	**LX4 D7JW**	0.680
24	23.5	1.75	**LX4 D7BW**	0.680
36	51.9	4.18	**LX4 D7CW**	0.680
48	94.2	7	**LX4 D7EW**	0.680
72	204	15.7	**LX4 D7SW**	0.680
110	483	36	**LX4 D7FW**	0.680
220	1922	144	**LX4 D7MW**	0.680

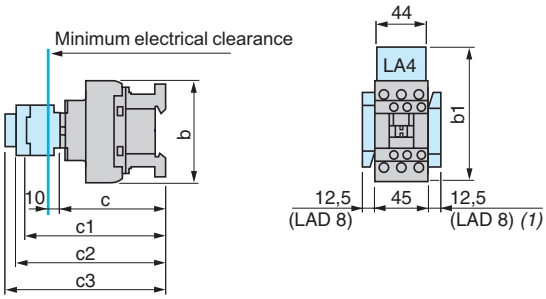
(1) The last 2 digits in the reference represent the voltage code.

TeSys contactors
TeSys d contactors
Control circuit: a.c.

LC1 D09…D18 (3-pole)



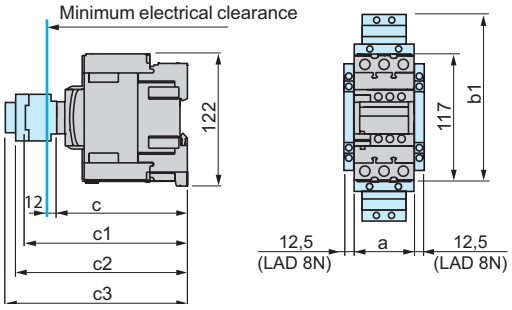
LC1 D25…D38 (3-pole), LC1 DT20…DT40 (4-pole)



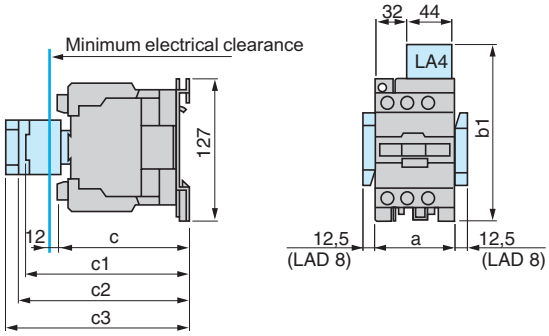
LC1		D09…D18	D093… D123	D099… D129	D25…D38	D183… D323	DT20 and DT25	DT203 and DT253	DT32 and DT40	DT323 and DT403
b	without add-on blocks	77	99	80	85	99	85	99	91	105
b1	with LAD 4BB	94	107	95,5	98	107	98	–	–	–
	with LA4 D●2	110 *(1)*	123 *(1)*	111,5 *(1)*	114 *(1)*	123 *(1)*	114	–	–	–
	with LA4 DF, DT	119 *(1)*	132 *(1)*	120.5 *(1)*	123 *(1)*	132 *(1)*	129	–	–	–
	with LA4 DW, DL	126 *(1)*	139 *(1)*	127.5 *(1)*	130 *(1)*	139 *(1)*	190	–	–	–
c	without cover or add-on blocks	84	84	84	90	90	90	90	97	97
	with cover, without add-on blocks	86	86	86	92	92	92	92	99	99
c1	with LAD N or C (2 or 4 contacts)	117	117	117	123	123	123	123	131	131
c2	with LA6 DK10, LAD 6K10	129	129	129	135	135	135	135	143	143
c3	with LAD T, R, S	137	137	137	143	143	143	143	151	151
	with LAD T, R, S and sealing cover	141	141	141	147	147	147	147	155	155

(1) Including LAD 4BB.

LC1 D40A…D65A (3-pole), LC1 DT60A…DT80A (4-pole),



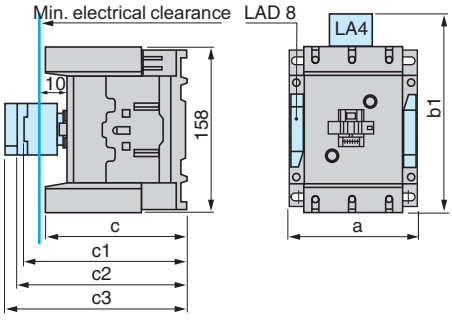
LC1 D80 and D95 (3-pole), LC1 D80004 and D80008 (4-pole), LC1 D65004, D40008 and D65008 (4-pole)



LC1		D40A…D65A	DT60A…DT80A	D40008	D80, D65004	D95, D65008	D80004	D80008
a		55	70	85	85	85	96	96
b1	with LA4 D●2	–	–	135	135	135	135	135
	with LA4 DB3 or LAD 4BB3	136	–	–	135	–	–	–
	with LA4 DF, DT	157	–	142	142	142	142	142
	with LA4 DM, DW, DL	166	–	150	150	150	150	150
c	without cover or add-on blocks	118	118	125	125	125	125	140
	with cover, without add-on blocks	120	120	–	130	130	–	–
c1	with LAD N (1 contact)	–	–	139	150	150	150	150
	with LAD N or C (2 or 4 contacts)	150	150	147	158	158	158	158
c2	with LAD 6K10 or LA6 DK	163	163	159	170	170	170	170
c3	with LAD T, R, S	171	171	167	178	178	178	178
	with LAD T, R, S and sealing cover	175	175	171	182	182	182	182

LC1 D115 and D150 (3-pole), LC1 D115004 (4-pole)

LC1		D115, D150	D115004	D115006	D150006	D1150046
a		120	150	120	120	155
b1	with LA4 DA2	174	174	174	174	174
	with LA4 DF, DT	185	185	185	185	185
	with LA4 DM, DL	188	188	188	188	188
	with LA4 DW	188	188	188	–	188
c	without cover or add-on blocks	132	132	115	115	115
	with cover, without add-on blocks	136	–	–	–	–
c1	with LAD N or C (2 or 4 contacts)	150	150	150	150	150
c2	with LA6 DK20	155	155	155	155	155
c3	with LAD T, R, S	168	168	168	168	168
	with LAD T, R, S and sealing cover	172	172	172	172	172

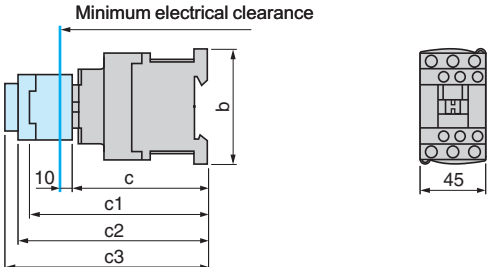


TeSys contactors

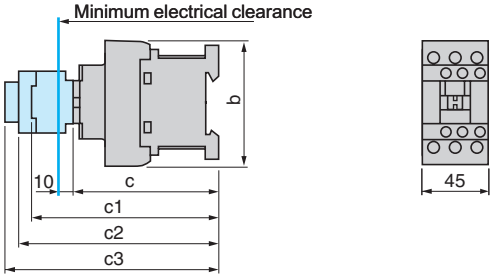
TeSys d contactors

Control circuit: d.c. or low consumption

LC1 D09…D18 (3-pole)

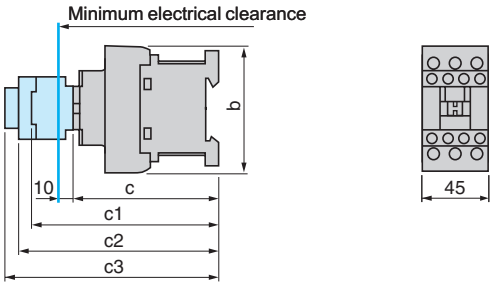


LC1 D25…D38 (3-pole)



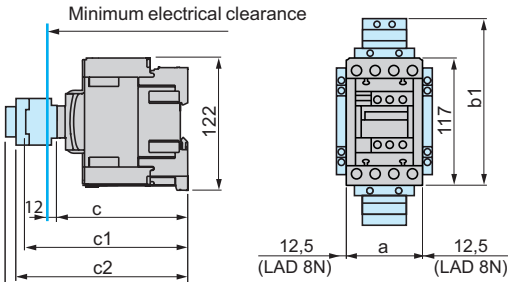
LC1		D09…D18	D093…D123	D099…D129	D25…D38	D183…D323
b		77	99	80	85	99
c	without cover or add-on blocks	93	93	93	99	99
	with cover, without add-on blocks	95	95	95	101	101
c1	with LAD N or C (2 or 4 contacts)	126	126	126	132	132
c2	with LA6 DK10	138	138	138	144	144
c3	with LAD T, R, S	146	146	146	152	152
	with LAD T, R, S and sealing cover	150	150	150	156	156

LC1 DT20 to DT40 (4-pole)

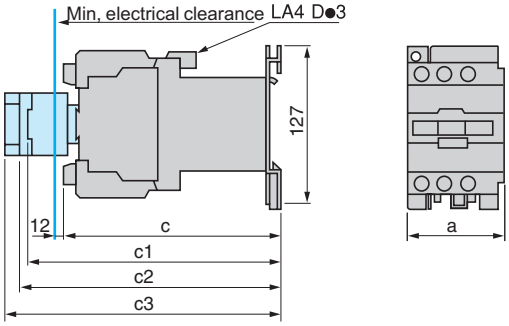


LC1		DT20 and DT25 D098 and D128	DT203 and DT253 D0983 and D1283	DT32 and DT40D188…D258	DT323 and DT403 D1883 and D2583
b		85	99	91	105
c	with cover	99	99	107	107
c1	with LAD N or C (2 or 4 contacts)	123	123	131	131
c2	with LA6 DK10	135	135	143	143
c3	with LAD T, R, S	143	143	151	151
	with LAD T, R, S and sealing cover	147	147	155	155

LC1 DT40A…DT65A (4-pole)



LC1 D80 and D95 (3-pole), LP1 D80004, LP1 D80008 (4-pole), LP1 D40008 and D65008 (4-pole)



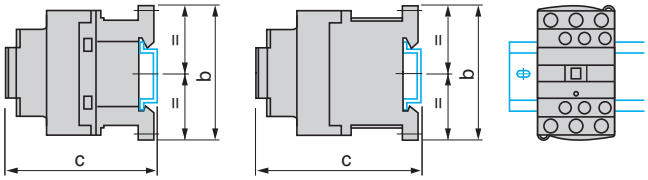
		LC1 DT40A…DT65A	LP1 D65004	LP1 D40008 and D65008	LC1 D80 and D95	LP1 D80004	LP1 D80008
a		70	85	85	96	96	96
b1	with LAD 4BB3	136	–	–	–	–	–
	with LA4 DF, DT	157	–	–	–	–	–
c	without cover or add-on blocks	118	171	182	181	181	196
	with cover, without add-on blocks	120	–	–	186	–	–
c1	with LAD N (1 contact)	–	196	196	204	204	204
	with LAD N or C (2 or 4 contacts)	150	202	202	210	210	210
c2	with LA6 DK10	163	213	213	221	221	221
c3	with LAD T, R, S	171	221	221	229	229	229
	with LAD T, R, S and sealing cover	175	225	225	233	233	233

LC1 D115●●● and LC1 D150●●● with ⎓ coil: see page 180

TeSys contactors
TeSys d contactors

LC1 D09…D38, DT20…DT40

On mounting rail AM1 DP200, DR200 or AM1 DE200 (width 35 mm)

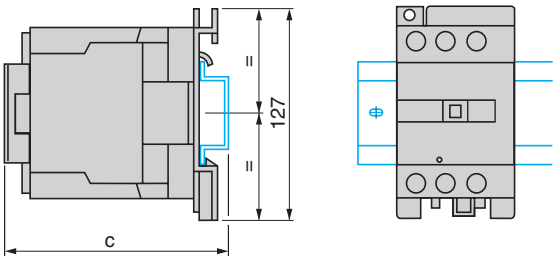


LC1	D09…D18	D25…D38	DT2 and DT25	DT32 and DT40
b	77	85	85	100
c (AM1 DP200 or DR200) *(1)*	88	94	94	109
c (AM1 DE200) *(1)*	96	102	102	117
Control circuit: d.c.				
b	77	85	94	109
c (AM1 DP200 or DR200) *(1)*	97	103	103	118
c (AM1 DE200) *(1)*	105	110	111	1236

(1) with safety cover.

LC1 D40A to D65A, LC1 D80 and D95, LP1 D40 to D80

On mounting rail AM1 DL200 or DL201 (width 75 mm)
On mounting rail AM1 ED●●● or AM1 DE200 (width 35 mm)



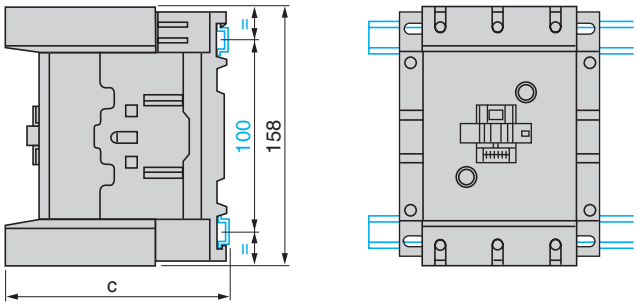
Control circuit: a.c. LC1	D40A…D65A	D80 and D95
c (AM1 DL200) *(1)*	–	147
c (AM1 DL201) *(1)*	–	137
c (AM1 ED●●● or DE200) *(1)*	128	137

Control circuit: d.c. LC1	D40A…D65A	D80 and D95
c (AM1 DL200) *(1)*	–	205
c (AM1 DL201) *(1)*	–	195
c (AM1 ED…or DE200) *(1)*	128	128

(1) with safety cover.

LC1 D115, D150

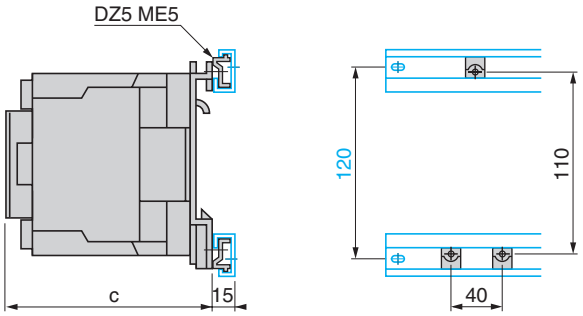
On 2 mounting rails DZ5 MB on 120 mm centres



Control circuit: a.c. or d.c. LC1	D115 and D150	D1156 and D1506
c (AM1 DP200 or DR200)	134.5	117.5
c (AM1 DE200 or ED●●●)	142.5	125.5

LC1 D80 and D95, LP1 D80

On 2 mounting rails DZ5 MB on 120 mm centres

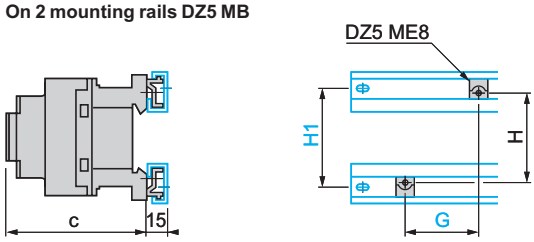


Control circuit: a.c. LC1	D80 and D95
c with cover	130
Control circuit: d.c. LC1	**D80 and D95**
c with cover	186
LP1	**D80**
c	181

Selection : pages 124 to 137
Characteristics : pages 138
References : pages 150 to 153
Schemes : pages 184

LC1 D09 to D38 and LC1 DT20…DT40

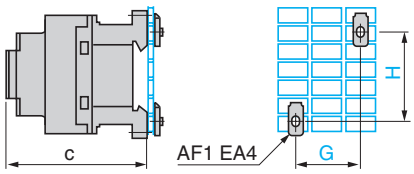
On 2 mounting rails DZ5 MB



Control circuit:	a.c.		d.c.	
LC1	**D09…D18**	**D25…D38**	**D09…D18**	**D25…D38**
c with cover	86	92	95	101
G	**35**	**35**	**35**	**35**
H	60	60	70	70
H1	**70**	**70**	**70**	**70**
4-pole contactors				
LC1	**DT20 and DT25**	**DT32 and DT40**	**DT20 and DT25**	**DT32 and DT40**
c	92	100	101	109
G	**35**	**35**	**35**	**35**
H	60	60	70	70
H1	**70**	**70**	**70**	**70**

LC1 D09…D38 and LC1 DT20…DT40

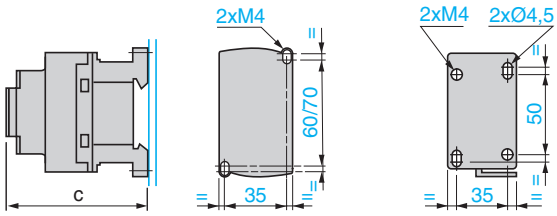
On pre-slotted mounting plate AM1 PA, PB, PC



Control circuit:	a.c.		d.c.	
LC1	**D09…D18**	**D25…D38**	**D09…D18**	**D25…D38**
c with cover	86	92	95	101
G	**35**	**35**	**35**	**35**
H	60/70	60/70	70	70
LC1	**DT20 and DT25**	**DT32 and DT40**	**DT20 and DT25**	**DT32 and DT40**
c with cover	80	93	118	132
G	**35**	**35**	**35**	**35**
H	60	60	60	60

LC1 D09…D38

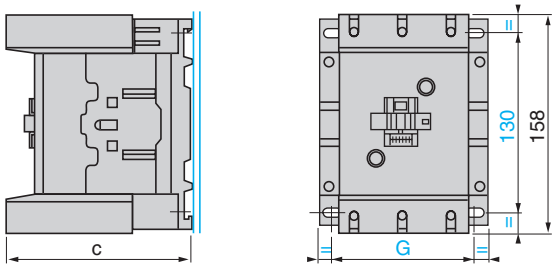
Panel mounted



Control circuit:	a.c.		d.c.	
LC1	**D09…D18**	**D25…D38**	**D09…D18**	**D25…D38**
c with cover	86	92	95	101
4-pole contactors				
LC1	**DT20 and DT25**	**DT32 and DT40**	**DT20 and DT25**	**DT32 and DT40**
c with cover	90	98	90	98

LC1 D115, D150

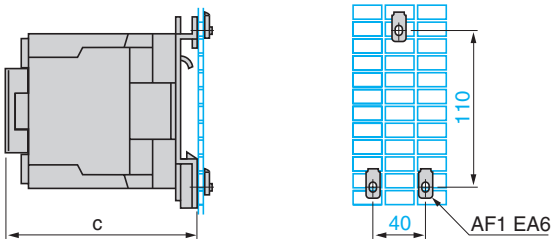
Panel mounted



LC1	D115	D1156	D150	D1506
c	132	115	132	115
G (3-pole)	**96/110**	**96/110**	**96/110**	**96/110**
G (4-pole)	**130/144**	**130/144**	**–**	**–**

LC1 D40A…D95, LP1 D80

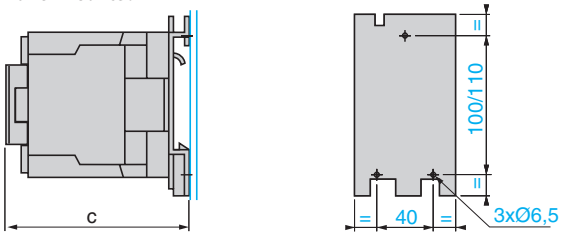
On pre-slotted mounting plate AM1 PA, PB, PC



Control circuit:	a.c.		d.c.	
LC1	**D40A…65A**	**D80 & D95**	**D40A…65A**	**D80 & D95**
c with cover	120	130	120	186
LP1	–	–		**D80**
c without cover	–	–		181

LC1 D40A…D95, LP1 D80

Panel mounted



Control circuit:	a.c.		d.c.	
LC1	**D40A…65A**	**D80 & D95**	**D40A…65A**	**D80 & D95**
c with cover	120	130	120	186
LP1	–	–		**D80**
c without cover	–	–		181

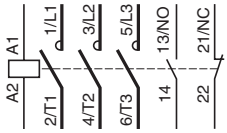
Selection : pages 124 to 137
Characteristics : pages 138
References : pages 150 to 153
Schemes : pages 184

TeSys contactors
TeSys d contactors

Contactors

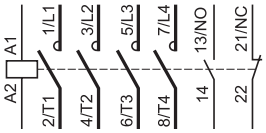
3-pole contactors (References: pages 150 to 153)

LC1 D09 to D150

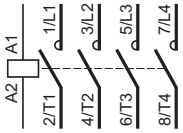


4-pole contactors (References: pages 152 and 153)

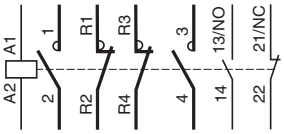
LC1 DT20 to DT80A



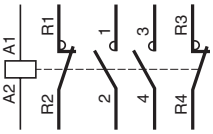
LC1 D115004



LC1 D098 to D258



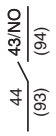
LC1 and LP1 D40008 to D80008



Front mounting add-on contact blocks

Instantaneous auxiliary contacts (References: page 167)

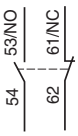
1 N/O LAD N10 *(1)*



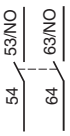
1 N/C LAD N01 *(1)*



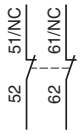
1 N/O + 1 N/C LAD N11



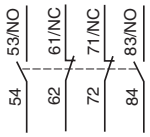
2 N/O LAD N20



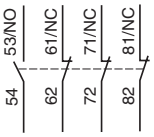
2 N/C LAD N02



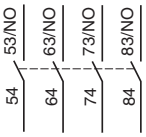
2 N/O + 2 N/C LAD N22



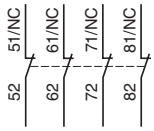
1 N/O + 3 N/C LAD N13



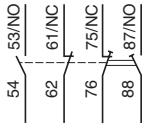
4 N/O LAD N40



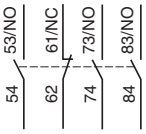
4 N/C LAD N04



2 N/O + 2 N/C including 1 N/O + 1 N/C make before break LAD C22

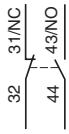


3 N/O + 1 N/C LAD N31

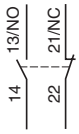


Instantaneous auxiliary contacts conforming to standard EN 50012 (References: page 167)

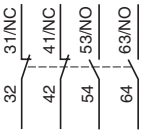
1 N/O + 1 N/C LAD N11G



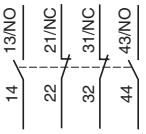
1 N/O + 1 N/C LAD N11P



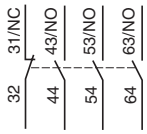
2 N/O + 2 N/C LAD N22G



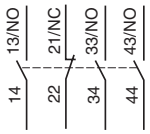
2 N/O + 2 N/C LAD N22P



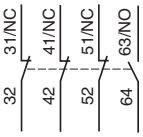
3 N/O + 1 N/C LAD N31G



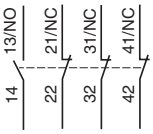
3 N/O + 1 N/C LADN31P



1 N/O + 3 N/C LAD N13G



1 N/O + 3 N/C LAD N13P

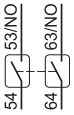


(1) Items in brackets refer to blocks mounted on right-hand side of contactor.

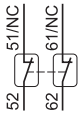
Front mounting add-on contact blocks

Dust and damp protected instantaneous auxiliary contacts (References: page 167)

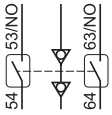
2 N/O (24-50 V)
LA1 DX20



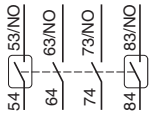
2 N/C (24-50 V)
LA1 DX02



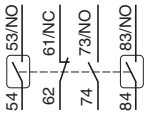
2 N/O (5-24 V)
LA1 DY20



2 N/O protected (24-50 V)
2 N/O standard LA1 DZ40



2 N/O protected (24-50 V)
+ 1 N/O + 1 N/C standard LA1 DZ31

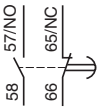


Time delay auxiliary contacts (References: page 168)

On-delay 1 N/O + 1 N/C LAD T



Off-delay 1 N/O + 1 N/C LAD R

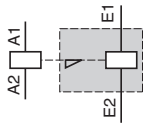


On-delay 1 N/C + 1 N/O break before make LAD S



Mechanical latch blocks (References: page 168)

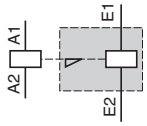
LAD 6K10 and LA6 DK20



Side mounting add-on contact blocks

Instantaneous auxiliary contacts (References: page 167)

1 N/O + 1 N/C LAD 8N11 *(1)*



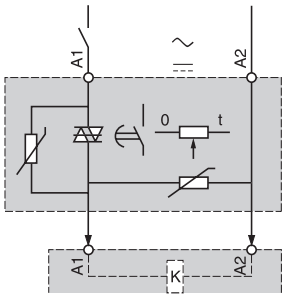
2 N/O LAD 8N20 *(1)*

2 N/O LAD 8N02 *(1)*

(1) Items in brackets refer to blocks mounted on right-hand side of contactor.

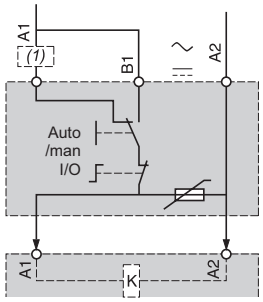
Electronic serial timer modules

On-delay LA4 DT●U



Auto-Man-Stop control modules

LA4 DM●

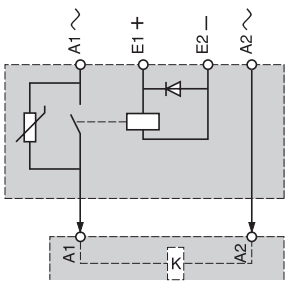


(1) PLC.

Interface modules

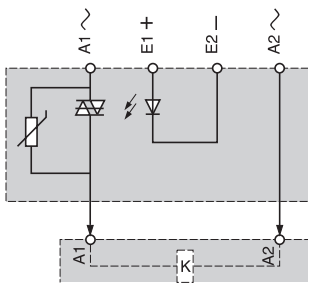
Relay output

LA4 DFB



Solid state

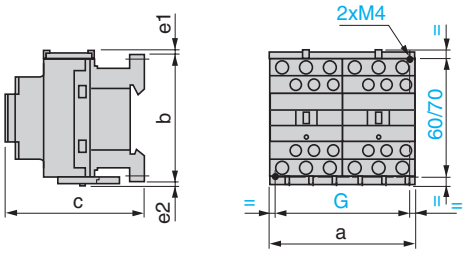
LA4 DWB



References: page 171.

LC2 D09 to D38

2 x **LC1 D09 to D38**



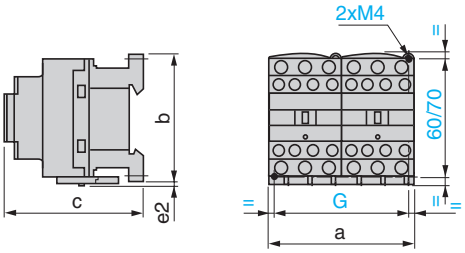
LC1 or 2 x **LC1**	**a**	**b**	**c** *(1)*	**e1**	**e2**	**G**
D09 to D18 ∼	90	77	86	4	1.5	**80**
D093 to D123 ∼	90	99	86	–	–	**80**
D09 to D18 ⎓	90	77	95	4	1.5	**80**
D093 to D123 ⎓	90	99	95	–	–	**80**
D25 to D38 ∼	90	85	92	9	5	**80**
D183 to D383 ∼	90	99	92	–	–	**80**
D25 to D32 ⎓	90	85	101	9	5	**80**
D183 to D383 ⎓	90	99	101	–	–	**80**

e1 and e2: including cabling.

(1) With safety cover, without add-on block.

LC2DT20 to DT40

2 x **LC1 DT20 to DT40**

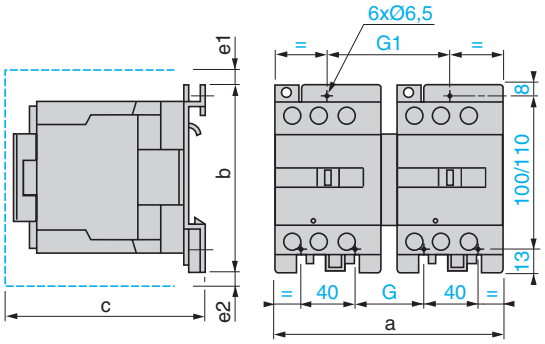


LC2 or 2 x **LC1**	**a**	**b**	**c**	**G**
DT20 and DT25	90	85	90	**80**
DT32 and DT40	90	91	98	**80**

c, e: including cabling.

LC2 D40 to D95

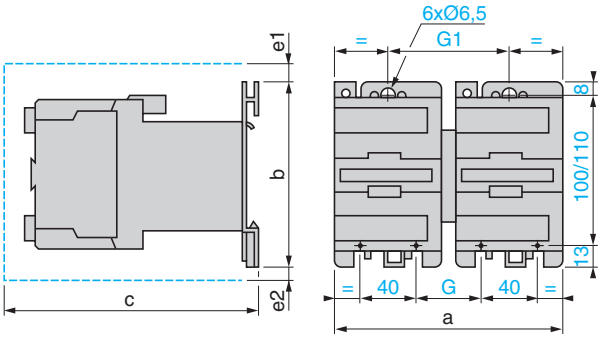
2 x **LC1 D40 to D95** ∼



LC2 or 2 x **LC1**	**a**	**b**	**c**	**e1**	**e2**	**G**	**G1**
D40 to D65 ∼	165	127	142	5	–	**50**	**90**
D65004 ∼	182	127	133	–	11	**57**	**97**
D80 and D95 ∼	182	127	158	13	–	**57**	**96**
D80004 ∼	207	127	158	–	20	**71**	**111**

c, e1 and e2: including cabling.

2 x **LC1 D40 to D95** ∼

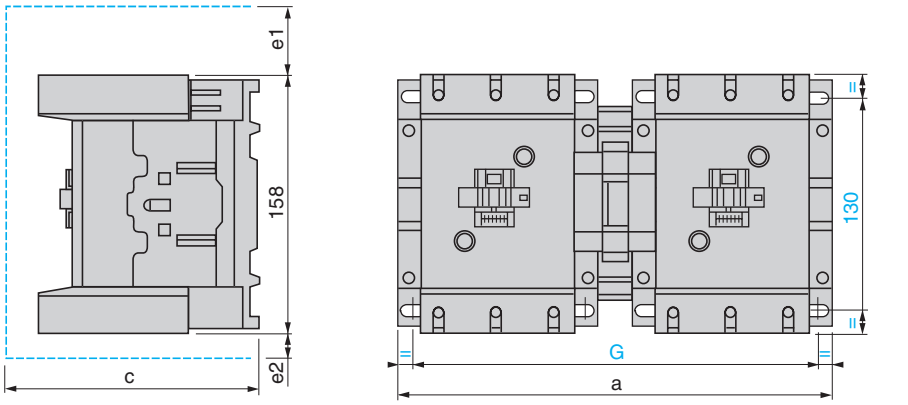


2 x **LC1**	**a**	**b**	**c**	**e1**	**e2**	**G**	**G1**
D40 to D65	182	127	190	5	11	**57**	**97**
D80 and D95	207	127	215	13	20	**96**	**111**

c, e1 and e2: including cabling.

LC2 D115 and D150

2 x **LC1 D115 and D150**



LC2 or 2 x **LC1**	**a**	**c**	**e1**	**e2**	**G**
D115 and D150	266	148	56	18	**242/256**
D115004	334	148	–	60	**310/324**

c, e1 and e2: including cabling.

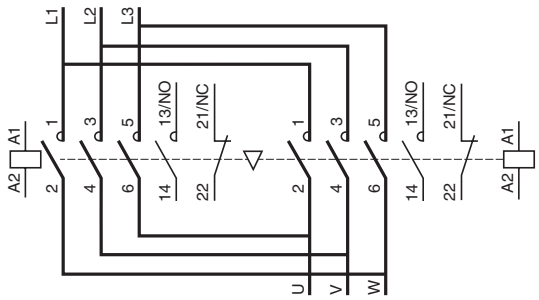
Selection : pages 124 to 137
Characteristics : page 138
References : pages 150 to 165
Schemes : page 187

TeSys contactors
TeSys d reversing contactors

Reversing contactors for motor control

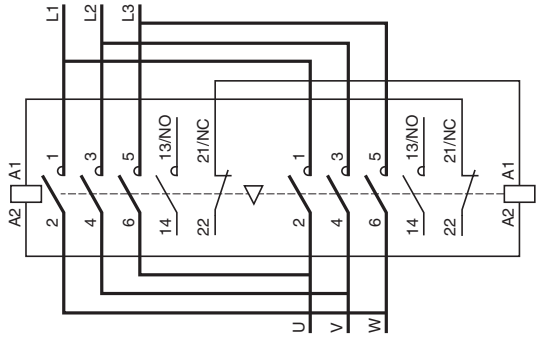
LC2 D09…D150

Horizontally mounted



LAD 9R1V

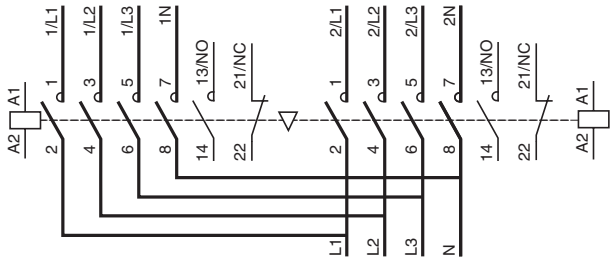
With integral electrical interlocking



Changeover contactor pairs

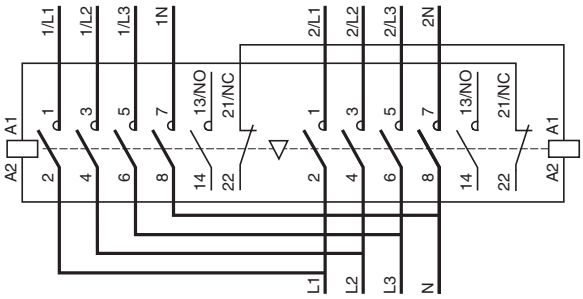
LC2 DT20…DT40

Horizontally mounted



LAD T9R1V

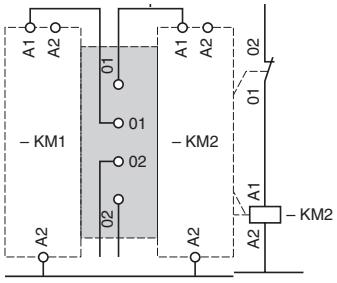
With integral electrical interlocking



Electrical interlocking of reversing contactors fitted with:

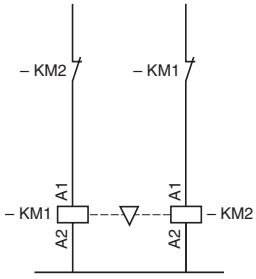
Mechanical interlock with integral electrical contacts

LA9 D●●●02

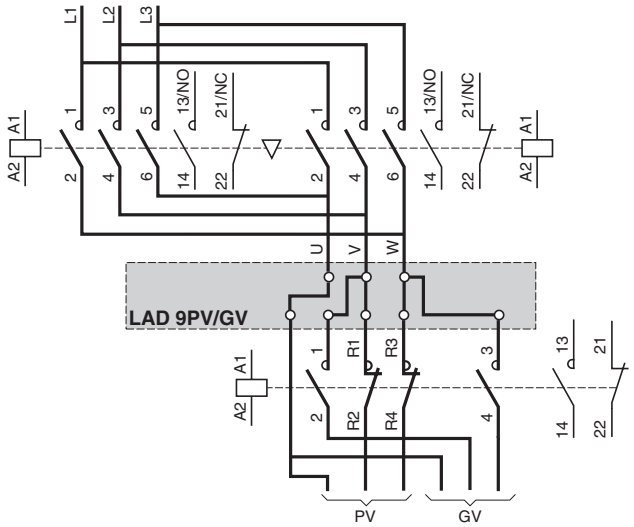


Mechanical interlock without integral electrical contacts

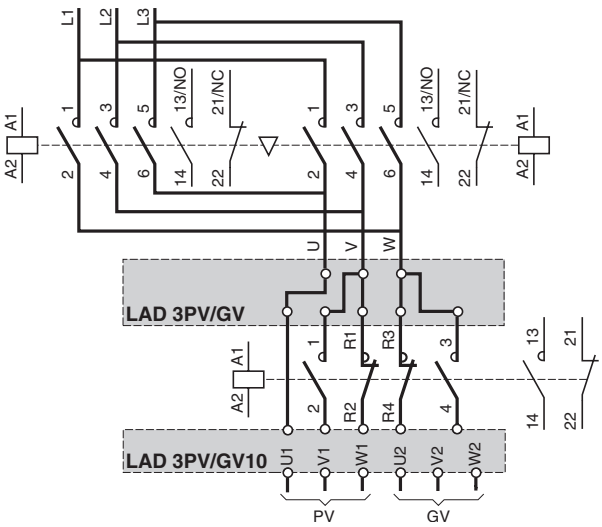
LA9 D●●●78, LAD 9R1



Low speed-High speed cabling kit, screw clamp terminals



Low speed-High speed cabling kit, spring terminals



Selection : pages 124 to 137
Characteristics : page 138
References : pages 150 to 165
Dimensions : page 186

Contents

Motor starters up to 150 A

TeSys d thermal overload relays

General: motor and machine protection . . . . . *page 190*

"Protection relays and controllers" selection guide . . . . . ***page 196***

■ **TeSys d thermal overload relays**

- □ Presentation . . . . . *page 198*
- □ Description . . . . . *page 198*
- □ Characteristics . . . . . *page 199*
- □ Relays references . . . . . *page 204*
- □ Accessories references . . . . . *page 209*
- □ Dimensions . . . . . *page 210*
- □ Schemes . . . . . *page 213*

Protection components
Motor and machine protection

Introduction

Exceeding the operating limits of an electric motor will lead, eventually, not only to destruction of the motor itself but also of the mechanisms it drives.

This type of load can be the cause of electrical or mechanical faults.
■ Electrical faults:
□ overvoltage, voltage drop, imbalance and phase failure which cause variations in the current drawn,
□ short-circuits which can cause the current to reach levels capable of destroying the load.

■ Mechanical faults:
□ locked rotor,
□ brief or prolonged overload which leads to an increase in the current drawn by the motor, and therefore overheating.

The cost of these faults must take into account loss of production, loss of raw materials, repair of the production tool, poor quality of production and delays in delivery.

These faults can also have dramatic consequences on the safety of persons in direct or indirect contact with the motor.

To prevent these faults, protection measures are necessary. They make it possible to isolate the equipment to be protected from the mains supply by measuring variations in electrical values (voltage, current, etc…).

Each motor starter must therefore have:

■ **short-circuit protection**, to detect and break, as quickly as possible, abnormal currents generally greater than 10 times the rated current (In).

■ **overload protection**, to detect increases in current up to about 10 In and switch off the starter before overheating of the motor and conductors damages the insulation.

This protection is provided by specific devices such as fuses, circuit-breakers and thermal overload relays, or by more integrated devices offering several types of protection.

Causes, effects and consequences of various faults

There are two types of fault:
- Internal faults within the motor.
- External faults: these are located outside the electric motor but their consequences can lead to damage inside the motor.

Faults	Causes	Effects	Consequences on the motor and on the machine
Short-circuit	Contact between several phases, or between one phase and neutral or between several turns of the same phase.	■ Current peak ■ Electrodynamic forces on the conductors	Destruction of windings
Overvoltage	■ Lightning ■ Electrostatic discharge ■ Operation	Dielectric breakdown in the windings	Destruction of the windings due to loss of insulation
Phase imbalance and phase failure	■ Opening of a phase ■ Single-phase load upstream of the motor ■ Short-circuit between the turns of the same winding	■ Reduction of usable torque, efficiency and speed ■ Increase in losses ■ Starting impossible if phase failure	Overheating *(1)*
High starting frequency	■ Failure of the automation system ■ Too many manual control operations ■ Numerous fault trips	High stator and rotor temperature rise due to the frequent start current	Overheating *(1)* Consequences on the process
Voltage variations	■ Instability of the mains voltage ■ Connection of heavy loads	■ Reduction of usable torque ■ Increase in losses	Overheating *(1)*
Harmonics	Pollution of the mains supply by variable speed drives, inverters, etc...	■ Reduction of usable torque ■ Increase in losses	Overheating *(1)*
Long starting time	■ Resistive torque too high (load too heavy) ■ Voltage drop	Increase in starting time	Overheating *1)*
Jamming	■ Mechanical problem (crusher) ■ Seizures	Overcurrent	Overheating *(1)* Consequences on the process
No-load running	■ Pump running empty ■ Mechanical break in drive to the load	Drop in current drawn	Consequences on the process
Frequency fluctuations	■ Overload of a supply powered by limited independent sources ■ Faulty alternator speed regulator	■ Increase in losses ■ Interferes with synchronous devices (clock, recorder, ...)	–
Overload	■ Increase in resistive torque ■ Voltage drop ■ Drop in power factor	Increase in current consumption	Overheating *(1)*
Loss of machine excitation	■ Significant drop in excitation current ■ Break in rotor winding	■ Increase in active power ■ Drop in power factor	Significant overheating of rotor and cage
Phase-Earth fault	■ Accidental Phase-Earth contacts ■ Accidental Phase-machine casing contacts (casing connected to earth)	■ Overvoltage developed in the mains supply ■ Rise in earth potential (safety of persons)	Consequences on safety of persons

(1) Then, in the longer or shorter term, depending on the seriousness of the fault and/or its frequency, short-circuit and destruction of the windings.

Protection components
Motor and machine protection

Protection functions
Short-circuit protection
General

A short-circuit results in a very rapid rise in current which can reach several hundred times the value of the operational current. The consequences of a short-circuit are dangerous to both equipment and persons. It is therefore imperative to use protection devices to detect the fault and very quickly break the circuit.

Two types of protection are commonly used:
- fuses (cutout) which break the circuit by melting, which then requires their replacement,
- magnetic trip circuit-breakers, often more simply called "magnetic circuit-breakers", which only require re-setting to put them back into service.

Short-circuit protection can also be built-into multifunction devices such as motor circuit-breakers and contactor-breakers.

The main characteristics of short-circuit protection devices are:
- their breaking capacity: this is the highest prospective short-circuit current value that a protection device can break at a given voltage.
- their making capacity: this is the highest current value that the protection device can make at its rated voltage in specified conditions.

The making capacity is equal to k times the breaking capacity.

566997



LS1 D32
fuse carrier

566998



GS1 K4
switch disconnectors

Fuses (cutouts)

Fuses provide individual phase protection (single-pole), with a high breaking capacity in a compact size:
- mounted either in fuse carriers,
- or in isolators, replacing the original links or shunt bars.

For motor protection, aM type fuses are used. Their design characteristics allow them to conduct the high magnetising currents that occur when motors are switched on. They are therefore unsuitable for overload protection (unlike gG type fuses). This is why an overload relay must be included in the motor power supply circuit.

566999



GV2 L
magnetic circuit-breraker

510586



TeSys U LUB 12 starter with
LUCA●● control unit

Magnetic circuit-breakers

These circuit-breakers protect installations against short-circuits, within the limit of their breaking capacity.
Magnetic circuit-breakers provide omnipole breaking as standard.
For relatively low short-circuit currents, the operation of a circuit-breaker is faster than that of fuses.
This protection conforms to standard IEC 60947-2.
The thermal and electrodynamic effects are also limited, therefore ensuring better protection of cables and equipment.

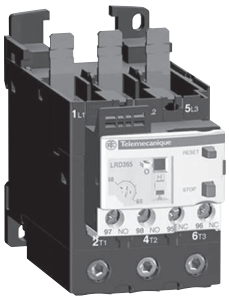
Protection components
Motor and machine protection

567000



LRD 02
thermal overload relay

536762



LRD 365

567002



RM4 JA current measurement relay



TeSys U starter with "thermal overload alarm" function module

Protection functions (continued)

Overload protection

General

An overload condition is the most frequently encountered fault. The symptoms are a rise in the current drawn by the motor and thermal effects. A rapid return to normal operating conditions is important.
The actual operating conditions (ambient temperature, operating altitude and type of standard duty) are essential to determine the operating values of the motor (power, current) and to be able to select effective overload protection. These operational values are given by the motor manufacturer.

According to the level required, protection can be provided by:
- overload relays and thermal overload relays (bi-metallic or electronic type) which protect motors in the event of:
  - overload, by monitoring the current drawn by each phase,
  - phase imbalance or failure, by their differential mechanism.
- relays with PTC thermistor probes (Positive Temperature Coefficient).
- overtorque relays,
- multifunction relays.

Overload relays

These relays protect motors against overload. They must allow the temporary overload that occurs on starting and must only trip if the starting time is abnormally long.
The overload relay will be selected according to the length of the starting time (tripping class) and the motor rating.
These relays have a thermal memory (except for certain electronic overload relays, indicated by their manufacturers) and can be connected:
- either in series with the load,
- or to current transformers placed in series with the load.

Bi-metallic thermal overload relays
Combined with a contactor, these relays protect the line and the equipment against small and prolonged overloads. They must be protected against strong overcurrent by a circuit-breaker or fuses.
These relays may be used on an a.c. or d.c. system and are generally:
- 3-pole,
- compensated, i.e. insensitive to ambient temperature variations,
- with manual or automatic reset,
- graduated with a "motor FLC" scale: allowing direct setting to the full load current as shown on the motor rating plate.

They can also be sensitive to phase failure: this is known as 'differential'. This function conforms to standards IEC 60947-4-1 and 60947-6-2
This type of relay is extremely reliable and is a relatively low cost device.

Electronic thermal overload relays
Electronic thermal overload relays have the advantage of electronics which allow a more complex thermal image of the motor to be created.
They can be combined with products having complementary functions, such as:
- temperature sensing via PTC probes,
- protection against jamming and overtorque,
- protection against phase reversal,
- earth fault protection,
- protection against no-load running,
- alarm function.

Protection components
Motor and machine protection

567003



LT3 S relays for use with thermistor probes

567004



LR97 D07 instantaneous electronic overcurrent relays

510588



TeSys U LUB 32 starter with multifunction control unit LUC M

567006



TeSys U controller LUTM 20BL

567007



TeSys T controller LTM R08MBD

Protection functions (continued)

Overload protection (continued)

Relays for use with PTC thermistor probes

With direct sensing of the stator windings, these relays can be used to protect motors against:
- overload,
- a rise in ambient temperature,
- a ventilation circuit fault,
- a high starting frequency,
- mechanical shocks, etc...

Overload (or overtorque) relays

These relays protect the drive line in the event of a locked rotor, seizure or mechanical shocks. This is an additional protection.
Unlike thermal overload relays, these relays do not have a thermal memory. They have definite time characteristics (adjustable current threshold and time delay).
The overtorque relay can be used as overload protection for motors with long starting times or very frequent starting (for example, lifting hoists).

Multifunction relays

- Overcurrent relays are limited when it is necessary to take into account problems associated with voltage, temperature or special applications. New production or maintenance management needs have prompted manufacturers to offer products which provide not only adaptable protection, but also complete management of the motor and its load.

They incorporate:
- current and voltage sensors (TeSys T controllers),
- hybrid analog and digital electronic technology,
- the use of communication buses for data exchange and control,
- powerful motor modelling algorithms,
- integrated application programs whose parameters can be set.

These products make it possible to reduce installation and operating costs by reducing maintenance and downtime.

TeSys U starters:
The multifunction relay is incorporated in the motor starter.
This solution is very compact with reduced wiring. It is limited to 32 A.

TeSys U controllers:
The multifunction relay is separate from the power line and reuses the function blocks from the TeSys U solution. It can be used in conjunction with a contactor up to 810 A.

TeSys T controllers:
The multifunction relay is separate from the power line and incorporates inputs and outputs. It can be used in conjunction with a contactor up to 810 A.

Protection components
Motor and machine protection

Protection relay selection table

	Motor protection		Machine protection	Motor and machine protection	
Relay type	**Thermal overload relay** **LR2 K, LRD, LRD 3, LR9 F, LR9 D** *(1)*	**Relays for use with PTC probes** **LT3 S**	**Overtorque relays** **LR97 D, LT47**	**TeSys U controller** **LUT M**	**TeSys T controller** **LTM R**
Causes of overheating	*(2)*		*(2)*	*(2)*	*(3)*
Slight overload	■	■	■	■	■
Locked rotor	■	■	■	■	■
No-load running	■	■	■	■	■
Supply phase failure	■	■	LR9 7D	■	■
Ventilation fault	■	■	■	■	With probes
Abnormal temperature rise	■	■	■	■	With probes
Shaft bearing seizure	■	■	■	■	With probes
Insulation fault	■	■	■	■	■
Protracted starting time	■	■	■	■	■
Severe duty	■	■	■	■	With probes
Voltage variation	■	■	■	■	■
Frequency fluctuations	■	■	■	■	■
Loss of machine excitation	■	■	■	■	■

■ Ideally suited
■ Possible solution
■ Not suitable (no protection)

(1) for motor circuit-breaker type GV2ME.
(2) Protection based on current.
(3) Protection based on current and voltage.

TeSys protection components
Protection relays and controllers

Applications	**Motor protection**		
	Thermal motor protection		
		 	
Protection	- Motor overload - Stalling - Phase failure		
Tripping class	Class 10 A	Classes 10 A and 20	Classes 10 and 20
Communication	–		
Used with contactor type	LC1 K, LP1 K	LC1 D	LC1 F
Motor current (In)	0.11…16 A	0.1…150 A	30…630 A
Relay type	**LR2 K**	**LRD, LR2 D and LR9 D**	**LR9 F**
Pages	Please consult our catalogue “Motor starter solutions”.	204 to 207	Please consult our catalogue “Motor starter solutions”.