

# D-line Contactors, Enclosed Starters, Overload Relays, and Accessories

## Selection of Contactors for Motor Control

### AC Control Circuit — 3-pole Contactors with Touch-safe Terminals for Power Cabling

The tables below show the kilowatt ratings (for international applications) and horsepower ratings (for North American applications) of contactors for motor control.

*NOTE: 3-pole contactors without auxiliary contacts conform to standard EN50012. For further information on auxiliary contact blocks and modules, see pages 108 to 115.*

Maximum horsepower ratings						Maximum Inductive Current in AC-3 Category 600 V	Standard power ratings of 3-phase motors 50/60 Hz in category AC-3							Rated Operating Current in AC-3 up to 440 V	Instantaneous Auxiliary Contacts		Catalog Number	Weight
1-phase 50/60 Hz		3-phase 50/60 Hz					220 V 230 V	380 V 400 V	415 V	440 V	500 V	660 V 690 V	1000 V		N.O.	N.C.		
115/120 V	230/240 V	200/208 V	220/240 V	460/480 V	575 V 600 V	A	kW	kW	kW	kW	kW	kW	A				kg (lb.)	
0.5	1	2	2	5	7.5	9	2.2	4	4	4	5.5	5.5	9	–	–	LC1D0900** *	0.340 (0.75)	
														1	–	LC1D0910**	0.340 (0.75)	
														–	1	LC1D0901**	0.340 (0.75)	
1	2	3	3	7.5	10	12	3	5.5	5.5	5.5	7.5	7.5	12	–	–	LC1D1200** *	0.345 (0.77)	
														1	–	LC1D1210**	0.345 (0.77)	
														–	1	LC1D1201**	0.345 (0.77)	
1	3	5	5	10	15	18	4	7.5	9	9	10	10	18	–	–	LC1D1800** *	0.355 (0.79)	
														1	–	LC1D1810**	0.365 (0.81)	
														–	1	LC1D1801**	0.365 (0.81)	
2	3	7.5	7.5	15	20	25	5.5	11	11	11	15	15	25	–	–	LC1D2500** *	0.400 (0.89)	
														1	–	LC1D2510**	0.530 (1.18)	
														–	1	LC1D2501**	0.530 (1.18)	
2	5	10	10	20	30	32	7.5	15	15	15	18.5	18.5	32	–	–	LC1D3200** *	0.545 (1.21)	
														1	–	LC1D3210**	0.555 (1.21)	
														–	1	LC1D3201**	0.555 (1.23)	
Not UL Listed or CSA Certified Not for North American applications						38	9	18.5	18.5	18.5	18.5	18.5	38	1	–	LC1D3810**	0.555 (1.23)	
														–	1	LC1D3801**	0.555 (1.23)	
3	5	10	10	30	30	40	11	18.5	22	22	22	30	22	40	1	1	LC1D4011**	1.400 (3.11)
3	7.5	15	15	40	40	50	15	22	25	30	30	33	30	50	1	1	LC1D5011**	1.400 (3.11)
5	10	20	20	50	50	65	18.5	30	37	37	37	37	37	65	1	1	LC1D6511**	1.400 (3.11)
7.5	15	25	30	60	60	80	22	37	45	45	55	45	45	80	1	1	LC1D8011**	1.590 (3.53)
Not UL Listed or CSA Certified Not for North American applications						95	25	45	45	45	55	45	45	95	1	1	LC1D9511**	1.610 (3.58)
–	–	30	40	75	100	115	30	55	59	59	75	80	75	115	–	–	LC1D11500**	2.420 (5.38)
–	–	40	50	100	125	150	40	75	80	80	90	100	90	150	–	–	LC1D15000**	2.440 (5.42)

- ◆ For LC1D09 to LC1D38: clip-on mounting on 35 mm DIN rail AM1DP or screw mounting.
- For LC1D40 to LC1D95: clip-on mounting on 35 mm DIN rail AM1DE or 75 mm DIN rail AM1DL or screw mounting.
- For LC1D115 and LC1D150: clip-on mounting on 2 x 35 mm DIN rails AM1DP or screw mounting.
- ▼ Use voltage codes on page 49 "Coil Selection" to complete catalog number.
- \* Built specifically for German markets. Contact your Local Square D Field Sales Office for delivery information

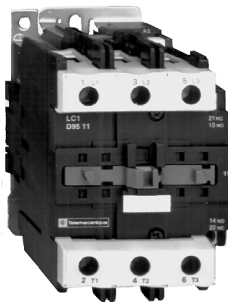
LC1D0901\*\*



LC1D2510\*\*



LC1D9511\*\*




















LC1D11500\*\*



## Selection Guide for IEC-style Contactors and Starters

### Technical Information: Product Approvals

#### Existing and Pending Approval of Automation System Components (except control and signalling units)

Standard Version X: Approved O: Approval pending  Special Version +: Approved Ø: Approval pending	Approvals							Marine Classification Authorities							Quality Labels			
																		
	ASE	CSA	DEMKO	FI	NEMKO	UL		BV	DNV	GL	LROS	NKK	RINA	RRS	KEMA	NF	ÖVE	SEMKO
	Switzerland	Canada	Denmark	Finland	Norway	U.S.A.		France	Norway	Germany	Great Britain	Japan	Italy	CIS	Netherlands	France	Austria	Sweden
AK5		X			X		X		X		X							
ATP		O					X											
ATS23		X					X											
ATV16, ATV66		X					X											
CA2D	X	X	X	X	X		X	X	X				X					X
CA2KN	X	X	X				X	O	O	O	O		O	O				X
CA3D	X	X	X		X		X	X	X				X					X
CA3KN	X	X					X	O	O	O	O		O	O				X
CA4D	X	X		X			X	X					X					X
CA4KN	X	X	X				X	O	O	O	O		O	O				X
CCX 17		O					X		O									
DF6																X		
DK1								X					X					
FTX 417		O					X											
FTX 117		O					O											
GB2CB	X	X			X	X											X	
GB2CD					X	X												
GC1 <sup>■</sup>			X		X									X	X	X	X	
GC3					X										X			
GD2					X													
GV2M <sup>■</sup>		X	X		X		X	X	X	X	X			X			O	X
GV2P		X					X											
GV3		X					X				X						X	
GV7R		X					X	O	O	O	O		O					
GY1 <sup>■</sup>					X											X	X	
GY3					X										X			
LA1D	X	X	X		X		X	X	X	O	O		X	X				X
LA1KN		X	X				X	O	O	O	O		O	O				X
LA1LB		X			X		X	O	X	O	O		X					X
LA1LC		X	X	X	X		X	X	X	X	X	X	X	X				
LA2D, LA3D		X	X		X		X	X	X	O	X		X	X				X
LA2K, LA4K		X					X	O	O	O	O		O	O				
LA4D	X	X					X	X		O	O		X	X				
LA8D	X	X		X	X		X	X		O	O		X	X				
LB•LB	X	X	X	X	X		X	O	X	O	O		X	O			X	X
LB•LC		X	X		X		X	X	X	X	X	X	X	X				
LB•LD	X	X		X			X	X	X	X		X	X	X				
LC1B								X										
LC1D	X	X	X	X	X		X	X	X	O	O		X	X				X
LC2D	X	X					X	X	X	O	O		X	X				

■ Products approved under the CEBEC quality label (Belgium).



## K-line Mini-contactors, D-line Contactors, and Enclosed Starters Coil Selection

*NOTE: Voltage codes in bold face are typical control voltages and generally in stock. Contact your local Square D Field Sales Office for delivery information on all other voltages.*

### Contactors LC1K, LC2K (0.8 to 1.15 Vc)

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

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

- ▲ When connecting an electronic sensor or timer in series with the coil of the control relay, select a 20 V coil (AC control circuit voltage code Z7, DC control circuit voltage code ZD) so as to compensate for the incurred voltage drop.
- ◆ 0.85 to 1.1 Vc.

### Contactors LC7K, LC8K (0.85 to 1.1 Vc)

<b>Volts AC 50/60 Hz</b>	24	42	48	110	220	230/240
<b>Voltage Code</b>	B7	D7	E7	F7	M7	U7

### Contactors LP1K, LP2K (0.8 to 1.15 Vc)

<b>Volts DC</b>	12	20	24 ▲	36	48	60	72	100	110	125	155	174	200	220	230	240	250
<b>Voltage Code</b>	JD	ZD	BD	CD	ED	ND	SD	KD	FD	GD	PD	QD	LD	MD	MPD	MUD	UD

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

- ▲ When connecting an electronic sensor or timer in series with the coil of the control relay, select a 20 V coil (AC control circuit voltage code Z7, DC control circuit voltage code ZD) so as to compensate for the incurred voltage drop.

### Contactors LC1D, LC2D

<b>Volts AC</b>	24	42	48	110	115	120	127	208	220	230	240	277	380	400	415	440	480	500	575	600	660
<b>LC1D09 to LC1D115</b>																					
50 Hz	B5	D5	E5	F5	FE7	–	G5 ●	–	M5	P5	U5	–	Q5	V5	N5	R5	–	S5	–	X5	Y5 ■
60 Hz	<b>B6</b>	D6	E6	F6	–	<b>G6</b>	–	L6	M6	–	<b>U6</b>	W6	Q6	–	–	R6	<b>T6</b>	–	S6 ■	X6 ■	–
<b>LC1D09 to LC1D150 (coils LC1D115 and LC1D150 with built-in surge suppression)</b>																					
50/60 Hz	<b>B7</b>	D7	E7	<b>F7</b>	FE7	G7	FC7	L7 ★	M7	P7	U7	UE7 ★	Q7	V7	N7	R7	T7 ★	S7	–	–	–

Note: For other voltages from 24 to 660 Vac, see pages 119 to 122.

- Not available on LC1D115.
- ★ For D115 and D150 only.
- For LC1D115 use FC5.

### Contactors LP1D, LP2D

<b>Operating Range Volts DC</b>	12	24	36	48	60	72	110	125	220	250	440
<b>LP1D09 to LP1D32</b>											
0.8 to 1.1 V	JD	<b>BD</b>	CD	ED	ND	SD	FD	GD	MD	UD	RD
0.7 to 1.25 V	JW	BW	CW	EW	–	SW	FW	–	MW	–	–
<b>LP1D40 to LP1D80</b>											
0.85 to 1.1 V	JD	<b>BD</b>	CD	ED	ND	SD	FD	GD	MD	UD	RD
0.75 to 1.2 V	JW	BW	CW	EW	–	SW	FW	–	MW	–	–
<b>LC1D115 and LP1D150 (coils with built-in surge suppression)</b>											
0.7 to 1.2 V	–	<b>BD</b>	–	ED	ND	SD	FD	GD	MD	UD	RD




Note: For other voltages from 12 to 440 Vdc, see pages 123 to 125.



# D-Line Contactors, Overload Relays and Accessories

## Characteristics

### Type LC●D and LP●D contactors

Type			LC1-D09	LC1-D12	LC1-D18	LC1-D25			
			LP1-D09	LP1-D12	LP1-D18	LP1-D25			
<b>Environment</b>									
Rated insulation voltage (Ui)	UL/CSA		V	690	690	690	690		
	To IEC 947-4-1, overvoltage category III, degree of pollution: 3		V	1000	1000	1000	1000		
	Conforming to UL, CSA		V	600	600	600	600		
Rated impulse withstand voltage (Uimp)	Conforming to IEC 947		kV	8	8	8	8		
Conforming to standards	 Meets the essential requirements of the LV & EMC directives		IEC 947-1, 947-4-1, NFC 63-110, VDE 0660, BS 5424, JEM 1038., EN 60947-1, EN 60947-4-1.						
Approvals	 E164862 CCN NLDX	 LR43364 Class 3211 04	ASE, UL, CSA, DEMKO, NEMKO, SEMKO, FI, Conforming to SNCF, Sichere Trennung recommendations						
Degree of protection ■	Conforming to VDE 0106		Power connections	Protection against direct finger contact IP 2X					
			Coil connections	Protection against direct finger contact IP 2X					
Protective treatment	Conforming to IEC 68		"TH"						
Ambient air temperature around the device	Storage		- 60 to + 80°C (-76 to +176°F)						
	Operation at 80 to 110% nominal control voltage		- 5 to + 55°C (-23 to +131°F)						
	Permissible at nominal control voltage		- 40 to + 70°C (-40 to +158°F)						
Maximum operating altitude	Without derating		3000m (8900 ft)						
Operating positions	Without derating		± 30° possible, in relation to normal vertical mounting plane						
Flame resistance	Conforming to UL 94		V 1	V1	V1	V1			
	Conforming to IEC 695-2-1		960°	960°	960°	960°			
Shock resistance ★ 1/2 sine wave = 11ms	Contactor open		10 g	10 g	10 g	8 g			
	Contactor closed		15 g	15 g	15 g	15 g			
Vibration resistance ★ 5 to 300 Hz	Contactor open		2 g	2 g	2 g	2 g			
	Contactor closed		4 g	4 g	4 g	4 g			
<b>Pole characteristics</b>									
Number of poles			3	3 or 4	3	3 or 4			
Rated operational current (Ie)	In AC-3, $\theta \leq 55^\circ\text{C}$ (131°F)		A	9	12	18	25		
	In AC-1, $\theta \leq 40^\circ\text{C}$ (104°F)		A	20	25	32	40		
Rated operational voltage (Ue)	Up to		V	690	690	690	690		
Frequency limits	Of the operational current		Hz	25 to 400	25 to 400	25 to 400	25 to 400		
Rated thermal current (Ith)	$\theta \leq 40^\circ\text{C}$ (104°F)		A	20	25	32	40		
Rated making capacity (1 rms)	Conforming to IEC 947-4		A	250	250	300	450		
Rated breaking capacity (1 rms)	Conforming to IEC 947		220-380-415-440 V		A	250	300	450	
			500 V		A	175	175	250	400
			690 V		A	85	85	120	180
Permissible short time rating from cold state, no current flowing for previous 15 minutes, at $\theta \leq 40^\circ\text{C}$	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		
Short-circuit protection	By circuit breaker		Select circuit breaker in accordance with NEC and local codes						
	By fuses		Maximum 400% of motor full load Amps						
Average impedance per pole	A 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		

■ Protection provided for the cable c.s.a. indicated on pages 10 and 11 and for cable connections.

★ In the least favorable direction, without change of contact state (coil supplied at Ue).



## D-Line Contactors, Overload Relays and Accessories Characteristics

LC1-D32	LC1-D38	LC1-D40	LC1-D50	LC1-D65	LC1-D80	LC1-D95	LC1-D115	LC1-D150
LP1-D32		LP1-D40	LP1-D50	LP1-D65	LP1-D80			
690	690	690	690	690	690	690	690	690
1000	1000	1000	1000	1000	1000	1000	1000	1000
600	600	600	600	600	600	600	600	600
8	8	8	8	8	8	8	8	8

IEC 947-1, 947-4-1, NFC 63-110, VDE 0660, BS 5424, JEM 1038., EN 60947-1, EN 60947-4-1.

ASE, UL, CSA, DEMKO, NEMKO, SEMKO,  
FI, Conforming to SNCF, Sichere Trennung  
recommendations

UL, CSA

Protection against direct finger contact IP 2X

Protection against direct finger contact IP 2X except LP1-D40 to D80

"TH"

- 60 to + 80°C (-76 to +176°F)

- 5 to + 55°C (-23 to +131°F)

- 40 to + 70°C (-40 to +158°F)

3000m (8900 ft)

± 30° possible, in relation to normal vertical mounting plane

V 1	V 1	V 1	V 1	V 1	V 1	V 1	V 1	V 1
960°	960°	960°	960°	960°	960°	960°	960°	960°
8 g	8 g	8 g	8 g	8 g	8 g	8 g	6 g	6 g
15 g	10 g	10 g	10 g	10 g	10 g	10 g	15 g	15 g
2 g	2 g	2 g	2 g	2 g	2 g	2 g	2 g	2 g
4 g	4 g	3 g	3 g	3 g	3 g	3 g	4 g	4 g
3	3	3 or 4	3	3 or 4	3 or 4	3	3 or 4	3
32	38	40	50	65	80	95	115	150
50	50	60	80	80	125	125	200	200
690	690	1000	1000	1000	1000	1000	1000	1000
25 to 400	25 to 400	25 to 400	25 to 400	25 to 400	25 to 400	25 to 400	25 to 400	25 to 400
50	50	60	80	80	125	125	200	200
550	–	800	900	1000	1100	–	–	–
550	–	800	900	1000	1100	–	–	–
450	–	800	900	1000	1100	–	–	–
180	–	400	400	630	640	–	–	–
430	430	720	810	900	990	1100	1100	1400
260	310	320	400	520	640	800	950	1200
138	150	165	208	260	320	400	550	580
60	60	72	84	110	135	135	250	250

Select circuit breaker in accordance with NEC and local codes

Maximum 400% of motor full load Amps

2	2	1.5	1.5	1	0.8	0.8	0.6	0.6
2	2	2.4	3.7	4.2	5.1	7.2	7.9	13.5
5	5	5.4	9.6	6.4	12.5	12.5	24	24



# D-Line Contactors, Overload Relays and Accessories

## Selection – Contactors for Motor Control

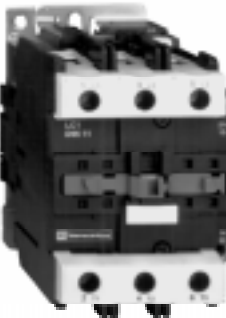
**Control Circuit: AC**  
**Kilowatt ratings for international applications**  
**3-pole contactors with Fingersafe™ terminals for power cabling**



LC1-D0901●●



LC1-D2510●●



LC1-D9511●●



LC1-D11500●●

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3							Rated operating current in AC-3 440V up to	Instantaneous auxiliary contacts *		Catalog number. Complete with code indicating control circuit voltage ★ ■ DIN rail or screw mounting	Weight
220V 230V	380V 400V	415V	440V	500V	660V 690V	1000V		N/O	N/C		
kW	kW	kW	kW	kW	kW	kW	A				kg (lb.)
2.2	4	4	4	5.5	5.5	-	9	-	-	LC1-D0900●●	0.340 (0.75)
								1	-	LC1-D0910●●▲	0.340 (0.75)
								-	1	LC1-D0901●●▲	0.340 (0.75)
3	5.5	5.5	5.5	7.5	7.5	-	12	-	-	LC1-D1200●●	0.345 (0.77)
								1	-	LC1-D1210●●▲	0.345 (0.77)
								-	1	LC1-D1201●●▲	0.345 (0.77)
4	7.5	9	9	10	10	-	18	-	-	LC1-D1800●●	0.355 (0.79)
								1	-	LC1-D1810●●▲	0.365 (0.81)
								-	1	LC1-D1801●●▲	0.365 (0.81)
5.5	11	11	11	15	15	-	25	-	-	LC1-D2500●●	0.400 (0.89)
								1	-	LC1-D2510●●▲	0.530 (1.18)
								-	1	LC1-D2501●●▲	0.530 (1.18)
7.5	15	15	15	18.5	18.5	-	32	-	-	LC1-D3200●●	0.545 (1.21)
								1	-	LC1-D3210●●▲	0.555 (1.21)
								-	1	LC1-D3201●●▲	0.555 (1.23)
9	18.5	18.5	18.5	18.5	18.5	-	38	1	-	LC1-D3810●●	0.555 (1.23)
								-	1	LC1-D3801●●	0.555 (1.23)
11	18.5	22	22	22	30	22	40	1	1	LC1-D4011●●▲	1.400 (3.11)
15	22	25	30	30	33	30	50	1	1	LC1-D5011●●	1.400 (3.11)
18.5	30	37	37	37	37	37	65	1	1	LC1-D6511●●	1.400 (3.11)
22	37	45	45	55	45	45	80	1	1	LC1-D8011●●	1.590 (3.53)
25	45	45	45	55	45	45	95	1	1	LC1-D9511●●	1.610 (3.58)
30	55	59	59	75	80	75	115	-	-	LC1-D11500●●	2.420 (5.38)
40	75	80	80	90	100	90	150	-	-	LC1-D15000●●	2.440 (5.42)

Note: 3-pole contactors without auxiliary contacts conform to standard EN 50012.

Auxiliary contact blocks and modules: see pages 42 to 49.

■ For LC1-D09 to D38: clip-on mounting on 35 mm DIN rail AM1-DP or screw mounting.

For LC1-D40 to D95: clip-on mounting on 35 mm DIN rail AM1-DE or 75 mm DIN rail AM1-DL or screw mounting.

LC1-D115 and D150: clip-on mounting on 2 x 35 mm DIN rails AM1-DP or screw mounting.

### ★ AC Coil Selection

Volts	24	42	48	110	120	208	220	230	240	277	380	400	415	440	480	500	575	600	660
<b>LC1-D09 to D95</b>																			
50 Hz	B5	D5	E5	F5	-	-	M5	P5	U5	-	Q5	V5	N5	R5	-	S5	-	X5	Y5
60 Hz	B6	D6	E6	F6	G6	L6	M6	-	U6	W6	Q6	-	-	R6	T6	-	S6	X6	-
<b>LC1-D09 to D150 (coils D115 and D150 with built-in surge suppression)</b>																			
50/60 Hz	B7	D7	E7	F7	FE7		M7	P7	U7		Q7	V7	N7	R7	T7	S7	-	-	-

Other voltages from 24 to 660 V, see pages 53 to 56.