

C&S F-LINE CONTACTORS - GENERAL CHARACTERISTICS

TYPE		UNIT	LC1-FDP115A-780A, LC1F-1154A-7804A
Rated Insulation Voltage (Ui)	(Conforming to IEC 158-1)	V	1500
	VDEO 110GRC/IEC 60947-4	V	1500
Conforming to Standards			NFC63-110, VDEO660, BS5424, JEM 1038, IEC60947-1 & IEC60947-4
Approvals			UL*, CSA, IEC
Protective treatment	Standard Version		"TH"
Ambient air temperature (around the device)	Storage	°C	-60 to +80
	Operation	°C	-5 to +60 (0.8 to 1.1 Uc)
	Permissible	°C	-40 to +70, for operation at Uc
Maximum operating altitude	Without derating	Mtr.	3000
Operating position	Without derating		+30° possible, in relation to normal vertical mounting plane

POLE CHARACTERISTICS

TYPE	LC1-F	UNIT	115A	150A	185A	225A	265A	330A	400A	500	630A	780A
Number of Poles (Power)			3 or 4	3 or 4	3	3	3	3	3	3 or 4	3 or 4	3 or 4
Rated current (Ie) in AC-3 θ< 55°C		A	115	150	185	225	265	330	400	500	630	780
Rated operating voltage upto		V	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Frequency limits of the operating current		Hz	25-200	25-200	25-200	25-200	25-200	25-200	25-200	25-200	25-200	25-200
Rated thermal current (Ith) θ< 40°C		A	200	250	275	315	350	400	100	100	1000	1600
Rated making capacity I _{rms} conforming to IEC-947-4		A	1300	1700	2100	2460	2940	3600	4500	5550	6740	8550
Rated breaking capacity	220-440V	A	1300	1500	1800	2050	2450	3000	4000	5000	6300	7100
	500V	A	1100	1200	1600	1850	2200	2810	3500	4500	5400	6100
RMS conforming to IEC-947-4	690V	A	90	1100	1200	1350	1700	1350	350	3560	4600	5200
Average impedance per pole at Ith & 50 Hz		MILLI Ω	0.4	0.4	0.36	0.36	0.32	0.28	0.28	0.18	0.12	0.1
Power dissipation per pole for above operational current AC-3		W	6	9	12	18	22	31	45	45	48	60
Tightening Torque	Power circuit	Nm	10	18	18	35	35	35	35	35	58	58
Cabling	Maximum CSA											
No. of Bars	2	2	2	2	2	2	2	2	2	2		
Bar		mm	20x3	25x3	25x3	32x4	32x4	30x5	30x5	40x5	60x5	100x5
Cable with Lug		mm	95	120	150	185	240	240	2x150	2x240		
Cable with connector		Sqmm	95	120	150	185	240					
Bolt Diameter		Sqmm	6	8	8	10	10	10	10	10	12	2xDia 14

CONTROL CIRCUIT CHARACTERISTICS

TYPE (LC1-F)		UNIT	115A	150A	185A	225A	265A	330A	400A	500A	630A	780A
Rated control circuit voltage (Uc)	50 or 60 Hz	V	24.. 600						48... 600		48...600	110...500
Control voltage limits	Operational		0.85 - 1.1 0Uc						0.85-1.10Uc		0.85-1.10Uc	0.85-1.10Uc
Temperature θ<55°C	Drop out		0.35 - 0.55Uc						0.30 - 0.50Uc	0.5Uc	0.25-0.5Uc	0.2-0.4Uc
Average consumption at 20 °C and at Uc, 50/60 Hz coil	Operational											
Average consumption at 20 °C and at Uc, AC 50 / 60hz	In rush 50 Hz coil	VA	550	550	805	805						
	In rush 60 Hz coil	VA	660	660	970	970	-			-	-	-
	In rush 40-400 Hz coil	VA	-	-	-	-	700	700	1075	1100	1650	2100
	In rush Cosφ		0.28	0.28	0.3	0.3	0.9	0.9	0.9	0.9	0.9	0.9
	Sealed 50 Hz coil	VA	45	45	45	45	13	-		-	-	-
	Sealed 60 Hz coil	VA	55	55	55	55	13					
	Sealed 40 - 400 Hz coil	VA							10	15	18	22
Average operating time at Uc	Closing time "C"	m.sec	23-35	23-35	20-35	20-35	30-65	30-65	40-75	40-75	40-80	40-80
	Opening time "O"	m.sec	5-15	5-15	7-15	7-15	100-170	100-170	100-170	100-170	100-200	130-230
Mechanical life Uc (Mechanical durability) in millions of operating cycles	50 or 60 Hz coil 50/60 Hz coil	Cycles	10	10	10	10	10	10	10	10	5	5
Maximum operating rate	In operating cycle/hour		2400	2400	2400	2400	2400	2400	2400	2400	1200	600
Tightening Torque	Power Circuit Connection	Nm	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Cabling	Minimum / Maximum C S.A											
Flexible Cable without Cable end	1 or 2 Conductors	Sqmm	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
Flexible Cable with end	1 Conductor	Sqmm	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4
Flexible Cable with end	2 Conductors	Sqmm	1/2.5	1/2.5	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 or 2 Conductors	Sqmm	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4



C&S F-LINE CONTACTORS - RATINGS



LC1-FDP400A

3 POLE CONTACTOR WITH AC OR DC OPERATING COIL F-RANGE									
Maximum Current		Maximum HP Rating				Main Pole Configuration		CAT. NO.	LIST
Inductive	Resistive	200V	230V	480V	600V	NO	NC		
115	200	30	40	75	100	3	-	LC1-FDP115A- ■	\$1,302.00
150	250	40	50	100	125	3	-	LC1-FDP150A- ■	\$1,522.00
185	275	50	60	125	150	3	-	LC1-FDP185A- ■	\$2,008.50
225	315	50	65	130	155	3	-	LC1-FDP225A- ■	\$2,238.00
265	350	60	75	150	200	3	-	LC1-FDP265A- ■	\$3,182.00
330	400	75	100	200	250	3	-	LC1-FDP330A- ■	\$3,943.00
400	500	100	125	250	300	3	-	LC1-FDP400A- ■	\$4,662.00
500	700	150	200	400	500	3	-	LC1-FDP500A- ■	\$6,375.00
630	1000	250	630/10	600	800	3	-	LC1-FDP630A- ■	\$9,405.50
780	1600	Current rated				3	-	LC1-FDP780A- ■	\$20,202.00

4 POLE CONTACTOR WITH AC OR DC OPERATING COIL - F RANGE									
Maximum Current		Maximum HP 3 Phase				Main Pole Configuration		CAT. NO.	LIST
Inductive	Resistive	200V	230V	480V	600V	NO	NC		
115	200	30	40	75	100	4	-	LC1-FDP1154A- ■	\$1,948.00
150	250	40	50	100	125	4	-	LC1-FDP1504A- ■	\$2,132.00
500	700	150	200	400	500	4	-	LC1-FDP5004A- ■	\$7,390.00
630	1000	250	630/10	600	800	4	-	LC1-FDP6304A- ■	\$11,422.00
780	1600	Current Rated				4	-	LC1-FDP7804A- ■	\$24,635.00

Substitute ■ with Voltage Code from Table -9 for AC Coil & from table 10 for DC Coil

TABLE 9: AC COIL VOLTAGE CODES

Contactor	Volts AC	24	48	110	115	120	127	200	208	220	230	240	277	380	400	415	440	480	575	600
F115, F150 F185, F225	50 Hz	B5	E5	F5	X	x	√	x	x	M5	√	U5	√	Q5	√	N5	R5	x	√	x
	60 Hz	B6	E6	F6	X	G6	x	√	L6	M6	√	U6	W6	Q6	x	√	R6	T6	S6	X6
	50/60HZ	B7	E7	F7	X	G7	√	√	√	M7	√	U7		Q7	X	N7	R7	X	X	X
F265, F330	40-400Hz	√	√	√	√	√	√	√	√	√	√	U7	√	√	x	√	x	√	√	x
F400, F500, F630	40-400Hz	x	√	√	x	√	√	√	√	√	√	√	√	√	√	√	√	x	√	x
F780	40-400Hz	x	√	x	x	√	x	x	x	√	x	√	x	x	x	√	x	√	x	x

If 24V, 50Hz Coil is required then replace XX with 24, 50Hz

TABLE 10: DC COIL VOLTAGE CODES

Volt DC	TABLE 10: DC COIL VOLTAGE CODES								
	24	48	110	120	125	220	240	250	440
F115, F150, F185	√	√	√	X	√	√	X	√	√
F225, F265, F330	√	√	√	X	√	√	X	√	√
F115, F150, F185	√	√	√	X	√	√	X	√	√
F400, F500	√	√	√	X	√	√	X	√	√
F630	X	√	√	X	√	√	X	√	√
F780	X	X	√	√	X	√	√	√	√

REPLACEMENT COILS F - RANGE (REPLACE "XX" WITH ACTUAL VOLTAGE REQUIRED)

For Contactors	CAT. NO.			
	AC	LIST	DC	LIST
F115A - F150	LX1-FF-XX	\$294.00	LX4-FF-XX	\$525.80
F185 - F225	LX1-FG-XX	\$366.00	LX4-FG-XX	\$551.50
F265 (50Hz)	LX1FH-2-XX	\$411.00	LX4-FH-2-XX	\$594.50
F265 (60Hz)	LX1FH-2-XX	\$411.00	LX4-FH-2-XX	\$594.50
F330 (50Hz)	LX1FH-2-XX	\$411.00	LX4-FH-2-XX	\$594.50
F330 (60Hz)	LX1-FH-2-XX	\$411.00	LX4-FH-2-XX	\$594.50
F400	LX1-FJ-XX	\$859.00	LX4-FJ-XX	\$858.80
F500	LX1-FK-XX	\$859.00	LX4-FK-XX	\$874.20
F630	LX1-FL-XX	\$944.00	LX4-FL-XX	\$944.00
F780	LX4 -FX-XX	\$1988.00	LX4-FX-XX	\$1,988.00



LX1-FF-*

C&S F-LINE CONTACTORS - ACCESSORIES

MECHANICAL INTERLOCKS HORIZONTALLY MOUNTED

For Contactor Type	CAT. NO.	LIST
LC1-F115A	LA9-FF970	\$206.00
LC1-F150A		
LC1-F185A	LA9-FG970	\$226.50
LC1-F225A		
LC1-F265A	LA9-FJ970	\$327.30
LC1-F330A		
LC1-F400A		
LC1-F500A		
LC1-F630A		
LC1-F630A	LA9-FL970	\$327.30



LA9-FF970*

MECHANICAL INTERLOCKS VERTICALLY MOUNTED

For Contactor Type	CAT. NO.	LIST
LC1-F115A	LA9-FF4F	\$326.60
LC1-F150A		
LC1-F185A	LA9-FG4G	\$326.60
LC1-F225A		
LC1-F265A	LA9-FH4H	\$486.90
LC1-F330A	LA9-FJ4J	\$486.90
LC1-F400A		
LC1-F500A	LA9-FK4K	\$486.90
LC1-F630A	LA9-FL4L	\$486.90
LC1-F780A	LA9-FX970*	\$2,064.50



LA9-FX970*

POWER CONNECTORS WIRE SETS REVERSING CONTACTORS

CAT. NO.	With Two Identical Contactors	LIST
LC1-F115A	LA9-FF976	\$451.80
LC1-F150A	LA9-F15076	\$451.80
LC1-F185A	LA9-FG976	\$587.60
LC1-F225A	LA9-F22576	\$1,130.00
LC1-F265A	LA9-FH976	\$1,130.00
LC1-F330A	LA9-FJ976	\$1,581.80
LC1-F400A	LA9-FJ976	\$1,581.80
LC1-F500A	LA9-FK976	\$1,770.20
LC1-F630A	LA9-FL976	\$2,862.00



LA9-F*

MAIN CONTACT SETS

For Contactor Type	CAT. NO.	LIST
LC1-F115A	LA5-FF431 (F115)	\$833.80
LC1-F150A	LA5-FF431 (F150)	\$833.80
LC1-F185A	LA5-FG431 (F185)	\$1,166.60
LC1-F225A	LA5-FG431 (F225)	\$1,166.80
LC1-F265A	LA5-FH431 (F265)	\$2,013.80
LC1-F330A	LA5-F400803 (F330)	\$2,661.80
LC1-F400A	LA5-F400803 (F400)	\$2,661.80
LC1-F500A	LA5-F500803 (F500)	\$3,487.80
LC1-F630A	LA5-F630803 (F630)	\$5,443.50
LC1-F780A	LA5-F780801 (F780)	\$6,429.50



LA5-F*

* Double mechanical interlock mechanism with 2 interlock, connecting roads and 3 power connecting links

** For 3-pole contact (per pole: 2 fixed contacts and moving contacts, 2 deflectors, 1 back plate, fixing screws and washers).

*** Set of main contacts provided is 1 set of 2 blocks for one pole

NOTE: Pricing and specifications subject to change without notice.

AUXILIARY CONTACTS, TIME DELAY BLOCKS, MECHANICAL LATCHING BLOCKS

TYPE		UNIT	TA1D	TA2D	TA3D	TA8D
Number of contacts			2 or 4	2	2	2
Rated operational Voltage (Ue)	Upto		V 660			
Rated Insulation Voltage (Ui)	Conforming to IEC 947-1		V 690			
	Conforming to CSA C22-2 No. 14	V	6 00	-	-	
Rated Thermal current (Ith)	For ambient temperature <40°C	A	10			
Frequency of operational current		Hz	25..40			
Minimum switching capacity	U min	V	17			
	I min	mA	5			
Short time rating	Permissible for 1 s	A	100			
	500ms	A	120			
	100 ms	A	140			
Insulation resistance		M Ω	>10			
Time Delay	Ambient air temperature for operation	°C		-40... +70	-40... +70	
(TA2D & TA3D contact blocks)	Repeat accuracy		-	± 5%	± 5%	
Accuracy only valid for setting range	Drift up to 0.5 million operating cycles			+ 15%	+ 15%	
Indicated on the front face	Drift depending on ambient air temp.		-	0.25% per°C	0.25% per °C	
Mechanical Life	In millions of operating cycles		30	5	5	30

STANDARD, INSTANTANEOUS AUXILIARY CONTACT BLOCKS

No. of Contacts	Contacts		Snap On Mounting	CAT. NO.	LIST	
	NO	NC				
4	2	2	To the front of TC1D09 to D95 LC1F115A-780A TP1D09 to D32 & TCA2DN / TCA3DN	TA1-DN22	\$60.00	
	1	3		TA1-DN13	\$60.00	
	4	0		TA1-DN40	\$60.00	
	0	4		TA1-DN04	\$60.00	
	3	1		TA1-DN31	\$60.00	
2	1	1		TA1-DN11	\$34.00	
	2	0		TA1-DN20	\$34.00	
	0	2		TA1-DN02	\$34.00	
1	1	0		To the front of TC1D40 to D95 TP1D40 to D80	TA1-DN10	\$33.00
	0	1			TA1-DN01	\$33.00
2	1	1	To the side of TC1D09 to D95 TP1D09 to D32 & TCA2DN / TCA3DN	TA8-DN11	\$33.80	
	2	0		TA8-DN20	\$33.80	



TA1-DN40

PNEUMATIC TIMER BLOCK (FRONT MOUNTED)

Description	Contacts		Range	CAT. NO.	LIST
	NO	NC			
ON Delay	1	1	0.1 - 3s	TA2-DT0	\$219.50
ON Delay	1	1	0.1 - 30s	TA2-DT2	\$219.50
ON Delay	1	1	10 - 180s	TA2-DT4	\$219.50
OFF Delay	1	1	0.1 - 3s	TA3-DR0	\$219.50
OFF Delay	1	1	0.1 - 30s	TA3-DR2	\$219.50
OFF Delay	1	1	10 - 180s	TA3-DR4	\$219.50
On Delay	1	1	1.0 - 30s*	TA2-DS2	\$219.50



TA2-DT2

* With switching time of 40msec ± 15 m.sec between the opening of NC contact to the closing of NC contact (for Star Delta application)