# TeSys<sup>™</sup> D-Line Contactors and Starters General Information

The D-line contactors and overload relays are the largest selling line of contactors and starters in the world. They offer high reliability with long mechanical and electrical life and the most complete line of accessories in the industry.

### **Contactor Ratings**

- D-line contactors and overload relays are available in 11 contactor ratings for the USA market for inductive motor applications up to 150 full-load amps and resistive loads up to 200 A. They offer motor control and overload protection for motors rated up to 100 hp at 480 Vac or 125 hp at 600 Vac.
- 3-pole and 4-pole contactor versions available.
- All contactors include built-in auxiliary contacts.
- All screw connections have IP20 rated touch-safe terminals with both North American and International terminal markings.
- D-line contactors can be panel mounted with screws or DIN rail mounted.

### Easily Installed Accessories

- Auxiliary contact blocks with serrated wiping action
- Front mount dust tight auxiliary contact blocks
- Pneumatic time delay blocks
- Transient voltage surge suppressors
- Interface modules and electronic timers
- Mechanical latching blocks

### **Control Circuit Flexibility**

The D-line contactors are available with ac or dc operating coils. Several devices utilize a lowconsumption dc coil with built-in transient suppression for operation with a low-level dc signal from a computer or PLC without need for an interposing relay.

#### **Overload Relays**

Class 10 or Class 20 bimetallic overload relays are available up to 140 A. They are bimetallic ambient compensated and are available with or without single-phase sensitivity for phase unbalance and phase loss protection. New solid state overload relays are available for 90 to 150 A applications. Both bimetallic and solid-state overload relays include the following features:

- Isolated N.C. trip contact and N.O. alarm contacts.
- Manual or Automatic reset function (bi-metallic versions only).
- Tamper-resistant window for FLA settings.
- Test trip button.

# TeSys<sup>™</sup> D-Line Contactors and Starters Selection of Contactors for Motor Control

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

#### AC and DC Control Circuit — 3-pole Contactors with Touch-safe Terminals for Power Cabling (AC-3 category)

Maximu	Maximum horsepower ratings					Standa	ard powe	er rating	s of 3-pł	nase mo	tors 50/	60 Hz in		Instantaneous				
1-phase	50/60 Hz	3-phas	se 50/60	Hz		Maximum Inductive	catego	ry AC-3						Rated	Auxilia Contac	ry ts		
115/ 120 V	230/ 240 V	200/ 208 V	220/ 240 V	460/ 480 V	575 V 600 V	Current in AC-3 Category 600 V	220 V 230 V	380 V 400 V	415 V	440 V	500 V	660 V 690 V	1000 V	Current in AC-3 up to 440 V		Ļ	Catalog Number ▼♦	Weight Ib (kg)
HP	HP	HP	HP	HP	HP	Α	kW	kW	kW	kW	kW	kW	kW	Α	N.O.	N.C.		
0.5	1	2	2	5	7.5	9	2.2	4	4	4	5.5	5.5	-	9	1	1	LC1D09++	0.71 (0.320)
1	2	3	3	7.5	10	12	3	5.5	5.5	5.5	7.5	7.5	-	12	1	1	LC1D12••	0.72 (0.325)
1	3	5	5	10	15	18	4	7.5	9	9	10	10	-	18	1	1	LC1D18••	0.73 (0.330)
2	3	7.5	7.5	15	20	25	5.5	11	11	11	15	15	-	25	1	1	LC1D25••	0.82 (0.370)
2	5	10	10	20	30	32	7.5	15	15	15	18.5	18.5	-	32	1	1	LC1D32++	0.83 (0.375)
Not for N	orth Ameri	ican app	lications	•		38	9	18.5	18.5	18.5	18.5	18.5	-	38	1	1	LC1D38++	0.84 (0.380)
3	5	10	10	30	30	40	11	18.5	22	22	22	30	22	40	1	1	LC1D40••	3.11 (1.400)
3	7.5	15	15	40	40	50	15	22	25	30	30	33	30	50	1	1	LC1D50++	3.11 (1.400)
5	10	20	20	50	50	65	18.5	30	37	37	37	37	37	65	1	1	LC1D65++	3.11 (1.400)
7.5	15	25	30	60	60	80	22	37	45	45	55	45	45	80	1	1	LC1D80++	3.53 (1.590)
Not for N	orth Ameri	ican app	lications	•		95	25	45	45	45	55	45	45	95	1	1	LC1D95••	3.58 (1.610)
-	-	30	40	75	100	115	30	55	59	59	75	80	75	115	1	1	LC1D115++	5.38 (2.420)
-	-	40	50	100	125	150	40	75	80	80	90	100	90	150	1	1	LC1D150++	5.42 (2.440)

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 115 "Voltage Code Table" to complete catalog number.

Devices are UL Listed at the same HP ratings as 32 and 80 amp devices, respectively.

LC1D09••

LC1D65••

LC1D150••







# TeSys<sup>™</sup> D-Line Contactors and Starters Selection of Contactors for Motor Control

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



# LC1D123••

AC ar		Contr		Cuit -	— 3-p	ole Cont	actor	's for	Sprin	g ler	mina	Con	nectio	ns (AC-3	cate	gory)		
Maximur 1-phase	n horsepo 50/60 Hz	ower rat 3-phas	ings ie 50/60	Hz		Maximum Inductive	Standa catego	rd powe ry AC-3	er rating	s of 3-pł	nase mo	tors 50/6	60 Hz in	Rated	Instant Auxilia Contac	aneous 'y ts		
115/ 120 V	230/ 240 V	200/ 208 V	220/ 240 V	460/ 480 V	575 V 600 V	Current in AC-3 Category 600 V	220 V 230 V	380 V 400 V	415 V	440 V	500 V	660 V 690 V	1000 V	Current in AC-3 up to 440 V		Ļ	Catalog Number ▼♦	Weight Ib (kg)
HP	HP	HP	HP	HP	HP	Α	kW	kW	kW	kW	kW	kW	kW	Α	N.O.	N.C.		
0.5	1	2	2	5	7.5	9	2.2	4	4	4	5.5	5.5	-	9	1	1	LC1D093••	0.71 (0.320)
1	2	3	3	7.5	10	12	3	5.5	5.5	5.5	7.5	7.5	-	12	1	1	LC1D123••	0.72 (0.325)
1	3	5	5	10	15	18	4	7.5	9	9	10	10	-	18	1	1	LC1D183••	0.73 (0.330)
2	3	7.5	7.5	15	20	25	5.5	11	11	11	15	15	-	25	1	1	LC1D253••	0.82 (0.370)
2	5	10	10	20	30	32	7.5	15	15	15	18.5	18.5	-	32	1	1	LC1D323••	0.83 (0.375)
Not for N	orth Ameri	ican app	lications			38	9	18.5	18.5	18.5	18.5	18.5	-	38	1	1	LC1D383++	0.84 (0.380)

For LC1D09 to LC1D38: clip-on mounting on 35 mm DIN rail AM1DP or screw mounting.

Use voltage codes on page 115 "Voltage Code Table" to complete catalog number.

-Device is UL Listed at the same HP ratings as 32 amp device.



# TeSys<sup>™</sup> D-Line Contactors and Starters Selection of Auxiliary Contact Blocks

#### Instantaneous Auxiliary Contact Blocks for Connection by Screw Clamp Terminals

For use in normal ope	rating environments								
			Com	positi	on				
Clip-on mounting	Number of contacts per block (se maximum number of contacts)	ee table below for	þ	¢	∳		ł	Catalog Number	Weight Ib (kg)
	4		-	-	-	1	-	LADN10 ♦	0.04 (0.020)
	1		-	-	-	-	1	LADN01 ♦	0.04 (0.020)
			-	-	-	1	1	LADN11	0.07 (0.030)
	2			-	—	2	-	LADN20	0.07 (0.030)
			-	-	-	-	2	LADN02	0.07 (0.030)
Front			-	-	-	2	2	LADN22	0.11 (0.050)
	4			-	-	1	3	LADN13	0.11 (0.050)
				-	-	4	-	LADN40	0.11 (0.050)
				-	-	-	4	LADN04	0.11 (0.050)
				-	-	3	1	LADN31	0.11 (0.050)
	4 includes one N.O. and one N.C. n	nake before break	-	-	-	2	2	LADC22	0.11 (0.050)
				-	-	1	1	LAD8N11•	0.07 (0.030)
Side	2		-	-	-	2	-	LAD8N20 •	0.07 (0.030)
				-	-	-	2	LAD8N02 •	0.07 (0.030)
For terminal referencing	ng conforming to standard EN	50012 •							
Front, on	2		—	-	—	1	1	LADN11G	0.07 (0.030)
3P contactors & 4P contactors 20 to 60A	4		-	-	-	2	2	LADN22G	0.11 (0.050)
Front, on	2		-	-	-	1	1	LADN11P	0.07 (0.030)
4P contactors 80 to 200A	4		-	-	-	2	2	LADN22P	0.11 (0.050)
With dust and damp p	rotected terminals, for use in p	particularly harsh in	dustr	ial en	viron	ment	S		
	2		-	2	-	-		LA1DX20	0.09 (0.040)
			2	-	-	-	-	LA1DX02	0.09 (0.040)
Front			-	2	2	-	-	LA1DY20 A	0.09 (0.040)
	4		-	2	-	2	-	LA1DZ40	0.11 (0.050)
			-	2	_	1	1	LA1DZ31	0.13 (0.060)

For LC1D40 through LC1D95 only.
 Device with 4 shield bonding terminals.

Mount on left side only of LCeD09 through D38 with AC coils. Not allowed on LCeD09 through D38 with DC coils.

#### Instantaneous auxiliary contact blocks for connection by ring-tongue connectors

This type of connection is not possible for blocks with dust and damp protected contacts. For all other instantaneous auxiliary contact blocks, add the digit 6 to the end of the references selected above. Example: LADN10 becomes LADN106.

Instantaneous auxiliary contact blocks for connection by spring terminals

This type of connection is not possible for LAD8, LADN with 1 contact or blocks with dust and damp protected contacts. For all other contact blocks, add the digit 3 to the end of the references selected above. Example: LADN11 becomes LADN113.

Instantaneous auxiliary contact blocks for connection by Faston connectors

This type of connection is not possible for LAD8, LADN with 1 contact or blocks with dust and damp protected contacts. For all other contact blocks, add the digit 9 to the end of the references selected above. Example: LADN11 becomes LADN119.

#### Maximum Number of Auxiliary Contacts

Contac	tors		Instantaneous auxili	ary contac	ct blocks			Time delay
			Side mounted		Front moun	ted		Front
Туре	Numb	per of poles and size	Side mounted	Side mounted		2 contacts	4 contacts	mounted
	3P	LC1D09 to D38	1 on left-hand side	and	-	1	or 1	or 1
		LC1D40 to D95 (50/60 Hz)	1 on each side	or	2	and 1	or 1	or 1
		LC1D40 to D95 (50 or 60 Hz)	1 on each side	and	2	and 1	or 1	or 1
ac		LC1D115 and D150	1 on left-hand side	and	-	1	or 1	or 1
	4P	LC1DT20 to DT40	1 on left-hand side	and	-	1	or 1	or 1
		LC1D65 and D80	1 on each side	or	1	or 1	or 1	or 1
		LC1D115	1 on each side	and	1	or 1	or 1	or 1
	3P	LC1D09 to D38	-		-	1	or 1	or 1
		LC1D40 to D95	-		1	or 1	or 1	or 1
طم		LC1D115 and D150	1 on left-hand side	and	-	1	or 1	or 1
ac	4P	LC1DT20 to DT40	1 on left-hand side	or	-	1	or 1	or 1
		LP1D65 and D80	-		2	and 1	or 1	or 1
		LC1D115	1 on each side		-	and 1	or 1	or 1
	3P	LC1D09 to D38	-		-	1 (2)	-	-
LC (1)	4P	LC1DT20 to DT40	1 on left-hand side	and	-	1	or 1	or 1
(1) LC: I	ow consu	imption.				•	•	•

(2) Except LADN02.

# **TeSys™ D-Line Contactors and Starters** Selection of Time-Delay Blocks, and Mechanical-Latch Blocks



**LADT**•



LA6DK••



LADT•3



LA6DK••



LA4SPX A

#### Time Delay Auxiliary Contact Blocks for Connection by Screw Clamp Terminals

Maximum number of auxiliary contact blocks that can be attached per contactor, see page 107. Sealing cover to be ordered separately, see page 114. LADT0 and LADR0: with extended scale from 0.1 to 0.6 s. LADS2: with switching time of 40 ms ± 15 ms between opening of the N.C. contact and closing of the N.O. contact.

Clin on Mounting	Number of Contexts	Time Delay		Cotolog Number	Weight Ib (kg)
Clip-on Mounting	Number of Contacts	Туре	Setting Range	Catalog Number	weight ib (kg)
Front	1 N.O. + 1 N.C.	On-delay ♦	0.1 to 3 s	LADT0	(0.13) 0.060
			0.1 to 30 s	LADT2	(0.13) 0.060
			10 to 180 s	LADT4	(0.13) 0.060
			1 to 30 s	LADS2	(0.13) 0.060
		Off-delay ♦	0.1 to 3 s	LADR0	(0.13) 0.060
			0.1 to 30 s	LADR2	(0.13) 0.060
			10 to 180 s	LADR4	(0.13) 0.060
<ul> <li>Also fit pre-TeSys Cont</li> </ul>	tactors.	•	•		·

#### Also

Time delay auxiliary contact blocks for connection by ring-tongue connectors
Add the digit 6 to the end of the references selected above. Example: LADT0 becomes LADT06.
Time delay auxiliary contact blocks for connection by spring terminals
Add the digit 3 to the end of the references selected above. Example: LADT0 becomes LADT03.
Time delay auxiliary contact blocks for connection by Faston connectors
Add the digit 9 to the end of the references selected above. Example: LADT0 becomes LADT09.

#### Mechanical latch blocks (2)

Clip-on Mounting	Unlatching Control	For use on Contactor	Basic Reference. Complete with Code Indicating Control Voltage	Standard Voltages (1)	Weight Ib (kg)
Front	Manual or electric	LC1D40 to D65 3P ac or dc LC1D65 4P ac LP1D65 4P dc	LA6DK10•	BEFMQ	(0.15) 0.070
		LC1D80 to D150 3P ac LC1D80 and D115 3P dc LP1D80 and LC1D115 4P $_{o}$	LA6DK20•	BEFMQ	(0.20) 0.090
		LC1D09 to D38 ac or dc LC1DT20 to DT60 ac or dc	LAD6K10•	BEFMQ	(0.15) 0.070
(1) Standa	ard control circuit	voltages (for other voltages please consult you	r Regional Sales Office).		

Vdc 50/60 Hz, 24 32/36 42/48 60/72 100 110/127 220/240 256/277 380/415 Code в С Е EN κ F М U Q

(2) The mechanical latching block must not be powered up at the same time as the contactor. The duration of the control signal for the mechanical latching block and the contactor should be  $\geq$  100 ms.

# SERIPLEX<sup>®</sup> Module

Approvals	File E114926 CCN NRAQ		LR53531 Class 2252 01		
SERIPLEX	1 block per contactor Clip-on front mounting	Operates coils up to	Catalog Number	Weight – Ib (kg.)	
Contactor adoptor modulo A	LC1D09 to LC1D80	277 Vac		0.460 (0.070)	
	LP1D09 to LP1D80	24 Vdc	LA4SFA	0.100 (0.072)	

For more information, refer to SERIPLEX catalog 8330CT9601.

Attaches similarly to all other accessories.

# TeSys<sup>™</sup> D-Line Contactors and Starters Dimensions for Type LC1D Contactors

#### **D-Line Contactors AC Control Circuits**



# TeSys<sup>™</sup> D-Line Contactors and Starters Dimensions for Type LC1D Contactors

## D-Line Contactors DC Control Circuit or Low Consumption

LC1D	09 to D18 (3-pole)		LC1D25 to D38 (3-	pole)		
	Minimum electrical clearance	000 000 1.77 45	Minimun 0.39 c 10 c1 c2 c3			
LC1		D09 to D18	D093 to D183	D099 to D189	D25 to D38	D253 and D383
b		3.03 (77)	3.89 (99)	3.30 (80)	3.34 (85)	3.89 (99)
с	without cover or add-on blocks	3.66 (93)	3.66 (93)	3.66 (93)	3.89 (99)	3.89 (99)
	with cover, without add-on blocks	3.76 (95)	3.76 (95)	3.76 (95)	3.97 (101)	3.97 (101)
c1	with LADN or C (two or four contacts)	4.96 (126)	4.96 (126)	4.96 (126)	5.19 (132)	5.19 (132)
c2	with LA6DK10	5.43 (138)	5.43 (138)	5.43 (138)	5.66 (144)	5.66 (144)
c3	with LADT, R, S	5.76 (146)	5.76 (146)	5.76 (146)	5.98 (152)	5.98 (152)
	with LADT, R, S and sealing cover	5.90 (150)	5.76 (146)	5.76 (146)	6.14 (156)	6.14 (156)

LC1DT20 to DT60 (4-pole)



LC1		DT20 and DT25 D098 and D128	DT203 and DT253 D0983 and D1283	DT32 to DT40 D188 to D258	DT323 and DT403 D1883 and D2583
b		3.34 (85)	3.89 (99)	3.58 (91)	4.13 (105)
С	with cover	3.56 (90)	3.56 (90)	3.54 (98)	3.54 (98)
c1	with LADN or C (two or four contacts)	4.84 (123)	4.84 (123)	5.15 (131)	5.15 (131)
c2	with LA6DK10	5.31 (135)	5.31 (135)	5.62 (143)	5.62 (143)
c3	with LADT, R, S	5.62 (143)	5.62 (143)	5.94 (151)	5.94 (151)
	with LADT, R, S and sealing cover	5.78 (147)	5.78 (147)	6.10 (155)	6.10 (155)
LC1D	40 to D65 (3-pole 65004, LP1D40008 to D65008 (4-pole)		LC1D80 and D95 ( LP1D80004, LP1D8	3-pole) 30008 (4-pole)	

Minimum electrical clearance





				3			
		LC1	LP1D65004	LP1D40008	LC1	LP1	LP1
		D40 to D65		and D65008	D80 and D95	D80004	D80008
С	without cover or add-on blocks	6.73 (171)	6.73 (171)	7.46 (182)	7.40 (181)	7.40 (181)	-
	with cover, without add-on blocks	6.92 (176)	-	-	7.32 (186)	-	8.03 (204)
c1	with LADN (1 contact)	7.71 (196)	7.71 (196)	7.71 (196)	8.03 (204)	8.03 (204)	8.26 (210)
	with LADN or C (2 or 4 contacts)	7.95 (202)	7.95 (202)	7.95 (202)	8.26 (210)	8.26 (210)	8.70 (221)
c2	with LA6DK10	8.38 (213)	8.38 (213)	8.38 (213)	8.70 (221)	8.70 (221)	9.01 (229)
c3	with LADT, R, S	8.70 (221)	8.70 (221)	8.70 (221)	9.01 (229)	9.01 (229)	9.17 (233)

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# **TeSys™ D-Line Contactors and Starters** Mounting Information for Type LC1D and LP1D Contactors

On mounting rail AM1DP200, DR200 or AM1DE200 (width 35 mm) LC1D09 to D38, DT20 to DT60





LC1	D09 to D18	D25 to D38	DT20 and DT25	DT32 to DT40
b	3.03 (77)	3.36 (85)	3.36 (85)	3.93 (100)
c (AM1DP200 or DR200) (1)	3.46 (88)	3.70 (94)	3.70 (94)	4.29 (109)
c (AM1DE200) (1)	3.77 (96)	4.01 (102)	4.01 (102)	4.60 (117)

С

On mounting rail AM1DL200 or DL201 (width 75 mm) On mounting rail AM1ED••• or AM1DE200 (width 35 mm) LC1D40 to D95, LP1D40 to D80

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trol circuit

LC1	D40 to D65	D80 and D95
c (AM1DL200) (1)	5.35 (136)	5.78 (147)
c (AM1DL201) (1)	4.96 (126)	5.39 (137)
c (AM1ED••• or DE200) (1)	4.96 (126)	5.39 (137)

5.0

#### dc control circuit

b	3.03 (77)	3.36 (85)	3.70 (94)	4.29 (109)
c (AM1DP200 or DR200) (1)	3.81 (97)	4.05 (103)	4.05 (103)	4.64 (118)
c (AM1DE200) (1)	4.13 (105)	4.33 (110)	4.37 (111)	4.84 (123)

dc control circuit			
LC1	D40 to D65	D80 and D95	
c (AM1DL200) (1)	7.59 (193)	7.99 (203)	
c (AM1DL201) (1)	7.20 (183)	7.99 (203)	

LP1	D40	D65	D80
c (AM1DL200)	7.40 (188)	7.40 (188)	7.78 (198)
c (AM1DL201)	7.00 (178)	7.00 (178)	7.78 (198)

(1) with safety cover

On two mounting rails DZ5MB at 120 mm center LC1D115, D150



On two mounting rails DZ5MB at 120 mm center LC1D40 to D95, LP1D40 to D80





120		110	
1	⊈		2

ac control circuit

LC1	D40 to D65	D80 and D95
c with cover	4.70 (119)	5.11 (130)

dc	control	circuit
uc	control	circuit

LC1	D40 to D65	D80 and D95
c with cover	6.92 (176)	7.32 (186)
LP1	D40 and D65	D80
c	6.73 (171)	7.12 (181)

#### ac or dc control circuit

with safety cover

(1)

LC1	D115 and D150	D1156 and D1506
c (AM1DP200 or DR200)	134.5	117.5
c (AM1DE200 or ED●●●)	142.5	125.5



# TeSys<sup>™</sup> D-Line Contactors and Starters Mounting Information for Type LC1D and LP1D Contactors

