General + Definite Purpose Contactors

Contactors–General Purpose and Definite Purpose

A rugged and comprehensive range of contactors from 5 to 900 HP

Sprecher+Schuh IEC contactors are designed and manufactured in plants that are quality certified to international standard ISO 9001

Sprecher + Schuh's broad line of general purpose contactors combine performance and reliability in space saving designs that are well proven and used the world over. Sprecher + Schuh's IEC design is dimensionally among the smallest devices in the industry. A range of definite purpose contactors is also available, providing reliable and economic performance in commercial applications.

Economy and selection

Four different contactor families provide 24 contactor sizes, one for practically every horsepower increment! The ability to select intermediate sizes assures a closer match for your motor and provides economy not found with traditionally sized devices. Definite purpose contactors are available in one, two, three and four pole, up to 90A.

Precisely match the contactor to the application

Unique to IEC-style contactors is the ability to select the exact device required for a specific application. By identifying the conditions under which the contactor will be used, i.e., resistive loads, reversing, inching and plugging, etc., published "life-curve" data predicts contact life in millions of operations. This information enables you to select the precise contactor for your application… without buying too much or too little.

Designed for long life

Destructive electrical arcs are common when opening or "breaking" the contacts of larger contactors. Sprecher + Schuh contactors in this size class are designed to dramatically reduce electrical arcing by quickly guiding the arc off of the contacts and into specially designed "arc chutes." This special design divides and eliminates the electrical arcs quickly, significantly increasing contact life and assuring reliable operation.

Limitless choices

A comprehensive selection of modular accessories is available for all contactor families, which allows infinite contactor and starter combinations, both open and enclosed.

Safety in mind…

Virtually all Sprecher + Schuh contactors are designed to be safe from accidental contact with the finger or back-of-hand. On the smaller contactors, terminals and set screws are recessed, while larger devices (up to Series CA6) accept terminal covers that provide protection according to VDE 0106, Part 100.

Manufactured to rigorous quality standards

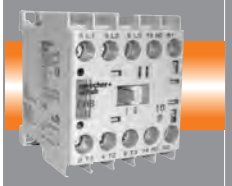
Sprecher + Schuh contactors are designed and manufactured in plants that maintain quality certification to the most rigorous international standard… ISO 9001. Sprecher + Schuh manufacturing facilities renew ISO certification every three years by passing an exacting quality assurance audit.

International standards and approvals

All Sprecher+Schuh IEC contactors are UL Listed and CSA Approved. They also carry the CE Mark and meet IEC 60947-1 requirements. They are approved in virtually every international market.

GENERAL PURPOSE

7.5HP 50HP 60HP 700HP 900HP



CA8 Series Contactor

- Provides commercial-grade performance for motors up to 7.5 HP
- Features low-profile design and 45mm width
- Maintains narrow width with modular, snap-on accessories
- Performs up to 700,000 electrical and 15,000,000 mechanical operations

CA7 Series Contactor

- Covers up to 60HP industrial applications
- Features small dimensions, as little as 45mm wide
- Uses interchangeable accessories for all contactor sizes
- Provides flexibility with reversible coils for group installation
- Has dual-cage clamp lugs on CA7-30 and larger units
- Designed and tested with respect to Type 1 and 2 Coordination

CA6 Series Contactor

- Averages 50% smaller dimensions than others in its class
- Offers 10 contactors in 4 frame sizes – up to 700 HP
- Provides extended life with arc-quenching technology
- Features enclosed and interlocked arc chambers for safety
- Includes electronic coils for 24V, 50mA electronic interface

CA5 Series Contactor

- Covers up to 900HP applications
- Averages 40% smaller dimensions than others in its class
- Offers four contactors in three frame sizes
- Provides extended life with “bounce-free” contact system
- Mechanically interlocks vertically or horizontally
- Includes unique coil “feeder group” design on all models

DEFINITE PURPOSE

CDP Definite Purpose Contactors

- Covers commercial applications up to 90A / 50HP
- Available in one, two, three and four pole
- Meet or exceed electrical and mechanical requirements defined by definite purpose contactor standards
- Three convenient wire connection methods

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UL / CSA Maximum HP Rating Selection ❶

Sprecher + Schuh Contactor Series	Maximum Horsepower					
	Single Phase		Three Phase			
	115 Volt	230 Volt	200 Volt	230 Volt	460 Volt	575 Volt
CA7-9	1/2	1 1/2	2	2	5	7-1/2
CA7-12	1/2	2	3	3	7-1/2	10
CA7-16	1	3	5	5	10	15
CA7-23	2	3	5	7-1/2	15	15
CA7-30	2	5	7-1/2	10	20	25
CA7-37	3	5	10	10	25	30
CA7-43	3	7-1/2	10	15	30	30
CA7-60	5	10	15	20	40	50
CA7-72	5	15	20	25	50	60
CA7-85	7-1/2	15	25	30	60	60
CA6-95(-EI)	7-1/2	15	25	30	60	75
CA6-110(-EI)	10	25	40	40	75	100
CA6-140(-EI)	15	30	40	50	100	125
CA6-180(-EI)	~	40	50	60	150	150
CA6-210-EI	~	50	60	75	150	200
CA6-250-EI	~	~	75	100	200	250
CA6-300-EI	~	~	100	125	250	300
CA6-420-EI	~	~	150	175	350	400
CA5-700	~	~	200	250	500	500
CA6-630-EI	~	~	200	250	500	600
CA5-860	~	~	250	300	600	600
CA6-860-EI	~	~	250	300	600	700
CA5-1200	~	~	450	450	900	900

NEMA Size Labeled Selection ❶

NEMA Size	Sprecher + Schuh Contactor Series	Maximum Horsepower					
		Single Phase		Three Phase			
		115V	230V	200V	230V	460V	575V
00	CAN7-12	1/3	1	1-1/2	1-1/2	2	2
0	CAN7-16	1	2	3	3	5	5
1	CAN7-37	2	3	7-1/2	7-1/2	10	10
2	CAN7-43	3	7-1/2	10	15	25	25
3	CAN7-85	7-1/2	15	25	30	50	50
4	CAN6-180	~	~	40	50	100	100
	CAN6-180-EI	~	~	40	50	100	100
5	CAN6-300-EI	~	~	75	100	200	200

❶ "EI" designation indicates coil has electronic interface capability with a PLC.

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Horsepower	60 Hz AC Induction Motor						
	Single Phase		Three Phase				
	115 Volt	230 Volt	200 Volt	230 Volt	380-415 Volt	460 Volt	575 Volt
1/6	4.4	2.2	~	~		~	~
1/4	5.8	2.9	~	~		~	~
1/3	7.2	3.6	~	~		~	~
1/2	9.8	4.9	2.5	2.2	1.3	1.1	0.9
3/4	13.8	6.9	3.7	3.2	1.8	1.6	1.3
1	16.0	8.0	4.8	4.2	2.3	2.1	1.7
1 1/2	20.0	10.0	6.9	6.0	3.3	3.0	2.4
2	24.0	12.0	7.8	6.8	4.3	3.4	2.7
3	34.0	17.0	11.0	9.6	6.1	4.8	3.9
5	56.0	28.0	17.5	15.2	9.7	7.6	6.1
7 1/2	80.0	40.0	25.0	22.0	14.0	11.0	9.0
10	100	50.0	32.0	28.0	18.0	14.0	11.0
15	135	68.0	48.0	42.0	27.0	21.0	17.0
20	~	88.0	62.0	54.0	34.0	27.0	22.0
25	~	110	78.0	68.0	43.0	34.0	27.0
30	~	136	92.0	80.0	51.0	40.0	32.0
40	~	176	120	104	66.0	52.0	41.0
50	~	216	150	130	83.0	65.0	52.0
60	~	~	177	154	103	77.0	62.0
75	~	~	221	192	128	96.0	77.0
100	~	~	285	248	165	124	99.0
125	~	~	359	312	208	156	125
150	~	~	414	360	240	180	144
175	~	~	475	413	275	207	168
200	~	~	552	480	320	240	192
250	~	~	692	602	403	302	242
300	~	~	~	~	482	361	289
350	~	~	~	~	560	414	336
400	~	~	~	~	636	477	382
450	~	~	~	~	711	515	412
500	~	~	~	~	786	590	472

The information in this chart was derived from Table 430-148 & 430-150 of the NEC and Table 50.1 of UL standard 508A. The voltages listed are rated motor voltages. The currents listed shall be permitted for system voltage ranges of 110-120, 220-240, 380-415, 440-480 and 550-600 volts.

The full-load current values are for motors running at usual speeds and motors with normal torque characteristics. Motors built for especially low speeds or high torques may have higher full-load currents, and multi-speed motors will have full-load currents varying with speed. In these cases, the nameplate current ratings shall be used.

Caution: The actual motor amps may be higher or lower than the average values listed above. For more reliable motor protection, use the actual motor current as listed on the motor nameplate. Use this table as a guide only

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Table 50.2
Full-load motor-running currents in amperes corresponding to various DC horsepower ratings
Table 50.2 effective April 25, 2003

Horsepower	90 Volts	110-120 Volts	180 Volts	220-240 Volts	500 Volts	550-600 Volts
1/10	~	2.0	~	1.0	~	~
1/8	~	2.2	~	1.1	~	~
1/6	~	2.4	~	1.2	~	~
1/4[a]	4.0	3.1	2.0	1.6	~	~
1/3	5.2	4.1	2.6	2.0	~	~
1/2	6.8	5.4	3.4	2.7	~	~
3/4	9.6	7.6	4.8	3.8	~	1.6
1	12.2	9.5	6.1	4.7	~	2.0
1-1/2	~	13.2	8.3	6.6	~	2.7
2	~	17	10.8	8.5	~	3.6
3	~	25	16	12.2	~	5.2
5	~	40	27	20	~	8.3
7-1/2	~	58	~	29	13.6	12.2
10	~	76	~	38	18	16
15	~	110	~	55	27	24
20	~	148	~	72	34	31

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Predicting Electrical Life

Sprecher + Schuh contactors are designed for superior performance in a wide variety of applications, by giving consideration to the specific load, utilization category and required electrical life, you can purchase exactly the type and size of contactor required. This assures reliable operation and high value the ability to very closely match the contactor to the application.

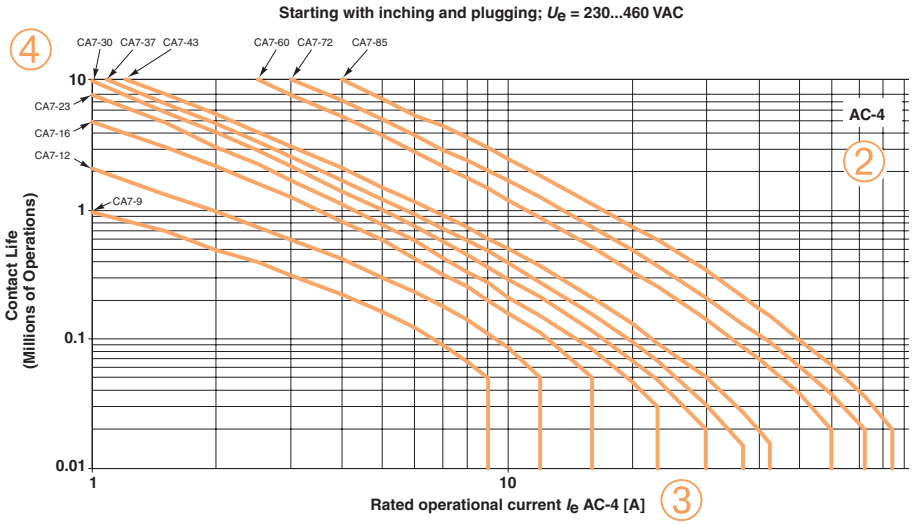
① Identify the appropriate utilization category. For this example, we will determine CA7 contact life for inching and plugging squirrel-cage motors. ❶

Utilization Category	Definition	
AC-1	Resistance Furnaces	Non inductive or slightly inductive loads, Resistive Furnaces
AC-2	Slip-ring motors	Starting and stopping of running motors
AC-3	Squirrel-cage motors	Starting and stopping of running motors
AC-4 ①	Squirrel-cage motors	Starting, plugging, and inching (Plugging is understood as stopping or reversing the motor rapidly by reversing the motor primary connections while the motor is running. Inching [or jogging] is understood as energizing a motor once or repeatedly for short periods to obtain small movements of the driven mechanism.)
AC-15	Electromagnets	Electromagnets for contactors, valves, solenoid actuators

② Choose the graph for the utilization category selected. (a graph pertaining to most Utilization Categories can be found in each contactor section.)

③ Locate the Rated Operational Current (Ie) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.

④ Read the estimated contact life along the vertical axis. ❷



❶ A comprehensive list of Utilization Categories can be found in each contactor section, however, these are the primary categories used in most industrial motor applications.
❷ The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 60947-4-1. Since contact life in a given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

Determining Contact Life

To determine the contactor's estimated electrical life, follow these guidelines:

1. Identify the appropriate Utilization Category from Table A.
2. On the following pages, choose the graph for the Utilization Category selected.
3. Locate the Rated Operational Current (I_e) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.
4. Read the estimated contact life along the vertical axis.

Table A – IEC Special Utilization Categories, DC Ratings ❶

Category	Typical Applications	Rated Current	Conditions for testing electrical life						Ops.	Conditions for testing making and breaking capacity						Ops.
			Make			Break				Make			Break			
			I/Ie	*U/ue*	cos	*Ic/Ie*	*Ur/Ue*	cos		*I/Ie*	*U/ue*	cos	*I/Ie*	*U/ue*	cos	
DC-1	Non-inductive or slightly inductive loads, resistance furnaces	All Values	1	1	1	1	1	1		1.5 ❷	1.1 ❷	1 ❷	1.5 ❷	1.1 ❷	1 ❷	
DC-2	Shunt-motors: Starting, switching off motors during running	All Values	2.5	1	2	1	0.1	7.5		4	1.1	2.5	4	1.1	2.5	
DC-3	Shunt motors: Starting, plugging, inching	All Values	2.5	1	2	2.5	1	2		4	1.1	2.5	4	1.1	2.5	
DC-4	Series-motors: Starting , switching off motors during running	All Values	2.5	1	7.5	1	0.3	10		4	1.1	15	4	1.1	15	
DC-5	Series-motors: Starting, plugging, inching	All Values	2.5	1	7.5	2.5	1	7.5		4	1.1	15	4	1.1	15	
DC-15	Electromagnets for contactors, valves, solenoid actuators	All Values	1	1	6 x P ❸	1	1	6 x P ❸		1.1	1.1	6 x P ❸	1.1	1.1	6 x P ❸	

Legend

Ue Rated operational voltage
U Voltage before make
Ur Recovery voltage
Ie Rated operational current
I Making current
Ic Breaking current
L Inductance of test circuit
R Resistance of test circuit

CA7 Contactors for Elevator Duty Minimum Operational Life

Contactor	Cycles
CA7-09	500,000 ❹
CA7-12	
CA7-16	
CA7-23	
CA7-30	
CA7-37	
CA7-43	
CA7-60	
CA7-72	
CA7-85	

CNX Special Purpose Contactor Minimum Operational Life in Resistive Applications

Contactor	Cycles
CNX-205 (C)	250,000 ❹
CNX-205 (C)	
CNX-206 (C)	
CNX-207 (C)	
CNX-208 (C)	
CNX-209 (C)	100,000 ❹
CNX-212 (C)	
CNX-218 (D)	

❶ Utilization categories and test conditions for AC & DC. For contactors according to IEC 158-1, starters according to IEC 292-1 ... 4 and control switches according to IEC 337-1 and IEC 337-1A.
❷ Only according to VDE.
❸ *P = Ue x Ie* rated power [W]. The value "6 x P" has been derived from an empiric relationship which covers most magnetic loads for DC up to an upper limit of P = 50W.
❹ Life data shown are the minimum test requirements per UL/CSA. Actual life in application may exceed these values.

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Determining Contact Life

To determine the contactor's estimated electrical life, follow these guidelines:

1. Identify the appropriate Utilization Category from Table A.
2. On the following pages, choose the graph for the Utilization Category selected.
3. Locate the Rated Operational Current (I_e) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.
4. Read the estimated contact life along the vertical axis.

Table A – IEC Special Utilization Categories, AC Ratings ❶

	Category	Typical Applications	Rated Current	Conditions for testing electrical life						Ops.	Conditions for testing making and breaking capacity						Ops.
				Make			Break				Make			Break			
				I/Ie	*U/ue*	cos	*Ic/Ie*	*Ur/Ue*	cos		*I/Ie*	*U/ue*	cos	*I/Ie*	*U/ue*	cos	
CONTACTORS	AC-1	Non-inductive or slightly inductive loads; resistance furnaces	All values	1	1	0.95	1	1	0.95	6000	1.5	1.05	0.8	1.5	1.05	0.8	50
	AC-2	Slip-ring motors: Starting, plugging	All values	2	1.05	0.65	2	1.05	0.65	6000	4	1.05	0.65	4	1.05	0.65	50
	AC-3	Slip-ring motors: Starting, switching off motors during running	*Ie* 17Amp	6	1	0.65	1	0.17	0.65	6000	10	1.1	0.65	8	1.1	0.65	50
			17Amp <*Ie* 100Amp	6	1	0.35	1	0.17	0.35		10	1.1	0.35	8	1.1	0.35	
			Ie> 100Amp	6	1	0.35	1	0.17	0.35		8 ❷	1.1	0.35	6 ❸	1.1	0.35	
	AC-4	Squirrel-cage motors: Starting, plugging, inching ❺	*Ie* 17Amp	6	1	0.65	6	1	0.65	6000	12	1.1	0.65	10	1.1	0.65	50
			17Amp <*Ie* 100Amp	6	1	0.35	6	1	0.35		12	1.1	0.35	10	1.1	0.35	
			Ie> 100Amp	6	1	0.35	6	1	0.35		10 ❹	1.1	0.35	8 ❷	1.1	0.35	
	AC-5a	Switching of electric discharge lamp control		2	1.05	0.45	2	1.05	0.45	6000	3	1.05	0.45	3	1.05	0.45	50
	AC-5b	Switching of incandescent lamps		1	1.05		1	1.05		6000	1.5	1.05		1.5	1.05		50
	AC-6a	Switching of transformers									Rating derived from AC-3 rating (x 0.45)						
	AC-6b	Switching of capacity banks									Depends on circuit conditions of application						
CONTROL DEVICES	AC-12	Control of resistive loads and solid state loads with isolation by opto couplers	All values	1	1	0.9	1	1	0.9	6050							
	AC-13	Control of solid state loads with transformer isolation		2	1	0.65	1	1	0.65	6050	10	1.1	0.65	1.1	1.1	0.65	10
	AC-14	Control of small electromagnetic loads	72 VA	6	1	0.3	1	1	0.3	6050	6	1.1	0.7	6	1.1	0.7	10
	AC-15	Control of electromagnetic loads	72 VA	10	1	0.3	1	1	0.3	6050	10	1.1	0.3	10	1.1	0.3	10
	AC-20	Connecting and disconnecting under no load conditions		No testing required													
SWITCHES	AC-21	Switching or resistive loads, including moderate overloads	All values	1	1	0.95	1	1	0.95	10000	1.5	1.05	0.95	1.5	1.05	0.95	5
	AC-22	Switching of mixed resistive & inductive loads, including moderate overloads	All values	1	1	0.8	1	1	0.8	10000	3	1.05	0.65	3	1.05	0.65	5
	AC-23	Switching of motor loads or other highly inductive loads	All values	1	1	0.65	1	1	0.65	10000	10	1.05	0.45	8	1.05	0.45	5

Legend

- ***Ue*** Rated operational voltage
- ***U*** Voltage before make
- ***Ur*** Recovery voltage
- ***Ie*** Rated operational current
- ***I*** Making current
- ***Ic*** Breaking current
- **L** Inductance of test circuit
- **R** Resistance of test circuit

❶ Utilization categories and test conditions for AC & DC. For contactors according to IEC 158-1, starters according to IEC 292-1 ... 4 and control switches according to IEC 337-1 and IEC 337-1A.
❷ With a minimum value of 1000A for *I* or *Ic*.
❸ With a minimum value of 800A for *Ic*.
❹ With a minimum value of 1200A for *I*.
❺ Plugging is understood as stopping or reversing the motor rapidly by reversing the motor primary connections while the motor is running. Inching [or jogging] is understood as energizing a motor once or repeatedly for short periods to obtain small movements of the driven mechanism.

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Table 139.1 – Rating Codes for AC Control-Circuit Contacts at 50 and 60 Hz ❹

Contact Rating Code Designation ❶	Thermal continuous test current Amperes	Maximum current, amperes ❷								Maximum volt-Amperes	
		120 Volt		240 Volt		480 Volt		600 Volt			
		Make	Break	Make	Break	Make	Break	Make	Break	Make	Break
A150	10	60	6.00	~	~	~	~	~	~	7200	720
A300	10	60	6.00	30	3.00	~	~	~	~	7200	720
A600	10	60	6.00	30	3.00	15	1.50	12	1.20	7200	720
B150	5	30	3.00	~	~	~	~	~	~	3600	360
B300	5	30	3.00	15	1.50	~	~	~	~	3600	360
B600	5	30	3.00	15	1.50	7.50	0.75	6	0.60	3600	360
C150	2.5	15	1.5	~	~	~	~	~	~	1800	180
C300	2.5	15	1.5	7.5	0.75	~	~	~	~	1800	180
C600	2.5	15	1.5	7.5	0.75	3.75	0.375	3.00	0.30	1800	180
D150	1.0	3.60	0.60	~	~	~	~	~	~	432	72
D300	1.0	3.60	0.60	1.80	0.30	~	~	~	~	432	72
E150	0.5	1.80	0.30	~	~	~	~	~	~	216	36

Table 139.2 – Rating Codes for DC Control-Circuit Contacts ❹

Contact Rating Code Designation ❶	Thermal continuous test current Aamperes	Maximum make or break ❸ current, Amperes			Maximum make or break volt-Amperes at 300 volts or less
		125 Volt	250 Volt	301 to 600 Volt	
N150	10	2.2	~	~	275
N300	10	2.2	1.1	~	275
N600	10	2.2	1.1	0.40	275
P150	5.0	1.1	~	~	138
P300	5.0	1.1	0.55	~	138
P600	5.0	1.1	0.55	0.20	138
Q150	2.5	0.55	~	~	69
Q300	2.5	0.55	0.27	~	69
Q600	2.5	0.55	0.27	0.10	69
R150	1.0	0.22	~	~	28
R300	1.0	0.22	0.11	~	28

❶ The numerical suffix designates the maximum voltage design values, which are to be 600, 300, and 150 volts for suffixes 600, 300, and 150 respectively. Test voltage shall be 600, 250, or 125 volts.

❷ For maximum ratings at voltages between the maximum design value and 120 volts, the maximum make and break ratings are to be obtained by dividing the volt-amperes rating by the application voltage. For voltages below 120 volts, the maximum make current is to be the same as for 120 volts, and the maximum break current is to be obtained by dividing the break volt-amperes by the application voltage, but these currents are not to exceed the thermal continuous test current.

❸ For maximum ratings at 300 volts or less, the maximum make and break ratings are to be obtained by dividing the volt-ampere rating by the application voltage, but the current values are not to exceed the thermal continuous test current.

❹ Data tables extracted from UL508 Standards for Industrial Control Equipment.

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Catalog Number Coding

Sprecher+Schuh employs a catalog number coding system for contactors (and many other devices) that follows a logical pattern, where every digit signifies a specific device attribute. Where indicated, the use of dashes (–) serves to separate device characteristics and should always be used when ordering.

The following example illustrates all of the possible combinations when specifying contactors and reversing contactors (open type only). See Section C for an explanation of the catalog number coding system for enclosed contactors and starters.

CA **7-30** **-** **10** **-** **120**

Configuration

CA	*Contactor*
CAU	*Reversing Contactor*
CAQ	*Capacitor Switching Contactor*
CAN	*NEMA Labeled Contactor*
CA(V)L	*Lighting Contactor*
CNX	*Special Purpose Contactor*

Contactor Series

Series CA8
8-09(C)
8-12(C)

Series CA7 ❶
7-9(C,D,E,Y)
7-12(C,D,E,Y)
7-16(C,D,E,Y)
7-23(C,D,E,Y)
7-30(C,D,E,Y)
7-37(C,D,E,Y)
7-43(C,D,E,Y)
7-60(C,D,Y)
7-72(C,D,Y)
7-85(C,D,Y)

Series CA6-❷
6-95(-EI)
6-110(-EI)
6-140(-EI)
6-180(-EI)
6-210-EI
6-250-EI
6-300-EI
6-420-EI
6-630-EI
6-860-EI

Series CA5
5-700
5-860
5-1000
5-1200

Auxiliary Contacts

-10	*N.O. Auxiliary*
-01	*N.C. Auxiliary*
-11	*N.O. & N.C. Auxiliary*
-00	*No Auxiliaries*

4-pole CA7 & CA8 Contactors ❸

-M40	*4 N.O. Power Poles*
-M31	*3 N.O. Power Poles/ 1 N.C. Power Pole*
-M22	*2 N.O. Power Poles/ 2 N.C. Power Poles*

Coil Code

AC	DC
24(Z)	12D(D)
24E	24D(D)
110	48D(D)
120	110D(D)
208	220D(D)
220	
220W	
240	No Coil
277	XXX
380	(CA5 contactors only)
440	
480	
575	
600	

This illustration is for reference only.

Turn to the appropriate page to determine specific catalog number & pricing.

❶ (C, D, & E) suffix designates DC contactors. (Y) suffix indicates two contactor Wye-Delta contactors.
❷ (-EI) suffix indicates electronic coil. Optional on CA6-95…180, standard on CA6-210…860.
❸ On four pole contactors, this number designates main power pole configuration.

SSNA9000

Series CA8 Contactors and CAT8 Starters

An ingenious miniature contactor and starter system

Sprecher + Schuh's CA8 Series of miniature contactors and starters provide an extremely compact and reliable method of controlling motors of 7.5 HP or less (@460V). The CA8 is an economical choice for applications where space is limited or where a minimal enclosure is desired.

Small but rugged

Even though their contacts and coils are not replaceable, Sprecher + Schuh has subjected this series of contactors to monitored endurance tests that demonstrate their ruggedness. At full load, under 3-phase power, the contacts in the CA8 have an electrical life of 700,000 operations, while the AC magnet system has a mechanical life of 15,000,000 operations.

The CAT8 Starter – Efficient and reliable

This miniature starter features the new CT8 Thermal Overload Relay. A complex current limiting calibration procedure performed after each unit ensures the consistent high quality of Sprecher + Schuh's thermal overload relay. Today's Class 10 T-frame design, like the CT Series, has been recognized by many motor manufacturers as the ideal type to assure optimum motor protection due to less use of copper and iron.

CAT8 starters feature the CT8 thermal overload.

Accessories require no additional panel space

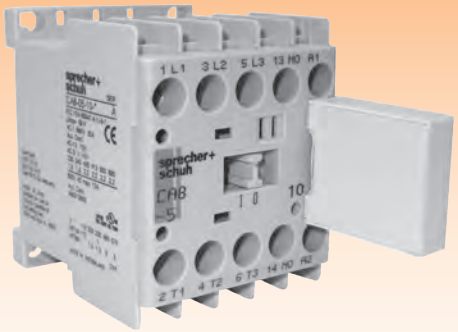
The entire CA8 System is logically engineered. Modular accessories like auxiliary contact blocks snap-on without increasing the CA8's original width of 45mm. Also, due to its horizontal switching movement, the basic contactor has the same low profile whether an AC or DC operating magnet is used. This permits the use of enclosures with shallow mounting depths. Once the CA8 is installed, all auxiliary contact blocks can be snapped-on or removed without changing any existing power wiring. Other accessories include a snap-on RC Link (surge suppressor), mechanical interlocks and space saving adaptors for connecting auxiliary components.

Effortless installation

Both the CA8 Contactor and the CAT8 Starter are DIN-rail mountable for instant installation and modification. Fittings are also included on the CA8 for base mounting. All terminals are clearly marked and shipped in the open position for installation with either manual or power screwdrivers.

Series CA8 Miniature Contactors, Starters, Overloads & Industrial Relays

- ✔ Rated 690V
- ✔ RoHs Compliant
- ✔ Conforming to U.S., Canadian, and IEC Standards
- ✔ Same Dimensions for AC and DC



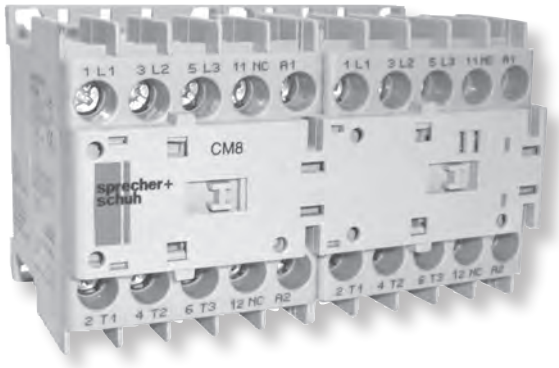
Pluggable Surge Suppressor Modules

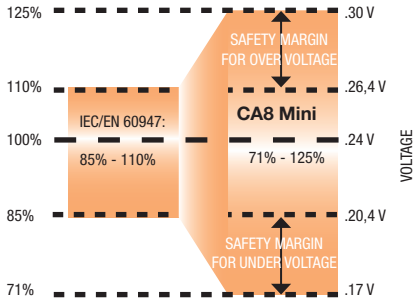
- ➢ Suppressor modules are simply plugged on the front of the contactors, next to the auxiliary contact blocks.
- ➢ No wiring required.
- ➢ Fast and easy installation.

Auxiliary Contact Reliability

- ➢ Bifurcated, AgNi (silver/nickel) plated contacts for high contact reliability for 15V/2 mA electronic signals.
- ➢ H-shaped self cleaning auxiliary contacts provide a 4-way current path ensure high contact reliability for low energy switching.

SSNA9000

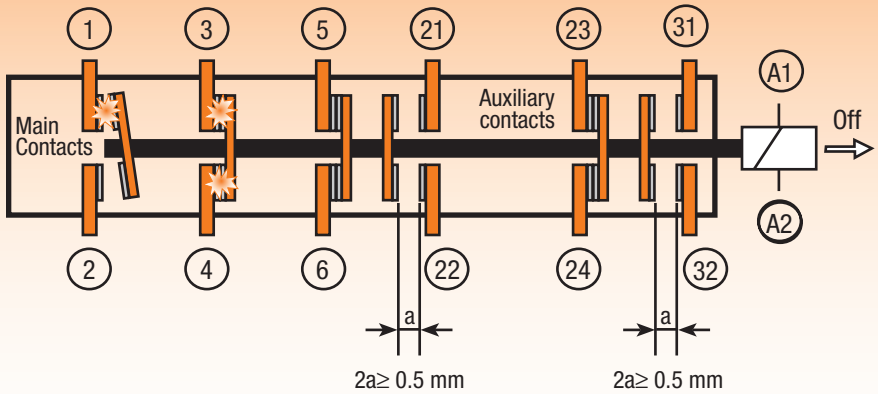




High Performance AC & DC Coils

- Wide range DC coils can provide reliability in case of over- and under-voltage, a common issue with battery-fed control power supply systems.
- The low coil consumption allows the contactors to be directly controlled via a PLC.
- Optional, integral factory-installed surge suppressor modules for AC and DC for limiting coil switching transients.

MIRROR AND MECHANICALLY LINKED DESIGN



All Around Safety

- CA8: mechanically linked performance between main contacts and internal auxiliary contacts. This feature provides status feedback in the event of a contact weld.
- CA8/Auxiliary contacts: mirror contact between main and auxiliary contacts as per IEC 60947-4-1 prevent any unclear status indications if a N.O. power pole welds.

SSNA9000

Non-Reversing, Three Pole Contactors With AC Coil, Series CA8 (Open type only) ❶

I_e [A] 40ºC	Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	
	3 Ø kW (50 Hz)				UL/CSA HP (60 Hz)									
					1 Ø		3 Ø							
AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
20	3	4	4	4	**1/2**	**1-1/2**	**2**	**2**	**5**	**5**	1	0	**CA8-09-10-✱**	**109**
											0	1	**CA8-09-01-✱**	**109**
20	3	5.5	5.5	5.5	**3/4**	**2**	**3**	**3**	**7-1/2**	**7-1/2**	1	0	**CA8-12-10-✱**	**132**
											0	1	**CA8-12-01-✱**	**132**

CA8-09-10 contactor

Non-Reversing, Three Pole Contactors With DC Coil, Series CA8 (Open type only) ❶❷

I_e [A] 40ºC	Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	
	3 Ø kW (50 Hz)				UL/CSA HP (60 Hz)									
					1 Ø		3 Ø							
AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
20	3	4	4	4	**1/2**	**1-1/2**	**2**	**2**	**5**	**5**	1	0	**CA8-09C-10-✱**	**134**
											0	1	**CA8-09C-01-✱**	**134**
20	3	5.5	5.5	5.5	**3/4**	**2**	**3**	**3**	**7-1/2**	**7-1/2**	1	0	**CA8-12C-10-✱**	**166**
											0	1	**CA8-12C-01-✱**	**166**

AC Coil Codes ❶❸

AC Coil Code	Voltage Range	
	50 Hz	60 Hz
12	12V	12V
24Z	**24V**	**24V**
48	48V	48V
120	**110V**	**120V**
208	200V-220V	208V-240V
240	240V	240V
380 ❺	Use Coil Code 400	
400 ❺	400V	400V
480	**440V**	**480V**
575 ❻	Use Coil Code 600	
600 ❻	525V	600V

DC Coil Codes ❶❸

DC Coil Code	Voltage
12D	12V
24D	**24V ❹**
48D	48V
110D	110V
125D	125V
220D	220V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page**

❶ CA8 not available without coil. Coils and contacts not replaceable.
❷ Select Coil Code from DC Coil Code table only.
❸ The coil codes shown are the most commonly stocked items. Contact your Sprecher + Schuh representative to determine if special voltages, are required.
❹ Integrated diode surge suppressor coils available. Order coil code **24DD** and add $42 to list price. Ex: CA8-09C-10-**24D** becomes CA8-09C-10-**24DD**.
❺ The European Community has agreed that 400V is the nominal voltage in lieu of 380V. Use this code when 380V is required.
❻ Use this code for 575V applications.

SSNA9000

Non-Reversing, Four Pole Contactors With AC Coil, Series CA8 (Open type only) ❶❹

I_e [A] 40ºC	Ratings for Switching AC Motors (AC2 / AC3)										Contact configuration main poles		Open Type	
	3 Ø kW (50 Hz)				UL/CSA HP (60 Hz)									
					1 Ø		3 Ø							
AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
20	3	4	4	4	**1/2**	**1-1/2**	**2**	**2**	**5**	**5**	4	0	**CA8-09-M40-✱**	**109**
											3	1	**CA8-09-M31-✱**	**122**
											2	2	**CA8-09-M22-✱**	**122**
20	3	5.5	5.5	5.5	**3/4**	**2**	**3**	**3**	**7-1/2**	**7-1/2**	4	0	**CA8-12-M40-✱**	**134**
											3	1	**CA8-12-M31-✱**	**144**
											2	2	**CA8-12-M22-✱**	**144**

CA8-09-M40 contactor

Non-Reversing, Four Pole Contactors With DC Coil, Series CA8 (Open type only) ❶❷❹

I_e [A] 40ºC	Ratings for Switching AC Motors (AC2 / AC3)										Contact configuration main poles		Open Type	
	3 Ø kW (50 Hz)				UL/CSA HP (60 Hz)									
					1 Ø		3 Ø							
AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
20	3	4	4	4	**1/2**	**1-1/2**	**2**	**2**	**5**	**5**	4	0	**CA8-09C-M40-✱**	**134**
											3	1	**CA8-09C-M31-✱**	**147**
											2	2	**CA8-09C-M22-✱**	**147**
20	3	5.5	5.5	5.5	**3/4**	**2**	**3**	**3**	**7-1/2**	**7-1/2**	4	0	**CA8-12C-M40-✱**	**167**
											3	1	**CA8-12C-M31-✱**	**179**
											2	2	**CA8-12C-M22-✱**	**179**

AC Coil Codes ❶❸

AC Coil Code	Voltage Range	
	50 Hz	60 Hz
12	12V	12V
24Z	**24V**	**24V**
48	48V	48V
120	**110V**	**120V**
208	200V-220V	208V-240V
240	240V	240V
380 ❻	Use Coil Code 400	
400 ❻	400V	400V
480	**440V**	**480V**
575 ❼	Use Coil Code 600	
600 ❼	525V	600V

DC Coil Codes ❶❸

DC Coil Code	Voltage
12D	12V
24D	**24V ❺**
48D	48V
110D	110V
125D	125V
220D	220V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page**

❶ CA8 not available without coil. Coils and contacts not replaceable.
❷ Select Coil Code from DC Coil Code table only.
❸ The coil codes shown are the most commonly stocked items. Contact your Sprecher + Schuh representative to determine if other voltages.
❹ No auxiliary contacts provided in the base of a CA8. Add auxiliaries from page A19.
❺ Integrated diode surge suppressor coils available. Order coil code **24DD** and add $42 to list price. Ex: CA8-09C-10-**24D** becomes CA8-09C-10-**24DD**.
❻ The European Community has agreed that 400V is the nominal voltage in lieu of 380V. Use this code when 380V is required.
❼ Use this code for 575V applications.

SSNA9000

Reversing, Three Pole Contactors With AC Coil, Series CAU8 (Open type only) ❶❷

I_e [A] 40ºC AC-1	Ratings for Switching AC Motors (AC2 / AC3 / AC4) 3 Ø kW (50 Hz) 230V	400V 415V	500V	690V	UL/CSA HP (60 Hz) 1 Ø ❼ 115V	1 Ø ❼ 230V	3 Ø 200V	3 Ø 230V	3 Ø 460V	3 Ø 575V	Auxiliary Contacts per Contactor NO	NC	Open Type Catalog Number	Price
20	3	4	4	4	1/2	1-1/2	2	2	5	5	0	1	CAU8-09-02-✱-LW	253
											2	1	CAU8-09-42-✱-PW	295
20	3	5.5	5.5	5.5	3/4	2	3	3	7-1/2	7-1/2	0	1	CAU8-12-02-✱-LW	318
											2	1	CAU8-12-42-✱-PW	360

CAU8…LW Includes:

- Mechanical interlock (CM8)

CAU8…PW Includes:

- Mechanical and electrical interlock (CM8) ❷
- Reversing power and control wiring (using Wiring Kit Cat.# CAUT8-PW)
- Top mount auxiliary contact block (Cat.# CA8-P20 on the -42- models)

Reversing, Three Pole Contactors With DC Coil, Series CAU8 (Open type only) ❶❷

I_e [A] 40ºC AC-1	Ratings for Switching AC Motors (AC2 / AC3 / AC4) 3 Ø kW (50 Hz) 230V	400V 415V	500V	690V	UL/CSA HP (60 Hz) 1 Ø ❼ 115V	1 Ø ❼ 230V	3 Ø 200V	3 Ø 230V	3 Ø 460V	3 Ø 575V	Auxiliary Contacts per Contactor NO	NC	Open Type Catalog Number	Price
20	3	4	4	4	1/2	1-1/2	2	2	5	5	0	1	CAU8-09C-02-✱-LW	337
											2	1	CAU8-09C-42-✱-PW	379
20	3	5.5	5.5	5.5	3/4	2	3	3	7-1/2	7-1/2	0	1	CAU8-12C-02-✱-LW	419
											2	1	CAU8-12C-42-✱-PW	460

AC Coil Codes ❶❸

AC Coil Code	Voltage Range 50 Hz	60 Hz
12	12V	12V
24Z	24V	24V
48	48V	48V
120	110V	120V
208	200V-220V	208V-240V
240	240V	240V
380 ❺	Use Coil Code 400	
400 ❺	400V	400V
480	440V	480V
575 ❻	Use Coil Code 600	
600 ❻	525V	600V

DC Coil Codes ❶❸

DC Coil Code	Voltage
12D	12V
24D	24V ❹
48D	48V
110D	110V
125D	125V
220D	220V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page**

❶ CA8 not available without coil. Coils and contacts not replaceable.
❷ Internal NC contacts on each contactor are used for electrical interlocking.
❸ The coil codes shown are the most commonly stocked items. Contact your Sprecher + Schuh representative to determine if other voltages are required.
❹ Integrated diode surge suppressor coils available. Order coil code **24DD** and add $84 to list price. Ex: CAU8-09C-02-**24D** becomes CAU8-09C-02-**24DD**.
❺ The European Community has agreed that 400V is the nominal voltage in lieu of 380V. Use this code when 380V is required.
❻ Use this code for 575V applications.
❼ Does not apply to CAU8...-PW.

SSNA9000

Non-Reversing, Three Pole Starters With AC Coil, Series CAT8 (Open type only) ❶

I_e [A] 40ºC	Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	
	3 Ø kW (50 Hz)				UL/CSA HP (60 Hz)									
					1 Ø		3 Ø							
AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
20	3	4	4	4	1/2	1-1/2	2	2	5	5	1	0	**CAT8-09-10-✱-◆**	179
											0	1	**CAT8-09-01-✱-◆**	179
20	3	5.5	5.5	5.5	3/4	2	3	3	7-1/2	7-1/2	1	0	**CAT8-12-10-✱-◆**	209
											0	1	**CAT8-12-01-✱-◆**	209

Representative model of a CAT8-09… starter with the CT8 bimetallic overload relay

Non-Reversing, Three Pole Starters With DC Coil, Series CAT8 (Open type only) ❶❷

I_e [A] 40ºC	Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	
	3 Ø kW (50 Hz)				UL/CSA HP (60 Hz)									
					1 Ø		3 Ø							
AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
20	3	4	4	4	1/2	1-1/2	2	2	5	5	1	0	**CAT8-09C-10-✱-◆**	204
											0	1	**CAT8-09C-01-✱-◆**	204
20	3	5.5	5.5	5.5	3/4	2	3	3	7-1/2	7-1/2	1	0	**CAT8-12C-10-✱-◆**	245
											0	1	**CAT8-12C-01-✱-◆**	245

NOTE: CAT8 starters are priced to include Sprecher + Schuh's economical CT8 bimetallic overload relay. See page A21 for selection.

AC Coil Codes ❶❸

AC Coil Code	Voltage Range	
	50 Hz	60 Hz
12	12V	12V
24Z	**24V**	**24V**
48	48V	48V
120	**110V**	**120V**
208	200V-220V	208V-240V
240	240V	240V
380 ❺	Use Coil Code 400	
400 ❺	400V	400V
480	**440V**	**480V**
575 ❻	Use Coil Code 600	
600 ❻	525V	600V

DC Coil Codes ❶❸

DC Coil Code	Voltage
12D	12V
24D	**24V ❹**
48D	48V
110D	110V
125D	125V
220D	220V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code Replace (◆) with O/L Relay Code	**Coil Codes on this page** **O/L Relay Code on A21**

❶ CA8 not available without coil. Coils and contacts not replaceable.
❷ Select Coil Code from DC Coil Code table only.
❸ The coil codes shown are the most commonly stocked items. Contact your Sprecher + Schuh representative to determine if other voltages are required.
❹ Integrated diode surge suppressor coils available. Order coil code **24DD** and add $42 to list price. Ex: CAT8-09C-10-**24D** becomes CAT8-09C-10-**24DD**.
❺ The European Community has agreed that 400V is the nominal voltage in lieu of 380V. Use this code when 380V is required.
❻ Use this code for 575V applications.

SSNA9000

Reversing, Three Pole Starters With AC Coil, Series CAUT8 (Open type only) ❶❷

I_e [A] 40ºC	Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	
	3 Ø kW (50 Hz)				UL/CSA HP (60 Hz)									
					1 Ø		3 Ø							
AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
20	3	4	4	4	~	~	2	2	5	5	0	1	**CAUT8-09-02-✱-◆-LW**	**323**
											2	1	**CAUT8-09-42-✱-◆-PW**	**365**
20	3	5.5	5.5	5.5	~	~	3	3	7-1/2	7-1/2	0	1	**CAUT8-12-02-✱-◆-LW**	**395**
											2	1	**CAUT8-12-42-✱-◆-PW**	**437**

Reversing, Three Pole Starters With DC Coil, Series CAUT8 (Open type only) ❶❷

I_e [A] 40ºC	Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	
	3 Ø kW (50 Hz)				UL/CSA HP (60 Hz)									
					1 Ø		3 Ø							
AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
20	3	4	4	4	~	~	2	2	5	5	0	1	**CAUT8-09C-02-✱-◆-LW**	**414**
											2	1	**CAUT8-09C-42-✱-◆-PW**	**456**
20	3	5.5	5.5	5.5	~	~	3	3	7-1/2	7-1/2	0	1	**CAUT8-12C-02-✱-◆-LW**	**496**
											2	1	**CAUT8-12C-42-✱-◆-PW**	**538**

CAUT8…LW Includes:

- Mechanical interlock
- Utilizes CT8 bimetallic overload relay. Select code from page A21.

CAUT8…PW Includes:

- Mechanical and electrical interlock ❷
- Utilizes CT8 bimetallic overload relay. Select code from page A21.
- Reversing power and control wiring (using Wiring Kit Cat.# CAUT8-PW)
- Top mount auxiliary contact block (Cat.# CA8-P20 on the -42- models)

AC Coil Codes ❶❸

AC Coil Code	Voltage Range	
	50 Hz	60 Hz
12	12V	12V
24Z	**24V**	**24V**
48	48V	48V
120	**110V**	**120V**
208	200V-220V	208V-240V
240	240V	240V
380 ❺	Use Coil Code 400	
400 ❺	400V	400V
480	**440V**	**480V**
575 ❻	Use Coil Code 600	
600 ❻	525V	600V

DC Coil Codes ❶❸

DC Coil Code	Voltage
12D	12V
24D	**24V ❹**
48D	48V
110D	110V
125D	125V
220D	220V

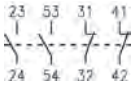
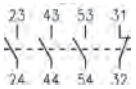
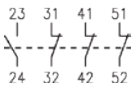
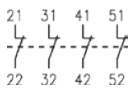
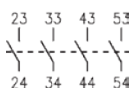
Ordering Instructions

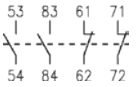
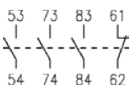
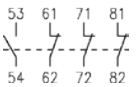
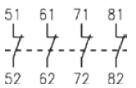
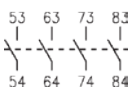
Specify Catalog Number	
Replace (✱) with Coil Code Replace (◆) with O/L Relay Code	**Coil Codes on this page** **O/L Relay Code on A21**

❶ CA8 not available without coil. Coils and contacts not replaceable.
❷ NC contacts on each contactor are used for electrical interlocking.
❸ The coil codes shown are the most commonly stocked items. Contact your Sprecher + Schuh representative to determine if other voltages are required.
❹ Integrated diode surge suppressor coils available. Order coil code **24DD** and add $84 to list price. Ex: CAUT8-09C-02-**24D** becomes CAUT8-09C-02-**24DD**.
❺ The European Community has agreed that 400V is the nominal voltage in lieu of 380V. Use this code when 380V is required.
❻ Use this code for 575V applications.

SSNA9000

Auxiliary Contact Blocks (2 & 4 Pole) ❶

Auxiliary Contact Blocks	NO	NC	Contact Arrangement	Catalog No.	Price
 *2-Pole*	1	1		**CA8-P11**	
	0	2		**CA8-P02**	**27**
	2	0		**CA8-P20**	
Typical auxiliary contact block	2	2		**CA8-P22**	
	3	1		**CA8-P31**	
 *4-Pole*	1	3		**CA8-P13**	**54**
	0	4		**CA8-P04**	
	4	0		**CA8-P40**	

Auxiliary Contact Blocks	NO	NC	Contact Arrangement	Catalog No.	Price
 *2-Pole*	1	1		**CS8-P11E**	
	0	2		**CS8-P02E**	**27**
	2	0		**CS8-P20E**	
Typical auxiliary contact block	2	2		**CS8-P22Z**	
	3	1		**CS8-P31Z**	
 *4-Pole*	1	3		**CS8-P13E**	**54**
	0	4		**CS8-P04E**	
	4	0		**CS8-P40E**	

❶ Auxiliary contacts mirror contact performance per IEC 60947-4-1. Contacts are bifurcated (H-bridge) with a minimum rating of 2mA @ 15V.

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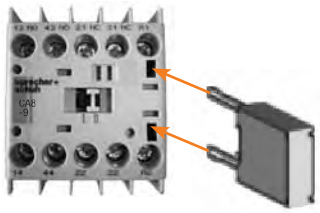
Miscellaneous Accessories

Accessory	Description	Catalog Number	Price
	**Surge Suppressor CR__8 -** for limiting voltage spikes when switching off coil. Coil itself provides sufficient limitation at voltages over 240V. RC Link (Type CRC8…) for AC Control 24-48VAC 110-280VAC 380-480VAC	**CRC8-50** **CRC8-280** **CRC8-480**	33
	Diode Link (Type CRD8…) for DC Control ❶ 12-250VDC (diode)	**CRD8-250**	33
	Varistor Link (Type CRV8…) for AC/DC Control 12-55VAC/12-77VDC 56-136VAC/78-180VDC 137-277VAC/181-250VDC	**CRV8-55** **CRV8-136** **CRV8-277**	22
	**Mechanical Interlock Kit -** For interlocking of two adjacent contactor – without additional space requirement in width – attachable from the front (top) of contactor – optional auxiliary contact blocks can be mounted on the top (does not interfere with mounting CR__8)	**CM8**	12
	**Wiring Kit -** For connecting line, load and control wiring of a CAU8 reversing contactor. – works with CT8 Overloads	**CAUT8-PW**	15
	**Connection Modules -** For KTA7 motor circuit controller with a CA8 contactor.	**KT7-25S-PEK12**	40
	**Feeder Terminal for Compact Bus Bars -** Supply of compact bus bars. For use with CA8-09 and CA8-12 34 Amps max.	**CA8-WT**	42
	**Three-Phase Compact Bus Bars -** For use with CA8-09 and CA8-12 Contactors with 45 mm spacing. (3 connections) 34 Amps max.	**CA8-W453**	50
	**Three-Phase Compact Bus Bars -** For use with CA8-09 and CA8-12 Contactors with 45 mm spacing. (4 connections) 34 Amps max.	**CA8-W454**	59

❶ CA8 contactors with 24 VDC coils can be special ordered with integrated diodes (built-in) rather than applying CRD8 to the coil terminals.

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CAT8 Starters with CT8 Thermal Overload Relay

For use with contactor....	Amp Range	Overload Relay Code (◆)	Catalog Number (of Overload Relay used)	Price Adder
CT8 Thermal Overload Relay, 1 or 3-Phase, Auto/Manual, Class 10				
CA8-09	0.10…0.16	**8A16**	**CT8-A16**	**Standard**
	0.16...0.25	**8A25**	**CT8-A25**	**Standard**
	0.25...0.4	**8A40**	**CT8-A40**	**Standard**
	0.35...0.5	**8A50**	**CT8-A50**	**Standard**
	0.45...0.63	**8A63**	**CT8-A63**	**Standard**
	0.55...0.8	**8A80**	**CT8-A80**	**Standard**
	0.75...1.0	**8B10**	**CT8-B10**	**Standard**
	0.90...1.3	**8B13**	**CT8-B13**	**Standard**
	1.10...1.6	**8B16**	**CT8-B16**	**Standard**
	1.4...2.0	**8B20**	**CT8-B20**	**Standard**
	1.8...2.5	**8B25**	**CT8-B25**	**Standard**
	2.3...3.2	**8B32**	**CT8-B32**	**Standard**
	2.9...4.0	**8B40**	**CT8-B40**	**Standard**
	3.5...4.8	**8B48**	**CT8-B48**	**Standard**
	4.5...6.3	**8B63**	**CT8-B63**	**Standard**
	5.5...7.5	**8B75**	**CT8-B75**	**Standard**
CA8-09 or 12	7.2...10	**8C10**	**CT8-C10**	**Standard**
CA8-12	9.0...12.5	**8C12**	**CT8-C12**	**Standard**

Obsolete Contactors Cross Reference, Series CA4 to Series CA8 (Open Type Only)

I_e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)									Auxiliary Contacts per Contactor		Series CA4 Obsolete	Series CA8 Replacement
		kW (50 Hz)			**UL/CSA HP** (60 Hz)									
					1 Ø		**3 Ø**							
AC-3	AC-1	230V	400V 415V	500V	115V	230V	200V	230V	460V	575V	NO	NC	**Catalog Number**	**Catalog Number**
9	20	3	4	4	**1/2**	**1-1/2**	**2**	**2**	**5**	**5**	1	0	**CA4-9-10**	
											0	1	**CA4-9-01**	
~	20	3	4	4	**1/2**	**1-1/2**	**2**	**2**	**5**	**5**	1	0		**CA8-09-10**
											0	1		**CA8-09-01**
12	20	3	5.5	4	**1/2**	**2**	**3**	**3**	**7-1/2**	**10**	1	0	**CA4-12-10**	
											0	1	**CA4-12-01**	
~	20	3	5.5	5.5	**3/4**	**2**	**3**	**3**	**7-1/2**	**7-1/2**	1	0		**CA8-12-10**
											0	1		**CA8-12-01**

CA4-9-10 Contactor

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Technical Information

				CA8-09	CA8-12
Rated Insulation Voltage U_i					
to IEC947-1			[V]	690V	
UL/CSA			[V]	600V	
Rated Impulse Voltage Withstand U_{imp}			[kV]	6	
Rated Voltage Ue-Main Contacts					
AC 50/60Hz			[V]	230, 240, 400, 415, 500, 690	
DC			[V]	24, 48, 110, 220, 440	
Operating Frequency for AC Loads			[Hz]	50/60Hz	
Switching Motor Loads					
Standard IEC Ratings					
AC-2, AC-3, AC-4		230V	[A]	11.3	11.3
DOL & Reversing		240V	[A]	11.3	11.3
50Hz@60˚ C		400V	[A]	8.5	11.5
		415V	[A]	8.5	11.5
		500V	[A]	6.8	9.2
		690V	[A]	4.9	6.7
		230V	[kW]	3	3
		240V	[kW]	3	3
		400V	[kW]	4	5.5
		415V	[kW]	4	5.5
		500V	[kW]	4	5.5
		690V	[kW]	4	5.5
UL/CSA		115V	[A]	9.8	13.8
DOL & Reversing	1∅	230V	[A]	10	12
60Hz		115V	[HP]	0.5	0.75
		230V	[HP]	1.5	2
		200V	[A]	7.8	11
		230V	[A]	6.8	9.6
		460 V	[A]	7.6	11
	3∅	575 V	[A]	6.1	9
		200 V	[HP]	2	3
		230 V	[HP]	2	3
		460 V	[HP]	5	7.5
		575 V	[HP]	5	7.5
Maximum Operating Rate		AC2	[ops/hour]	300	300
At 9A for AC3; 20A for AC2/4		AC3	[ops/hour]	600	600
Starting time t_A = 0.25s		AC4	[ops/hour]	300	300
AC4 (200,000 Op. Cycles)		230V	[A]	3.9	3.9
50Hz		240V	[A]	3.9	3.9
		400V	[A]	3.6	3.6
		415V	[A]	3.6	3.6
		500V	[A]	3.2	3.2
		230V	[kW]	0.75	0.75
		240V	[kW]	0.75	0.75
		400V	[kW]	1.5	1.5
		415V	[kW]	1.5	1.5
		500V	[kW]	1.5	1.5
Max. Operating Rate			[ops/hour]	250	250

				CA8-09	CA8-12
Wye-Delta (Star Delta)	≤230V		[A]	20	20
50 Hz	≤240V		[A]	20	20
	400V		[A]	15.5	15.5
	415V		[A]	15.5	15.5
	500V		[A]	12.4	12.4
	690V		[A]	8.9	8.9
	230V		[kW]	5.5	5.5
	240V		[kW]	5.5	5.5
	400V		[kW]	7.5	10
	415V		[kW]	7.5	11
	500V		[kW]	7.5	7.5
	690V		[kW]	7.5	7.5
60 Hz	200V		[Hp]	3	5
	230V		[Hp]	3	5
	460V		[Hp]	7.5	10
	575V		[Hp]	7.5	10
AC-1 Load, 3∅ Switching					
Ambient Temperature 40˚ C	I_e		[A]	20	20
	230V		[kW]	8	8
	240V		[kW]	8.3	8.3
	400V		[kW]	14	14
	415V		[kW]	14	14
	500V		[kW]	17	17
	690V		[kW]	24	24
Ambient Temperature 60˚ C	I_e		[A]	16	16
	230V		[kW]	6.4	6.4
	240V		[kW]	6.7	6.7
	400V		[kW]	11	11
	415V		[kW]	12	12
	500V		[kW]	14	14
	690V		[kW]	19	19
Continuous Current (UL/CSA)					
General Purpose Rating (40˚ C)	Open		[A]	12	12
	Enclosed		[A]	15	18
Lighting Loads					
Gas Dischrg.Lamps-AC-5a, 220…240VAC (40ºC)	Enclosed		[A]	18	18
	Open		[A]	15	15
Single compensated Max. capacitance at prospective short circuit current available at the contactor	10kA		[µF]	750	750
	20kA		[µF]	400	400
	50kA		[µF]	~	~
Incandescent Lamps - AC-5b Electrical endurance~100,000 operations 230/240V			[A]	9.0	9.0

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Electrical Data

			CA8-09	CA8-12
Switching power transformers AC-6a (50Hz)				
Inrush / Rated transformer current = η				
η = 30	≤230V	[A]	5.4	5.4
	≤240V	[A]	5.4	5.4
	≤400V	[A]	4.1	5.4
	≤415V	[A]	4.1	5.4
	≤500V	[A]	3.2	3.2
	230VAC	[kVA]	2	2
	240VAC	[kVA]	2	2
	400VAC	[kVA]	2.8	3.4
	415VAC	[kVA]	2.8	3.4
	500VAC	[kVA]	2.8	3.4
	690VAC	[kVA]	4	5
DC Ratings				
DC-1 Rating at 60°C				
1 Pole	24VDC	[A]	9	9
	48/60VDC	[A]	6/1.5	6/1.5
	110VDC	[A]	1	1
	220VDC	[A]	0.3	0.3
	440VDC	[A]	0.1	0.1
2 Pole in Series	24VDC	[A]	9	9
	48/60VDC	[A]	8	8
	110VDC	[A]	6	6
	220VDC	[A]	1.2	1.2
	440VDC	[A]	0.3	0.3
3 Pole in Series	24VDC	[A]	9	9
	48VDC	[A]	9	9
	110VDC	[A]	9	9
	220VDC	[A]	4	4
	440VDC	[A]	0.6	0.6
Shunt-wound Motors				
Starting, reverse current braking, reversing stepping DC-3, 60°C				
	24V	[A]	9	9
3 Poles in series	48/60V	[A]	6	6
	110V	[A]	3	3
	220V	[A]	1.2	1.2
	440V	[A]	0.2	0.2
Series-wound Motors				
Starting, reverse current braking, reversing stepping DC-5, 60°C				
	24V	[A]	9	9
3 poles in series	48/60V	[A]	3	3
	110V	[A]	1	1
	220V	[A]	0.1	0.1
	440V	[A]	~	~
Short Time Withstand-I_{CW}, 60°C				
	10s	[A]	96	96

Short Circuit Coordination (Max. Fuse or Circuit Breaker Rating)			CA8-09	CA8-12
50 kA Max. DIN fuse gG per IEC 60947-4-1 (Contactor and Fuse only)				
Available Fault Current				
Type 1 Coordination (690V)	max.	[A]	35	35
Type 2 Coordination (690V)	max.	[A]	20	20
Class K5 and RK5 fuses ❶	max.	[A]	40	40

Resistance and Watt Loss I_e AC3				
Resistance per power pole		[mΩ]	2.2	2.2
Watt Loss - 3 power poles @400V		[W]	0.9	0.9
Coil and 3 power poles	AC @400V, warm	[W]	2.7	2.7
	DC, warm	[W]	3.5	3.5

Coil Data

			CA8-09	CA8-12
Voltage Range				
AC: 50Hz, 60Hz, 50/60 Hz	Pickup	[x U_S]	0.85...1.1	
	Dropout	[x U_S]	0.2…0.75	
DC	Pickup	[x U_S]	0.85...1.1	
			9, 12, 24, 110V DC: 0.7…1.25	
	Dropout	[x U_S]	0.1...0.75	
Coil Consumption				
AC: 50Hz, 60Hz, 50/60 Hz	Pickup	[VA/W]	35/32	
	Hold-in	[VA/W]	5/1.8	
DC	Pickup	[W]	cold 3.0, warm 2.6	
	Hold-in	[W]	cold 3.0, warm 2.6	
Operating Times				
AC: 50Hz, 60Hz, 50/60 Hz	Pickup	[ms]	15...40	
	Dropout	[ms]	15...33	
with RC Suppressor	Dropout	[ms]	15...28	
DC	Pickup	[ms]	18...40	
	Dropout	[ms]	6...12	
with Integ. Suppression	Dropout	[ms]	8...12	
with external diode Suppression	Dropout	[ms]	35...50	
Minimal changeover time for reversing		[ms]	>50	

❶ UL listed combination.

Mechanical Data

			CA8-09	CA8-12
Service Life				
Mechanical	AC/DC	[Mil.Op.]	15	
Electrical	AC-3(400V)	[Mil.Op.]	0.7	
Reversing combination, mechanical, electrical		[Mil.Op.]	0.7	
Shipping Weights				
AC-CA8		[kg]	0.16	
		[Lbs]	0.35	
AC-CAU8		[kg]	0.35	
		[Lbs]	0.77	
DC-CA8		[kg]	0.20	
		[Lbs]	0.44	
DC-CAU8		[kg]	0.43	
		[Lbs]	0.91	

Terminations - Screw Type Terminals
Main contacts and Auxiliary contacts

Terminal Type			Combination Screw Head: Cross, Slotted, Pozidrive
 Fine stranded w/ ferrule	1 wire	[mm²]	0.75...2.5
	2 wires	[mm²]	0.75...2.5
 Solid or coarse stranded	1 wire	[mm²]	1…4
	2 wires	[mm²]	1...2.5 + 1…4
		[AWG]	18…12
Torque Requirement		[Nm]	1.2
		[Lb-in]	10.6

Environmental and General Specifications

Ambient Temperature	
Storage	-55...+80˚ C (-67...176˚ F)
Operation	-25...+60˚ C (-13...140˚ F)
Conditioned 15% current reduction after AC-1 at >60˚ C	-25...+70˚ C (-13...158˚ F)
Altitude at installed site	2000 meters above sea level per IEC 60947-4-1
Resistance to Corrosion / Humidity	
	Damp-alternating climate: cyclic to IEC 68-2, 56 cycles.
	Dry Heat: IEC 68-2, +100°C (212°F), relative humidity <50%, 7 days.
	Damp tropical: IEC 68-2, +40°C (104°F), relative humidity <92%, 56 days.
Shock Resistance	IEC 68-2/EN 60068
Vibration Resistance	IEC 68-2/EN 60068
Operating Position	Refer to Dimension Pages
Standards	IEC/EN 60947-1, -4-1, -5-1, -5-4; UL 508; CSA 22.2. No. 14
Approvals	CE c UL us

High Fault Short Circuit Ratings per UL508 and CSA 22.2 No.14

Overload Cat. No.		Contactor Cat. No.	Max. starter FLC (A)	Fuse Ratings			UL Listed Circuit Breaker Ratings ❶			Group Installation ❶
				Max. available fault current (kA)	Max. voltage (V)	UL Class J, CC, CSA HRCI-J fuse max. (A)	Short Circuit Rating (kA)	Max. voltage (V)	Max. CB Rating (A)	Max. CB rating (A)
CT8	A16…A40	CA8-09	10	50	600	1	5	600	15	30
	A50…A63					2				
	A80…B10					3				
	B13					4				
	B16					5				
	B20					8				
	B25					10				
	B32					12				
	B40…B48					15				
	B63					20				
	B75					25				
	C10	CA8-09…12				35				
	C12	CA8-12	13.8			50				

❶ Group installation ratings can be applied when used with CA8 Compact Bus Bars (see page A20) in a minimum 1,152 cu. in. enclosure with two latches.

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Auxiliary Contacts

			Built-in Auxiliary Contacts									Add-on Auxiliary Contacts								
Current Switching																				
AC-12 I_{th}	at 40°C	[A]	10									10								
	at 60°C	[A]	6									6								
AC-15, switching electromagnetic loads at:		[V]	24	120	240	400	480	500	600	690		24	120	240	400	480	500	600	690	
		[A]	6	6	3	1.8	1.5	1.4	1.2	1		3	3	2	1.2	1	1	0.6	0.6	
DC-13, switching DC electromagnets at:		[V]	24	48	110	125	220	250	400	440	600	24	48	110	125	220	250	400	440	600
		[A]	2.8	1.2	0.55	0.55	0.27	0.27	0.15	0.15	0.10	2.3	1	0.55	0.55	0.27	0.27	0.15	0.15	0.10
DC-12, L/R< 1 ms resistive loads at:		[V]	24	48	110	125	220	250	400	440										
		[A]	6	4	0.6	0.6	0.2	0.2	0.08	0.08										
DC-14, L/R< 15 ms inductive loads		[V]	24	48	110	125	220	250	400	440										
with economy resistor in series at:		[A]	4	2.5	0.4	0.4	0.12	0.12	0.05	0.05										
Low Level Signal Switching																				
Contact design			X-stamped									H-bridge, bi-furcated								
Minimum switching recommendation		[V]	17V									15V								
		[mA]	10mA									2mA								
Short-Circuit Protection - gG Fuse																				
Type 2 Coordination		[A]	10									10								
Load carrying capacity per UL/CSA																				
Rated Voltage	AC	[V]	600 max.									600 max.								
Continuous Rating	40°C	[A]	10 general purpose									10 general purpose								
Switching Capacity	AC		Heavy pilot duty (A600)									Heavy pilot duty (B600)								
Rated Voltage	DC	[V]	600 max.									600 max.								
Switching Capacity	DC		Standard pilot duty (Q600)									Standard pilot duty (Q600)								
Mechanically Linked Contacts IEC 60947-5-1, Annex L			Yes									No								
Mirror Contacts IEC 60947-4, Annex F			Yes									Yes								

Contact Ratings *(Per NEMA/UL A600, B600 & Q600)*

Standard	Circuit Voltage	Make (Amps/VA)	Break (Amps/VA)	Continuous Amps
A600	120AC 240AC 480AC 600AC	60A/7200VA 30A/7200VA 15A/7200VA 12A/7200VA	60A/720VA 30A/720VA 15A/720VA 12A/720VA	10
B600	120AC 240AC 480AC 600AC	30A/3600VA 15A/3600VA 7.5A/3600VA 6A/3600VA	3.0A/360VA 1.5A/360VA 0.75A/360VA 0.60A/360VA	10
Q600	125DC 250DC 301-600DC	0.55/69VA 0.27/69VA 0.1A/69VA	0.55/69VA 0.27/69VA 0.1A/69VA	2.5

Life-Load Curves

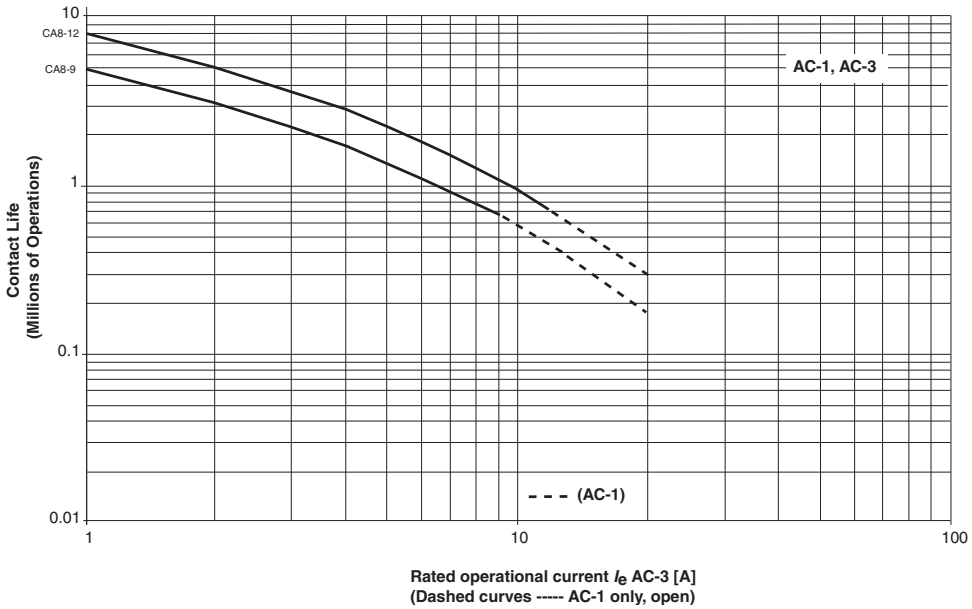
- Locate the Rated Operational Current (I_e) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.
- Read the estimated contact life along the vertical axis.

INSTRUCTIONS ON "HOW TO READ" LIFE CURVES CAN BE FOUND ON PAGE A7

AC-1, AC3

(400...460V AC)

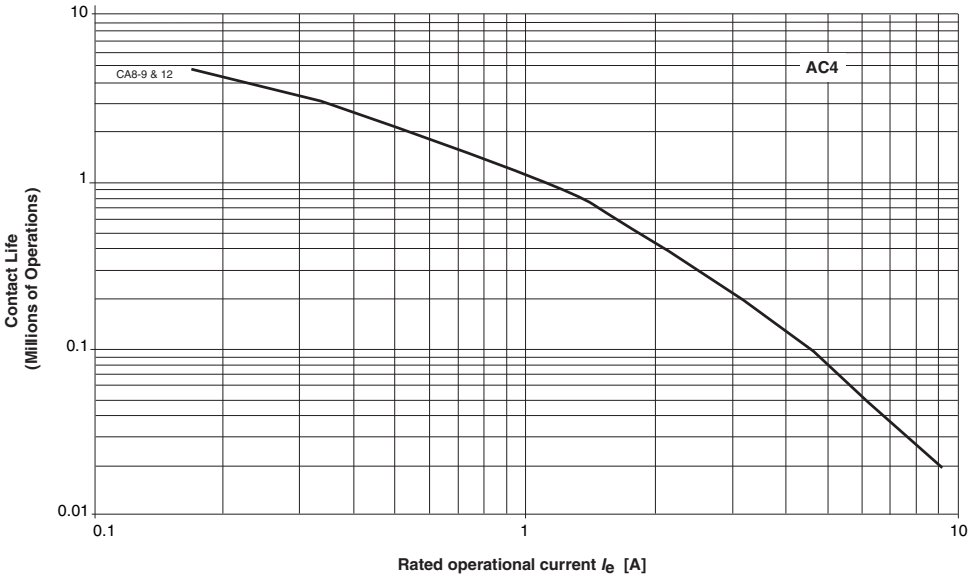
AC-1 Non- or slightly inductive loads, resistance furnaces; AC-3 Switching of squirrel-cage motors while starting
U_e = 400...415 VAC



AC-4

(400...460V AC)

AC-4 Stepping of squirrel-cage motors
U_e = 400...415 VAC

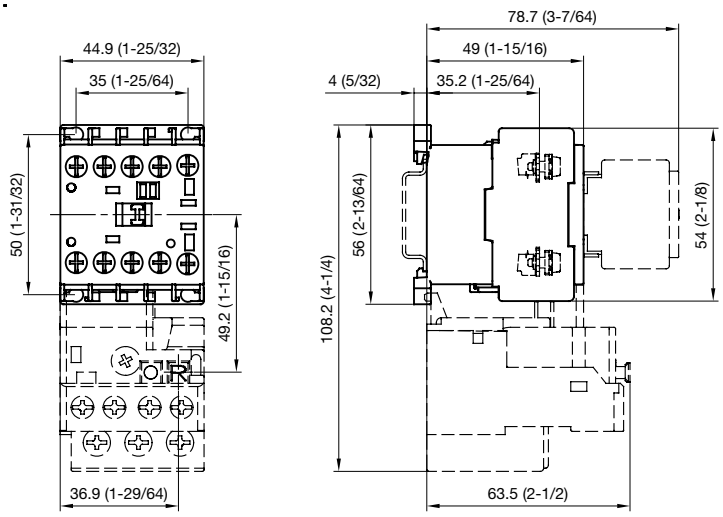


NOTE: The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 60947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

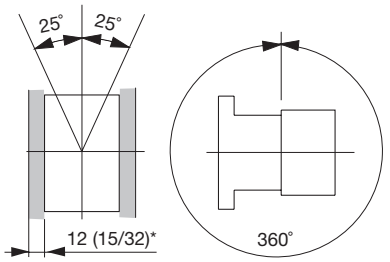
SSNA9000

Series CA8 & Series CAU8 (Contactors & Reversing Contactors)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

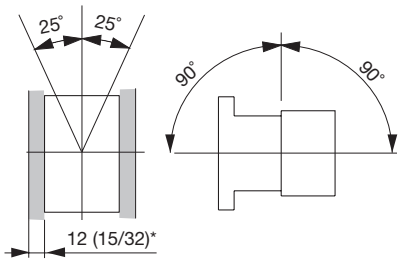


Mounting Position without Accessories



* Minimum distance to grounded parts or walls

Mounting Position with Accessories



* Minimum distance to grounded parts or walls

Reversing Contactors & Accessories

Contactor with...		Dim. [mm]	Dim. [inches]
reversing with mechanical interlock		89.8	3.53
with aux. contact block		78.7	3.1
with timer	on contactor	81.7	3.25
	at side of contactor	66.9	2.63
with neutral terminal	at side of contactor	64.9	2.56
with protection element			
with nameplate		51	2

SSNA9000

Series CA7 Contactors

Rugged, space saving and modular… Sprecher + Schuh's newest contactor for applications up to 75HP @ 460V

Over 100 years of design experience has produced Sprecher + Schuh's seventh generation contactor line. The CA7 represents the most modern and flexible power contactor available today, meeting the highest industrial application requirements.

Big performance in a small package

A wide selection of ten contactors in four frame sizes covers the entire CA7 horsepower range (up to 75HP @ 460/575V). Six of the contactors are only 45mm wide, an extremely small footprint for such rugged performance. A number of design features account for this efficiency, including high contact pressure and "bounce-free" contacts, allowing the devices to handle the high starting currents typical of modern motors.

Type 1 and Type 2 Coordination

Whether you're designing motor circuits for use in North America, Europe or any other part of the world, all CA7 contactors have been designed and tested with respect to Type 1 and Type 2 short circuit coordination. Find out more in the CA7 Technical Information section in this chapter.

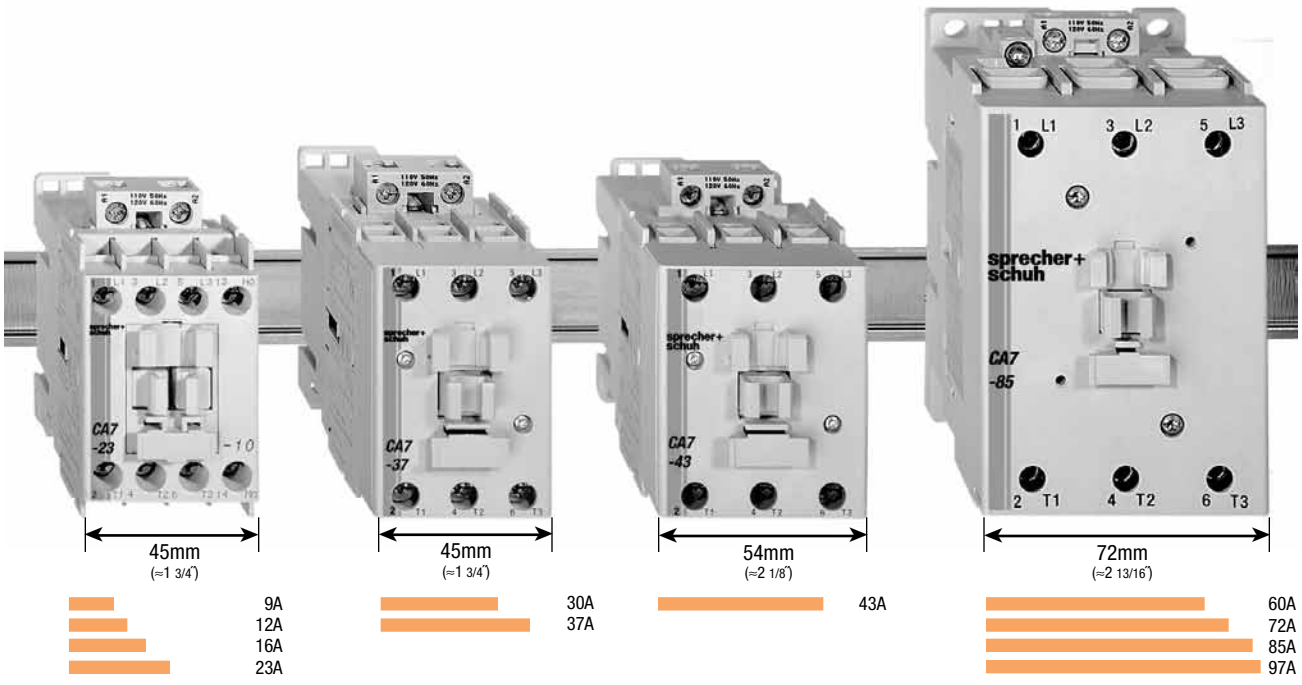
Advanced safety and reliability features

The entire CA7 line features mechanically linked contacts, sometimes referred to as "positively guided contacts" or "force guided contacts". If a main power pole welds, adequate clearances exist (≥0.3mm) to ensure that the auxiliary contacts do not change state when coil power is removed and the device tries to open. This is a requirement in safety circuits per IEC 60947-5-1.

Reliability is further assured by "cross-stamped" auxiliary contacts, which provide multi-point reliability in low current, low voltage applications.

Three types of DC coils available

CA7-9C through 43C contactors are available with true DC or Electronic 24V DC coils that dramatically decrease wattage consumption during pull-in. This allows the use of smaller power supplies. The entire CA7 line is also available with a two winding DC coil that reduces the size of the contactor, as well as the hold-in values. Two winding coils include built-in coil suppression and an internal contact that bypasses the pull-in coil to the hold-in coil.



SSNA9000

Modular accessories are common to all devices

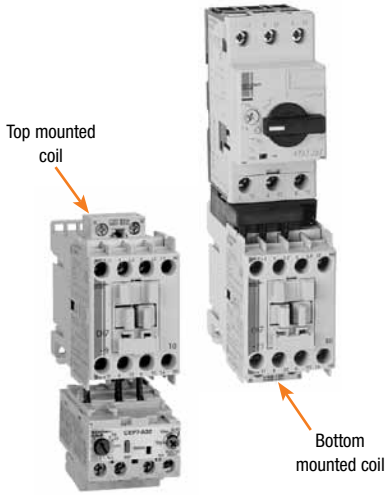
All accessories are interchangeable among all CA7 contactors and CS7 control relays. This minimizes inventory requirements and maximizes flexibility. Top and side mount auxiliary contacts are available depending on your application. A mechanical interlock with two built-in NC auxiliaries also provides electrical interlocking if desired. Pneumatic and electronic timers, surge suppressors and electronic interface modules provide solutions for even the most complex applications.

Reversible coil provides total flexibility

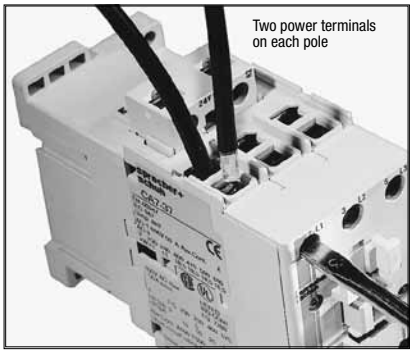
When shipped, both coil connections are normally located at the top of the contactor in preparation for mounting an overload relay at the bottom. For multi-starter panels, however, the coil can be reversed, which provides space to close-couple a KT7 Motor Circuit Controller on the top of the contactor. CA7 contactors can either be ordered with the coil reversed or may be easily reversed in the field.

Dual power terminals speed wiring

CA7-30 through 85 contactors are designed with two power terminals for all three poles. This simplifies power wiring of interconnected contactors in reversing, reduced voltage and two-speed applications. Preformed power wiring connectors are also available for virtually instantaneous wiring in these labor intensive applications. Simplified wiring means less labor and less cost.



Reversible coils are standard on all CA7 contactors



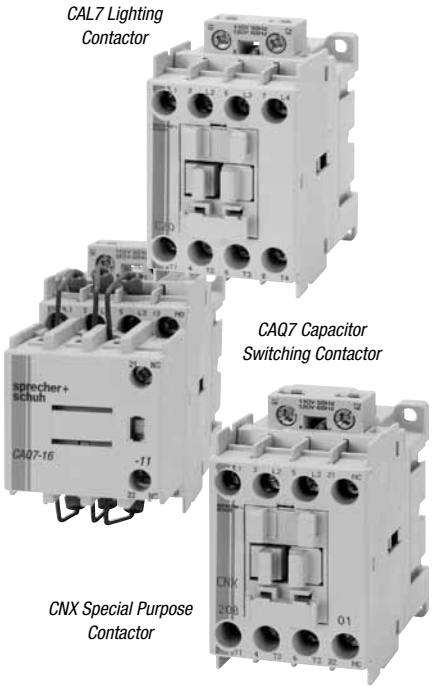
Dual power terminals assure hassle-free wiring in complex control schemes

Special use contactors for specialized applications

The CA7 line has been expanded to include a number of contactors designed and labeled for specific industrial applications. In all cases, these devices are UL and CSA approved for these specialized uses.

Lighting contactors

The CAL7 contactor can be used to control a wide variety of lighting loads. These contactors are well suited to handle the high inrush currents typical of this application as well as other non-motor (resistive) loads. Both mechanically held and electrically held models are available for lighting load applications up to 20A, 30 A and 60 A.



Sprecher + Schuh's expanded CA7 line includes contactors designed and labeled for specific industrial applications

Capacitor contactors

CAQ7 contactors manage the peak inrush common with capacitor switching by incorporating a built-in set of resistors and early-make contacts, wired in parallel with the power contacts, to pre-charge the capacitors. Selection is based on applied KVAR.

NEMA Labeled Contactors

CAN7 contactors are UL Listed and rated in accordance with the requirements of NEMA standards publication ICS-2. These contactors are NEMA compliant and are labeled accordingly.

Special purpose contactors

CNX contactors are standard CA7 contactors that have been tested, approved and labeled by UL for heating ventilation and air conditioning (HVAC) applications.

Non-Reversing, Three Pole Contactors With AC Coil, Series CA7 (Open type only) ❶

I_e [A] ❶		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V / 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
9	32	3	4	4	4	1/2	1 1/2	2	2	5	7-1/2	1 0	0 1	CA7-9-10-✱ CA7-9-01-✱	120
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	1 0	0 1	CA7-12-10-✱ CA7-12-01-✱	155
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	1 0	0 1	CA7-16-10-✱ CA7-16-01-✱	174
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	1 0	0 1	CA7-23-10-✱ CA7-23-01-✱	193
30	65	10	15	15	15	2	5	7-1/2	10	20	25	0 1 0	0 0 1	CA7-30-00-✱ CA7-30-10-✱ CA7-30-01-✱	222 244 244
37	65	11	18.5/ 20	20	18.5	3	5	10	10	25	30	0 1 0	0 0 1	CA7-37-00-✱ CA7-37-10-✱ CA7-37-01-✱	266 288 288
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0 1 0	0 0 1	CA7-43-00-✱ CA7-43-10-✱ CA7-43-01-✱	286 308 308
60	100	18.5	32	37	32	5	10	15	20	40	50	0 1 0	0 0 1	CA7-60-00-✱ CA7-60-10-✱ CA7-60-01-✱	350 372 372
72	100	22	40	45	40	5	15	20	25	50	60	0 1 0	0 0 1	CA7-72-00-✱ CA7-72-10-✱ CA7-72-01-✱	403 425 425
85	100	25	45	55	45	7-1/2	15	25	30	60	60	0 1 0	0 0 1	CA7-85-00-✱ CA7-85-10-✱ CA7-85-01-✱	460 482 482
97	130	30	55	55	55	10	15	30	30	75	75	0 1 0	0 0 1	CA7-97-00-✱ CA7-97-10-✱ CA7-97-01-✱	577 599 599

CA7-9-10-120 contactor

CA7-43-00-120 contactor

CA7-85-00-120 contactor

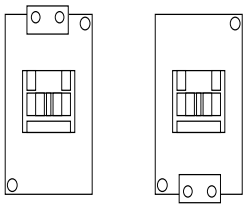
NEW

Coil Codes ❷

AC Coil Code	Voltage Range	
	50 Hz	60 Hz
24Z	**24V**	**24V**
120	**110V**	**120V**
208	~	208V
220W	**~**	**208V-240V**
240	220V	240V
277	240V	277V
380	380V-400V	440V
480	**440V**	**480V**
600	550v	600V

Coil Terminal Position

All CA7 contactors are stocked and delivered with the coil terminals located on the line side (top) of the contactor. This is the typical configuration when using the contactor with an overload relay. When the contactor is used with the KT7 Motor Circuit Controller, the coil must be reversed, so that the coil terminals are located at the load side (bottom) of the contactor. CA7 coils can easily be reversed in the field, however, they are also available for order with the coils reversed from the factory. Contact your Sprecher+Schuh representative for more information about ordering CA7 contactors with reversed coils.



All CA7 contactors come with reversible coils.

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ AC1 Resistive Ratings and UL/CSA Continuous Current Ratings may be increased by the use of Lug Kits or Paralleling Links. See CA7 Accessories section for applicable information.

❷ Other voltages available, see page A61. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

SSNA9000

Non-Reversing, Four Pole Contactors With AC Coil, Series CA7 (Open type only)

I_e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Contact Configuration, Main Pole		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
9	32	3	4	4	4	**1/2**	**1 1/2**	**2**	**2**	**5**	**7-1/2**	4 3 2	0 1 2	**CA7-9-M40-∗** **CA7-9-M31-∗** **CA7-9-M22-∗**	**120** **132** **132**
12	32	4	5.5	5.5	5.5	**1/2**	**2**	**3**	**3**	**7-1/2**	**10**	4 3 2	0 1 2	**CA7-12-M40-∗** **CA7-12-M31-∗** **CA7-12-M22-∗**	**157** **167** **167**
16	32	5.5	7.5	7.5	7.5	**1**	**3**	**5**	**5**	**10**	**15**	4 3 2	0 1 2	**CA7-16-M40-∗** **CA7-16-M31-∗** **CA7-16-M22-∗**	**176** **186** **186**
23	32	7.5	11	13	10	**2**	**3**	**5**	**7-1/2**	**15**	**15**	4 3 2	0 1 2	**CA7-23-M40-∗** **CA7-23-M31-∗** **CA7-23-M22-∗**	**194** **206** **206**
37	75	11	18.5	20	18.5	**3**	**5**	**10**	**10**	**25**	**30**	4	0	**CA7-40-M40-∗**	**385**
37	75	11	18.5/20	18.5	7.5	**3**	**5**	**10**	**10**	**25**	**15**	2	2	**CA7-40-M22-∗**	**385**
85	130	25	45	55	45	**7-1/2**	**15**	**25**	**30**	**60**	**50**	4	0	**CA7-90-M40-∗**	**657**
85	130	25	45	55	18.5	**7-1/2**	**15**	**25**	**30**	**50**	**20**	2	2	**CA7-90-M22-∗**	**657**

CA7-23-M22-120 contactor

Coil Codes ❶

AC Coil Code	Voltage Range	
	50 Hz	60 Hz
24Z	**24V**	**24V**
120	**110V**	**120V**
208	~	208V
220W	**~**	**208V-240V**
240	220V	240V
277	240V	277V
380	380V-400V	440V
480	**440V**	**480V**
600	550V	600V

Ordering Instructions

Specify Catalog Number	
Replace (∗) with Coil Code	**See Coil Codes on this page.**

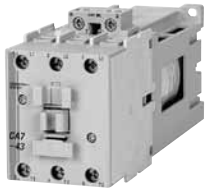
❶ Other voltages available, see page A61. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

SSNA9000

Non-Reversing, Three Pole Contactors With True DC Coil, Series CA7 (Open type only) ❶❹

I_e [A] ❶		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V/ 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
9	32	3	4	4	4	1/2	1 1/2	2	2	5	7-1/2	1 0	0 1	CA7-9C-10-✱ CA7-9C-01-✱	155
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	1 0	0 1	CA7-12C-10-✱ CA7-12C-01-✱	200
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	1 0	0 1	CA7-16C-10-✱ CA7-16C-01-✱	225
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	1 0	0 1	CA7-23C-10-✱ CA7-23C-01-✱	250
30	65	10	15	15	15	2	5	7-1/2	10	20	25	0 1 0	0 0 1	CA7-30C-00-✱ CA7-30C-10-✱ CA7-30C-01-✱	290 312 312
37	65	11	18.5/ 20	20	18.5	3	5	10	10	25	30	0 1 0	0 0 1	CA7-37C-00-✱ CA7-37C-10-✱ CA7-37C-01-✱	350 372 372
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0 1 0	0 0 1	CA7-43C-00-✱ CA7-43C-10-✱ CA7-43C-01-✱	410 432 432

CA7-9C contactor (typical)



CA7-43C-00-120 contactor

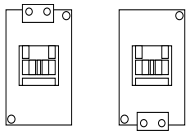
Description:
True DC coils have low inrush which allows the use of smaller power supplies. See page A62 for more information. DC and AC coils are not interchangeable. CA7-9C…43C contactors have increased dimensions to accommodate true DC coils.

Coil Codes ❷

DC Coil Codes	Voltage
12D	12V
24D ❸	24V
48D	48V
110D	110V
220D	220V

Coil Terminal Position

All CA7 contactors are stocked and delivered with the coil terminals located on the line side (top) of the contactor. This is the typical configuration when using the contactor with an overload relay. When the contactor is used with the KT7 Motor Circuit Controller, the coil must be reversed, so that the coil terminals are located at the load side (bottom) of the contactor. CA7 coils can easily be reversed in the field, however, they are also available for order with the coils reversed from the factory. Contact your Sprecher+Schuh representative for more information about ordering CA7 contactors with reversed coils.



All CA7 contactors come with reversible coils.

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ AC1 Resistive Ratings and UL/CSA Continuous Current Ratings may be increased by the use of Lug Kits or Paralleling Links. See CA7 Accessories section for applicable information.
❷ Other voltages available, see page A62. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❸ Surge suppressor coil with integrated diode available. Order coil code **24DD** and add $42 to list price. To order, change "C" in catalog number to "D".
Ex: CA7-9**C**-10-24DD becomes CA7-9**D**-10-24DD. Check with customer service representative to determine stock availability.
❹ See pages A52-53 for limitations on adding auxiliaries to true DC contacts.

SSNA9000

Non-Reversing, Four Pole Contactors With True DC Coil, Series CA7 (Open type only)

I_e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Contact Configuration, Main Pole		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
9	32	3	4	4	4	1/2	1 1/2	2	2	5	7-1/2	4	0	CA7-9C-M40-✱	156
												3	1	CA7-9C-M31-✱	168
												2	2	CA7-9C-M22-✱	168
12	32	1	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	4	0	CA7-12C-M40-✱	198
												3	1	CA7-12C-M31-✱	210
												2	2	CA7-12C-M22-✱	210
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	4	0	CA7-16C-M40-✱	222
												3	1	CA7-16C-M31-✱	235
												2	2	CA7-16C-M22-✱	235
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	4	0	CA7-23C-M40-✱	248
												3	1	CA7-23C-M31-✱	260
												2	2	CA7-23C-M22-✱	260
37	75	11	18.5	20	18.5	3	5	10	10	25	30	4	0	CA7-40C-M40-✱	475
37	75	11	18.5/20	18.5	7.5	3	5	10	10	25	15	2	2	CA7-40C-M22-✱	485

CA7-9C contactor (typical)

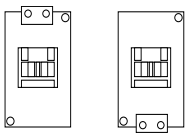
Description:
True DC coils have low inrush which allows the use of smaller power supplies. See page A62 for more information. DC and AC coils are not interchangeable. CA7-9C…40C contactors have increased dimensions to accommodate true DC coils.

Coil Codes ❶

DC Coil Codes	Voltage
12D	12V
24D ❷	24V
48D	48V
110D	110V
220D	220V

Coil Terminal Position

All CA7 contactors are stocked and delivered with the coil terminals located on the line side (top) of the contactor. This is the typical configuration when using the contactor with an overload relay. When the contactor is used with the KT7 Motor Circuit Controller, the coil must be reversed, so that the coil terminals are located at the load side (bottom) of the contactor. CA7 coils can easily be reversed in the field, however, they are also available for order with the coils reversed from the factory. Contact your Sprecher+Schuh representative for more information about ordering CA7 contactors with reversed coils.



All CA7 contactors come with reversible coils.

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ Other voltages available, see page A62. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❷ Surge suppressor coil with integrated diode available. Order coil code **24DD** and add $42 to list price. To order, change "C" in catalog number to "D". Ex: CA7-9**C**-M40-24DD becomes CA7-9**D**-M40-24DD.

SSNA9000

Non-Reversing, Three Pole Contactors With Electronic 24VDC Coil, Series CA7 (Open type only) ❶❷❸

I_e [A] ❶		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V/ 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
9	32	3	4	4	4	1/2	1 1/2	2	2	5	7-1/2	1 0	0 1	CA7-9E-10-24E CA7-9E-01-24E	197
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	1 0	0 1	CA7-12E-10-24E CA7-12E-01-24E	242
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	1 0	0 1	CA7-16E-10-24E CA7-16E-01-24E	267
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	1 0	0 1	CA7-23E-10-24E CA7-23E-01-24E	292
30	65	10	15	15	15	2	5	7-1/2	10	20	25	0 1 0	0 0 1	CA7-30E-00-24E CA7-30E-10-24E CA7-30E-01-24E	332 354 354
37	65	11	18.5/ 20	20	18.5	3	5	10	10	25	30	0 1 0	0 0 1	CA7-37E-00-24E CA7-37E-10-24E CA7-37E-01-24E	392 414 414
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0 1 0	0 0 1	CA7-43E-00-24E CA7-43E-10-24E CA7-43E-01-24E	455 475 475

CA7-23E-10-24E contactor

CA7-37E-00-24E contactor

Description

Low Consumption Electronic DC coils have extremely low inrush which allows the use of smaller power supplies. CA7-9E…43E has internal surge suppression. See page A78 for more information.
This new design results in:

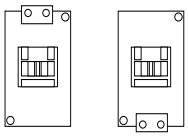
- Lighter, lower depth
- More energy efficient contactors
- Easier wiring
- Uniform panel appearance.

Applications

Direct control from PLC:
The low power consumption contactor designed to control motors and other loads is especially aligned to the specific requirement of electronic control circuits. The low power consumption of 1.5 W/60 mA allows direct control through PLC's without the need for interposing relays. Power dissipation is greatly reduced limiting the heat effect in control panels.

Coil Terminal Position

All CA7 contactors are stocked and delivered with the coil terminals located on the line side (top) of the contactor. This is the typical configuration when using the contactor with an overload relay. When the contactor is used with the KT7 Motor Circuit Controller, the coil must be reversed, so that the coil terminals are located at the load side (bottom) of the contactor. CA7 coils can easily be reversed in the field, however, they are also available for order with the coils reversed from the factory. Contact your Sprecher+Schuh representative for more information about ordering CA7 contactors with reversed coils.



All CA7 contactors come with reversible coils.

❶ AC1 Resistive Ratings and UL/CSA Continuous Current Ratings may be increased by the use of Lug Kits or Paralleling Links. See CA7 Accessories section for applicable information.
❷ DC and AC coils are not interchangeable. CA7-9E…43E are only available in 24VDC.
❸ See pages A52-53 for limitations on adding auxiliaries to Electronic DC Coil contacts.

SSNA9000

Non-Reversing, Four Pole Contactors With Electronic 24VDC Coil, Series CA7 (Open type only) ❶❷

I_e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Contact Configuration, Main Pole		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
9	32	3	4	4	4	1/2	1 1/2	2	2	5	7-1/2	4 3 2	0 1 2	CA7-9E-M40-24E CA7-9E-M31-24E CA7-9E-M22-24E	198 210 210
12	32	1	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	4 3 2	0 1 2	CA7-12E-M40-24E CA7-12E-M31-24E CA7-12E-M22-24E	240 252 252
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	4 3 2	0 1 2	CA7-16E-M40-24E CA7-16E-M31-24E CA7-16E-M22-24E	264 277 277
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	4 3 2	0 1 2	CA7-23E-M40-24E CA7-23E-M31-24E CA7-23E-M22-24E	290 302 302
37	75	11	18.5	20	18.5	3	5	10	10	25	30	4	0	CA7-40E-M40-24E	520
37	75	11	18.5/20	18.5	7.5	3	5	10	10	25	15	2	2	CA7-40E-M22-24E	535

CA7-23E-M22-24E contactor

Description

Low Consumption Electronic DC coils have extremely low inrush which allows the use of smaller power supplies. CA7-9E…43E has internal surge suppression. See page A78 for more information.
This new design results in:

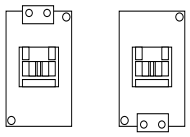
- Lighter, lower depth
- More energy efficient contactors
- Easier wiring
- Uniform panel appearance.

Applications

Direct control from PLC:
The low power consumption contactor designed to control motors and other loads is especially aligned to the specific requirement of electronic control circuits. The low power consumption of 1.5 W/60 mA allows direct control through PLC's without the need for interposing relays. Power dissipation is greatly reduced limiting the heat effect in control panels.

Coil Terminal Position

All CA7 contactors are stocked and delivered with the coil terminals located on the line side (top) of the contactor. This is the typical configuration when using the contactor with an overload relay. When the contactor is used with the KT7 Motor Circuit Controller, the coil must be reversed, so that the coil terminals are located at the load side (bottom) of the contactor. CA7 coils can easily be reversed in the field, however, they are also available for order with the coils reversed from the factory. Contact your Sprecher+Schuh representative for more information about ordering CA7 contactors with reversed coils.



All CA7 contactors come with reversible coils.

❶ DC and AC coils are not interchangeable. CA7-9E…43E are only available in 24VDC.
❷ See pages A52-53 for limitations on adding auxiliaries to Electronic DC Coil contacts.

Non-Reversing, Three Pole Contactors With Two Winding DC Coil, Series CA7 (Open type only) ❶❷❸

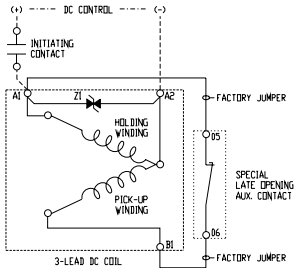
I_e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor ❶❷❸		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V/ 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
9	32	3	4	4	4	1/2	1 1/2	2	2	5	7-1/2	1	1	**CA7-9Y-D11-✱**	211
												0	2	CA7-9Y-D02-✱	
												2	0	CA7-9Y-D20-✱	
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	1	1	**CA7-12Y-D11-✱**	254
												0	2	CA7-12Y-D02-✱	
												2	0	CA7-12Y-D20-✱	
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	1	1	**CA7-16Y-D11-✱**	278
												0	2	CA7-16Y-D02-✱	
												2	0	CA7-16Y-D20-✱	
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	1	1	**CA7-23Y-D11-✱**	305
												0	2	CA7-23Y-D02-✱	
												2	0	CA7-23Y-D20-✱	
30	65	10	15	15	15	2	5	7-1/2	10	20	25	1	0	**CA7-30Y-E10-✱**	345
												0	1	**CA7-30Y-E01-✱**	
37	65	11	18.5/ 20	20	18.5	3	5	10	10	25	30	1	0	**CA7-37Y-E10-✱**	404
												0	1	CA7-37Y-E01-✱	
43	85	13	22	25	22	3	7-1/2	10	15	30	30	1	0	**CA7-43Y-E10-✱**	461
												0	1	CA7-43Y-E01-✱	
60	100	18.5	32	37	32	5	10	15	20	40	50	0	0	**CA7-60D-00-✱**	475
												1	0	**CA7-60D-10-✱**	497
												0	1	**CA7-60D-01-✱**	497
72	100	22	40	45	40	5	15	20	25	50	60	0	0	**CA7-72D-00-✱**	530
												1	0	**CA7-72D-10-✱**	552
												0	1	**CA7-72D-01-✱**	552
85	100	25	45	55	45	7-1/2	15	25	30	60	60	0	0	**CA7-85D-00-✱**	590
												1	0	**CA7-85D-10-✱**	612
												0	1	**CA7-85D-01-✱**	612
97	130	30	55	55	55	10	15	30	30	75	75	0	0	**CA7-97D-00-✱**	757
												1	0	**CA7-97D-10-✱**	779
												0	1	**CA7-97D-01-✱**	779

NEW

NOTE: Items in gray are special order.

CA7-16Y contactor (typical)

Description:
Contactors with two winding DC coils have very low hold-in values and share the same dimensions with AC contactors. See page A62 for more information. See page A89 for dimensional information.



CA7-9Y…43Y Contactors with Two Winding, 3-lead Coils

1) The two winding, 3-lead DC coil consists of a "pick-up" winding and a "hold-in" winding.
2) The contactor pulls-in through the lower resistance pick-up winding and holds-in through a higher resistance holding winding.
3) The pick-up winding is not designed for continuous operation and must be disconnected by the special late opening auxiliary contact immediately after the contactor pulls-in and seals.
4) Z1 is a built-in bidirectional diode (surge suppressor) for voltages up to 220V, which is located below the coil terminal cover at A1 & A2. For coil voltages 230/250V, an externally mounted CRD7-250 must be used for surge suppression.

Coil Codes ❹❺❻

DC Coil Code	Voltage
24DD	**24V**
110DD	110V

Ordering Instruct ions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ CA7-9Y…23Y-D11(D20) contactors are supplied with one NO auxiliary in the base. CA7-9Y…23Y-D02 contactors are supplied with one NC auxiliary in the base.
❷ All CA7-9Y…43Y contactors are supplied with an extra right side mounted block, that includes one auxiliary available for customer use, in addition to a 50ms late opening auxiliary contact for transition from pick-up winding to hold-in winding.
❸ CA7-60D…CA7-97D have an internal auxiliary contact to transition from the start winding to the run winding.
❹ Coils include an integrated diode surge suppressor.
❺ Other coil voltages are available, see page A62. Contact your Sprecher + Schuh Sales Representative to determine which coil voltages may be stocked. *Non-standard coil voltages (non-stock) must be ordered and installed separately as renewal parts.*
❻ The coil codes shown are the most commonly stocked items. Contact your Sprecher + Schuh representative to determine if other voltages, i.e.., 12DD, 48DD, 220DD are on-hand or can be specially ordered in quantities.

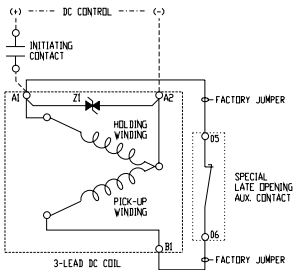
SSNA9000

Non-Reversing, Four Pole Contactors With Two Winding DC Coil, Series CA7 (Open type only) ❶❷

I_e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Contact Configuration Main Pole		Auxiliary Contacts Per Contactor ❶		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)											
						1 Ø		3 Ø									
AC-3	AC-1	230V	415V 400V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	NO	NC	Catalog Number	Price
9	32	3	4	4	4	1/2	1-1/2	2	2	5	7-1/2	4	0	1	0	**CA7-9Y-M40-D10-✱**	**211**
												4	0	0	1	CA7-9Y-M40-D01-✱	211
												3	1	1	0	**CA7-9Y-M31-D10-✱**	**224**
												3	1	0	1	CA7-9Y-M31-D01-✱	224
												2	2	1	0	**CA7-9Y-M22-D10-✱**	**224**
												2	2	0	1	CA7-9Y-M22-D01-✱	224
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	4	0	1	0	**CA7-12Y-M40-D10-✱**	**255**
												4	0	0	1	CA7-12Y-M40-D01-✱	255
												3	1	1	0	**CA7-12Y-M31-D10-✱**	**268**
												3	1	0	1	CA7-12Y-M31-D01-✱	268
												2	2	1	0	**CA7-12Y-M22-D10-✱**	**268**
												2	2	0	1	CA7-12Y-M22-D01-✱	268
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	4	0	1	0	**CA7-16Y-M40-D10-✱**	**278**
												4	0	0	1	CA7-16Y-M40-D01-✱	278
												3	1	1	0	**CA7-16Y-M31-D10-✱**	**291**
												3	1	0	1	CA7-16Y-M31-D01-✱	291
												2	2	1	0	**CA7-16Y-M22-D10-✱**	**291**
												2	2	0	1	CA7-16Y-M22-D01-✱	291
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	4	0	1	0	**CA7-23Y-M40-D10-✱**	**305**
												4	0	0	1	CA7-23Y-M40-D01-✱	305
												3	1	1	0	**CA7-23Y-M31-D10-✱**	**317**
												3	1	0	1	CA7-23Y-M31-D01-✱	317
												2	2	1	0	**CA7-23Y-M22-D10-✱**	**317**
												2	2	0	1	CA7-23Y-M22-D01-✱	317
85	130	25	45	55	45	7-1/2	15	25	30	60	50	4	0	0	0	**CA7-90D-M40-✱**	**781**
85	130	25	45	55	18.5	7-1/2	15	25	30	60	20	2	2	0	0	**CA7-90D-M22-✱**	**781**

Description: See opposite page.

NOTE: Items in gray are special order.



CA7-9Y…43Y Contactors with Two Winding, 3-lead Coils

1) The two winding, 3-lead DC coil consists of a "pick-up" winding and a "hold-in" winding.
2) The contactor pulls-in through the lower resistance pick-up winding and holds-in through a higher resistance holding winding.
3) The pick-up winding is not designed for continuous operation and must be disconnected by the special late opening auxiliary contact immediately after the contactor pulls-in and seals.
4) Z1 is a built-in bidirectional diode (surge suppressor) for voltages up to 220V, which is located below the coil terminal cover at A1 & A2. For coil voltages 230/250V, an externally mounted CRD7-250 must be used for surge suppression.

Coil Codes ❸❹

DC Coil Code	Voltage
24DD	**24V**
110DD	110V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ All CA7-9Y…23Y contactors are supplied with an extra right side mounted block, that includes one auxiliary available for customer use, in addition to a 50ms late opening auxiliary contact for transition from pick-up winding to hold-in winding.
❷ CA7-90D...contactors have an internal auxiliary contact to transition from the start winding to the run winding.
❸ Coils include an integrated diode surge suppressor.
❹ Other coil voltages are available, see page A62. Contact your Sprecher + Schuh Sales Representative to determine which voltage may be stocked. *Non-standard coil voltages (non-stocked) must be ordered and installed separately as renewal parts.*

Reversing, Three Pole Contactors With AC Coil, Series CAU7 (Open type only)

I_e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC ❸	Catalog Number	Price
9	32	3	4	4	4	1/2	1 1/2	2	2	5	7-1/2	1	1	CAU7-9-22-✱	338
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	1	1	CAU7-12-22-✱	409
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	1	1	CAU7-16-22-✱	451
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	1	1	CAU7-23-22-✱	491
30	65	10	15	15	15	2	5	7-1/2	10	20	25	0	1	CAU7-30-02-✱	553
												1 ❹	1	CAU7-30-22-✱	597
37	65	11	18.5/ 20	20	8.5	3	5	10	10	25	30	0	1	CAU7-37-02-✱	640
												1 ❹	1	CAU7-37-22-✱	684
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0	1	CAU7-43-02-✱	710
												1 ❹	1	CAU7-43-22-✱	754
60	100	18.5	32	37	32	5	10	15	20	40	50	0	1	CAU7-60-02-✱	895
												1 ❹	1	CAU7-60-22-✱	939
72	100	22	40	45	40	5	15	20	25	50	60	0	1	CAU7-72-02-✱	1010
												1 ❹	1	CAU7-72-22-✱	1054
85	100	25	45	55	45	7-1/2	15	25	30	60	60	0	1	CAU7-85-02-✱	1125
												1 ❹	1	CAU7-85-22-✱	1169
97	130	30	55	55	55	10	15	30	30	75	75	0	1	CAU7-97-02-✱	1410
												1 ❹	1	CAU7-97-22-✱	1454

CAU7-9-22-120 reversing contactor

CAU7-43-22-120 reversing contactor

Includes:

- Line side coil terminations
- Mechanical and electrical Interlock ❸
- Reversing power wiring ❶ (using Power Wiring Kit Cat.# CAUT7-PW…)
- Control wiring available; see footnote ❷

Coil Codes ❺

AC Coil Code	Voltage Range	
	50 Hz	60 Hz
24Z	**24V**	**24V**
120	**110V**	**120V**
208	~	208V
220W	**~**	**208V - 240V**
240	220V	240V
277	240V	277V
380	380V-400V	440V
480	**440V**	**480V**
600	550V	600V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ For Reversing Contactors *without* power wiring add suffix "**-LW**" to catalog number and deduct the following amount:

CAU7-9…23 deduct $10
CAU7-30…37 deduct $12
CAU7-43 deduct $22

CAU7-60…97 without power wiring not available
Ex: CAU7-9-22-✱ becomes CAU7-9-22-✱**-LW.**

❷ For control wiring, add suffix **-CW** to catalog number and add $20.
Example: CAU7-9-22-✱ becomes CAU7-9-22-✱**-CW.**

❸ The NC auxiliary contacts are supplied as part of the mechanical interlock (Cat.# CM7-02) and are used to electrically interlock the contactors.

❹ The NO auxiliary contacts supplied are side mounted. Top mount NO auxiliary contacts must be special ordered. Contact your Sprecher+Schuh representative.

❺ Other voltages available, see page A61. *Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.*

SSNA9000

Reversing, Three Pole Contactors With DC Coil, Series CAU7 (Open type only)

I_e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC ❸	Catalog Number	Price
9	32	3	4	4	4	1/2	1 1/2	2	2	5	7-1/2	1	1	CAU7-9C-22-✱	400
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	1	1	CAU7-12C-22-✱	495
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	1	1	CAU7-16C-22-✱	545
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	1	1	CAU7-23C-22-✱	595
30	65	10	15	15	15	2	5	7-1/2	10	20	25	0	1	CAU7-30C-02-✱	692
												1 ❹	1	CAU7-30C-22-✱	736
37	65	11	18.5/ 20	20	8.5	3	5	10	10	25	30	0	1	CAU7-37C-02-✱	890
												1 ❹	1	CAU7-37C-22-✱	934
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0	1	CAU7-43C-02-✱	938
												1 ❹	1	CAU7-43C-22-✱	982
60	100	18.5	32	37	32	5	10	15	20	40	50	0	1	CAU7-60D-02-✱	1115
												1 ❹	1	CAU7-60D-22-✱	1159
72	100	22	40	45	40	5	15	20	25	50	60	0	1	CAU7-72D-02-✱	1240
												1 ❹	1	CAU7-72D-22-✱	1284
85	100	25	45	55	45	7-1/2	15	25	30	60	60	0	1	CAU7-85D-02-✱	1360
												1 ❹	1	CAU7-85D-22-✱	1410
97	130	30	55	55	55	10	15	30	30	75	75	0	1	CAU7-97D-02-✱	1745
												1 ❹	1	CAU7-97D-22-✱	1789

CAU7-9C-22 reversing contactor

CAU7-43C-02 reversing contactor

Includes:

- DC operating mechanism
- Line side coil terminations
- Mechanical and electrical Interlock ❸
- Reversing power wiring ❶ (using Power Wiring Kit Cat.# CAUT7-PW…)
- Control wiring available; see footnote ❷

NOTE: DC and AC coils are not interchangeable. CA7-9C…43C contactors have increased dimensions to accommodate true DC coils. CA7-60D…97D contactors have a two winding, 3-lead coil with built-in late break auxiliary contact and coil suppression. Refer to page A87-89 for dimensions.

Coil Codes ❺❻

CAU7-9C...43C	CAU7-60D...85D	
DC Coil Code	DC Coil Code	Voltage
12D	12DD	12V
24D ❼	24DD	24V
48D	48DD	48V
110D	110DD	110V
220D	220DD	220V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ For Reversing Contactors *without* power wiring add suffix "**-LW**" to catalog number and deduct the following amount:
CAU7-9C…23C deduct $10
CAU7-30C…37C deduct $12
CAU7-43C deduct $22
CAU7-60D…97D without power wiring not available
Ex: CAU7-9-22-✱ becomes CAU7-9-22-✱**-LW.**

❷ For control wiring, add suffix **-CW** to catalog number and add $20.
Example: CAU7-9-22-✱ becomes CAU7-9-22-✱**-CW.**

❸ The NC auxiliary contacts are supplied as part of the mechanical interlock (Cat.# CM7-02) and are used to electrically interlock the contactors.

❹ The NO auxiliary contacts supplied are side mounted. Top mount NO auxiliary contacts must be special ordered. Contact your Sprecher+Schuh representative.

❺ Other voltages available, see page A62. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❻ Coils for CAU7-60D…97D reversing contactors include an integrated diode surge suppressor.

❼ Surge suppressor coil with integrated diode available. Order coil code **24DD** and add $84 to list price ($42 x two contactors). To order, change "C" in catalog number to "D". Ex: CAU7-9**C**-22-24D becomes CAU7-9**D**-22-24DD.

SSNA9000

Reversing, Three Pole Contactors With Electronic 24VDC Coil, Series CAU7 (Open type only) ❺❻

I_e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC ❸	Catalog Number	Price
9	32	3	4	4	4	1/2	1 1/2	2	2	5	7-1/2	1	1	**CAU7-9E-22-24E**	**484**
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	1	1	**CAU7-12E-22-24E**	**597**
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	1	1	**CAU7-16E-22-24E**	**629**
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	1	1	**CAU7-23E-22-24E**	**679**
30	65	10	15	15	15	2	5	7-1/2	10	20	25	0	1	**CAU7-30E-02-24E**	**780**
												1 ❹	1	**CAU7-30E-22-24E**	**820**
37	65	11	18.5/ 20	20	8.5	3	5	10	10	25	30	0	1	**CAU7-37E-02-24E**	**971**
												1 ❹	1	**CAU7-37E-22-24E**	**1018**
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0	1	**CAU7-43E-02-24E**	**1050**
												1 ❹	1	**CAU7-43E-22-24E**	**1090**

CAU7-9E-22-24E reversing contactor

CAU7-37E-02-24E reversing contactor

Description

Low Consumption Electronic DC coils have extremely low inrush which allows the use of smaller power supplies. CA7-9E…43E has internal surge suppression. See page A78 for more information.

This new design results in:

- Lighter, lower depth
- More energy efficient contactors
- Easier wiring
- Uniform panel appearance.

Applications

Direct control from PLC:

The low power consumption contactor designed to control motors and other loads is especially aligned to the specific requirement of electronic control circuits. The low power consumption of 1.5 W/60 mA allows direct control through PLC's without the need for interposing relays. Power dissipation is greatly reduced limiting the heat effect in control panels.

Includes:

- Line side coil terminations
- Mechanical and electrical Interlock ❸
- Reversing power wiring ❶ (using Power Wiring Kit Cat.# CAUT7-PW…)
- Control wiring available; see footnote ❷
- CAU7-9E…43E has internal surge suppression.

❶ For Reversing Contactors *without* power wiring add suffix "**-LW**" to catalog number and deduct the following amount:

CAU7-9E…23E deduct $10

CAU7-30E…37E deduct $12

Ex: CAU7-9E-22-24E becomes CAU7-9E-22-24E**-LW.**

❷ For control wiring, add suffix **-CW** to catalog number and add $20.
Example: CAU7-9E-22-24E becomes CAU7-9E-22-24E**-CW.**

❸ The NC auxiliary contacts are supplied as part of the mechanical interlock (Cat.# CM7-02) and are used to electrically interlock the contactors.

❹ The NO auxiliary contacts supplied are side mounted. Top mount NO auxiliary contacts must be special ordered. Contact your Sprecher+Schuh representative.

❺ DC and AC coils are not interchangeable. CA7-9E…43E are only available in 24VDC.

❻ See pages A52-53 for limitations on adding auxiliaries to Electronic DC Coil contacts.

SSNA9000

Series CA7 Special Use Contactors

Contactors designed and labeled for specific industrial applications

Special Use Contactors

Capacitor switching contactors

HVAC rated contactors

NEMA size labeled contactors

Lighting contactors

Hydraulic elevator duty contactors

The CA7 line includes a number of contactors designed and labeled for specific industrial applications. In most cases, these devices are UL and CSA approved for these specialized uses. Where appropriate, contactors also carry approval by specific industry associations such as ARI (Air Conditioning and Refrigeration Institute).

CAQ7 Capacitor Switching Contactors

Capacitor Switching Contactors are often used in power factor correction. Single capacitor switching and capacitor bank switching results in peak inrush currents greater than the six times FLA experienced in motor starting applications. Managing the peak inrush of capacitor switching can involve the use of coils of wire to reduce the harmful inrush currents. CAQ7 contactors offer a simple alternative solution by combining a built-in set of resistors and early-make contacts, factory wired in parallel with the power contacts in the body of a CA7 contactor. CAQ7 contactors are cUL rated and labeled for capacitor switching applications.

CNX Special Purpose Contactors

CNX Special Purpose Contactors are rated by FLA & LRA as well as resistive current rated - primarily to meet the demands of the HVAC and compressor markets. CNX contactors have all the flexibility of a CA7 contactor like easy coil change out, DIN rail mounting and field installable auxiliaries as well as mechanical interlocks not normally associated with true definite purpose contactors. CNX contactors may also be combined with CEP7 or CT7N overload relays to make a special purpose starter. CNX starters are cUL rated and labeled as well as ARI (Air Conditioning and Refrigeration Institute) approved.

Hydraulic Elevator Wye-Delta Contactors

Most industrial wye-deltas consist of three contactors with interlocks but Hydraulic Elevators are a special application. Hydraulic Elevator wye-deltas consist of a pair of mechanically linked contactors with sufficient auxiliaries for electrical interlocks. The wye-delta is similar to a reversing contactor but the power wiring is different. We offer Hydraulic Elevator contactors with a choice power wiring inter-connections for ease of installation, or without power wiring inter-connections, allowing the elevator serviceman to make use of the existing power cables. This convenient selection of a complete assembly saves time and effort in the field.

CAN7 and CAN6 NEMA size labeled contactors

CAN7 and CAN6 contactors are UL Listed in accordance with NEMA standards publication ICS-2. CAN7 and CAN6 contactors are UL labeled for application under IEC KW, as well as NEMA Size, for specified horsepower at various voltages. CAN7/CAN6 contactors have been purposely selected larger to increase the life of the device. Only the devices listed here are available with the NEMA size on the UL label. CAN7/CAN6 NEMA sized contactors may be combined with all Sprecher + Schuh overload relays to make a NEMA sized starters.

Three Pole Capacitor Switching Contactors With AC Coil, Series CAQ7 (Open type only)

For Applications per UL / CSA

UL/CSA Ratings for Switching Capacitor Banks						Auxiliary Contacts per Contactor		Open Type	
1-phase 60 Hz (kVar)		3-phase 60 Hz (kVar)							
115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
2.2	4.5	6.5	7.5	15	18.5	1	1	**CAQ7-16-11-✱**	**225**
						2	0	**CAQ7-16-20-✱**	**225**
3.6	7.5	11	12.5	20	25	1	1	**CAQ7-37-11-✱**	**327**
						2	0	**CAQ7-37-20-✱**	**327**

CAQ7-16-11-120
Capacitor Switching contactor

For Applications per IEC 60947-4 (AC-6b)

IEC Ratings for Switching Capacitor Bank										Auxiliary Contacts per Contactor		Open Type	
1-phase 50 Hz - (kVar)					3-phase 50 Hz - (kVar)								
230V 240V	400V	415V	500V	690V	230V 240V	400V	415V	500V	690V	NO	NC	Catalog Number	Price
Switching Capacitor Banks at 40°C													
5	8.5	9	10.5	15	8.5	15	15.5	18.5	25	1	1	**CAQ7-16-11-✱**	**225**
										2	0	**CAQ7-16-20-✱**	**225**
8/8.5	14	14.5	17.5	24	14	25	25	30	40	1	1	**CAQ7-37-11-✱**	**327**
										2	0	**CAQ7-37-20-✱**	**327**
Switching Capacitor Banks at 60°C													
5	8.5	9	10.5	15	8.5	15	15.5	18.5	25	1	1	**CAQ7-16-11-✱**	**225**
										2	0	**CAQ7-16-20-✱**	**255**
8/8.5	14	14.5	17.5	24	14	25	25	30	40	1	1	**CAQ7-37-11-✱**	**327**
										2	0	**CAQ7-37-20-✱**	**327**

NOTE: DC and AC coils are not interchangeable. CAQ7-16C…37C contactors have increased dimensions to accommodate DC coils. See page A87-89 for dimensions.

Description

CAQ7 contactors incorporate a built-in set of resistors and early-make contacts, wired in parallel with the power contacts, to pre-charge the capacitors. This manages the peak inrush common with capacitor switching. The circuitry is housed in a front mounted add-on deck.

Coil Codes ❶

AC Coil Code	Voltage Range	
	50 Hz	60 Hz
24Z	**24V**	**24V**
120	**110V**	**120V**
208	~	208V
220W	**~**	**208V-240V**
240	220V	240V
277	240V	277V
380	380V-400V	440V
480	**440V**	**480V**
600	550V	600V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

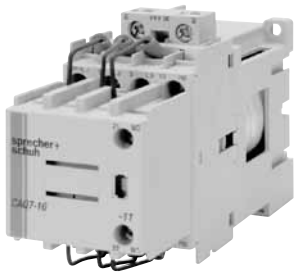
❶ Other voltages available, see page A61. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

SSNA9000

Three Pole Capacitor Switching Contactors With DC Coil, Series CAQ7 (Open type only)

For Applications per UL / CSA

UL/CSA Ratings for Switching Capacitor Banks						Auxiliary Contacts per Contactor		Open Type	
1-phase 60 Hz (kVar)		3-phase 60 Hz (kVar)							
115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number	Price
2.2	4.5	6.5	7.5	15	18.5	1	1	**CAQ7-16C-11-✱**	**264**
						2	0	**CAQ7-16C-20-✱**	**264**
3.6	7.5	11	12.5	20	25	1	1	**CAQ7-37C-11-✱**	**400**
						2	0	**CAQ7-37C-20-✱**	**400**



CAQ7-16C-11-24D
Capacitor Switching contactor

For Applications per IEC 60947-4 (AC-6b)

IEC Ratings for Switching Capacitor Bank										Auxiliary Contacts per Contactor		Open Type	
1-phase 50 Hz - (kVar)					3-phase 50 Hz - (kVar)								
230V 240V	400V	415V	500V	690V	230V 240V	400V	415V	500V	690V	NO	NC	Catalog Number	Price
Switching Capacitor Banks at 40°C													
5	8.5	9	10.5	15	8.5	15	15.5	18.5	25	1	1	**CAQ7-16C-11-✱**	**264**
										2	0	**CAQ7-16C-20-✱**	**264**
8/8.5	14	14.5	17.5	24	14	25	25	30	40	1	1	**CAQ7-37C-11-✱**	**400**
										2	0	**CAQ7-37C-20-✱**	**400**
Switching Capacitor Banks at 60°C													
5	8.5	9	10.5	15	8.5	15	15.5	18.5	25	1	1	**CAQ7-16C-11-✱**	**264**
										2	0	**CAQ7-16C-20-✱**	**264**
8/8.5	14	14.5	17.5	24	14	25	25	30	40	1	1	**CAQ7-37C-11-✱**	**400**
										2	0	**CAQ7-37C-20-✱**	**400**

Description

CAQ7 contactors incorporate a built-in set of resistors and early-make contacts, wired in parallel with the power contacts, to pre-charge the capacitors. This manages the peak inrush common with capacitor switching. The circuitry is housed in a front mounted add-on deck.

NOTE: DC and AC coils are not interchangeable. CAQ7-16C…37C contactors have increased dimensions to accommodate DC coils. See page A87-89 for dimensions.

Coil Codes ❶

DC Coil Code	Voltage
12D	12V
24D ❷	**24V**
48D	48V
110D	110V
220D	220V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ Other voltages available, see page A62. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❷ Surge suppressor coil with integrated available. Order coil code **24DD** and add $42 to list price.

SSNA9000

Theory of Operation

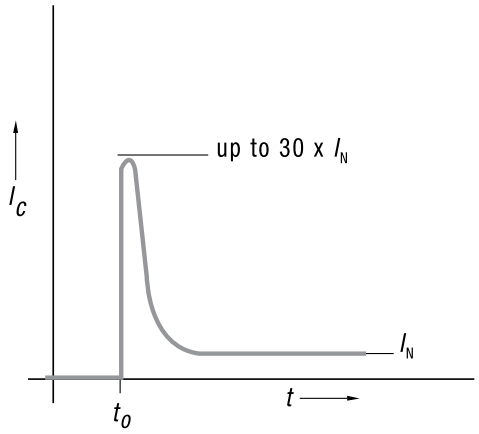
Single capacitor switching is often used in power factor correction on individual loads. Inrush current at the point of becoming energized can peak to 30 times normal current (see Figure 1) depending on impedance of cables and transformers.

Capacitor bank switching is often used in power factor correction on multiple loads. Inrush current at the point of becoming energized can peak to 200 times normal current (see Figure 2) because each capacitor in the bank acts as an additional power source and therefore feeds additional current to the circuit.

Complications of capacitor switching with standard contactors can include nuisance tripping of the short circuit protective device, welding of main contacts, and stress on components resulting in reduced life of capacitors.

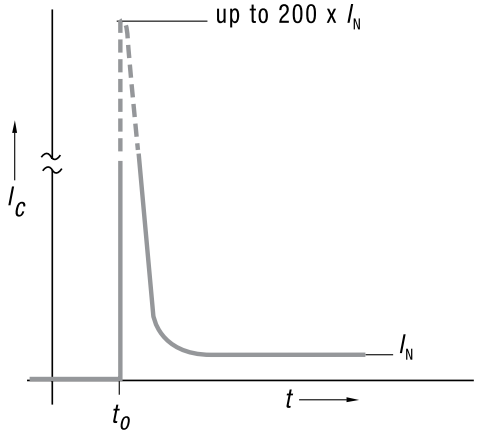
Managing the peak inrush common with capacitor switching can involve complicated dimensioning in the form of over sizing standard contactors combined with adding coils of wire. CAQ7 contactors offer a simple alternative solution by combining a built-in set of resistors and early-make contacts, wired in parallel with the power contacts, to pre-charge the capacitors. The increased impedance of the CAQ7 resistors is only present in the circuit during inrush. This circuitry is housed in a front mount add-on deck similar to a four pole auxiliary block, which results in a compact design and ease of selection based on applied KVAR.

CAQ7 is available with AC or DC coils and with 1 NO & 1 NC (see Figure 3) or 2 NO auxiliary contacts (see Figure 4). CAQ7 contactors only show UL/CSA Approved capacitor ratings on the nameplate and should not be used for switching motors.



Single Capacitor Inrush

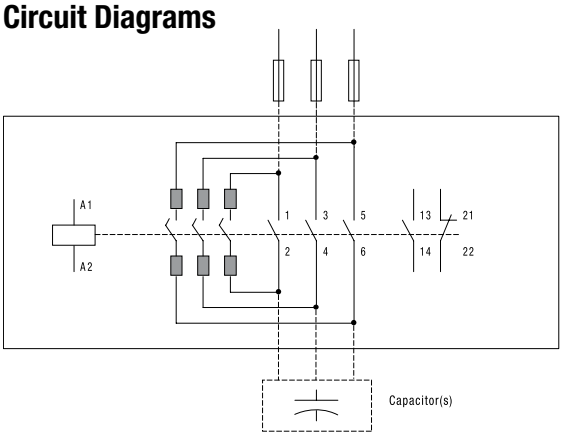
Figure 1



Capacitor Bank Inrush

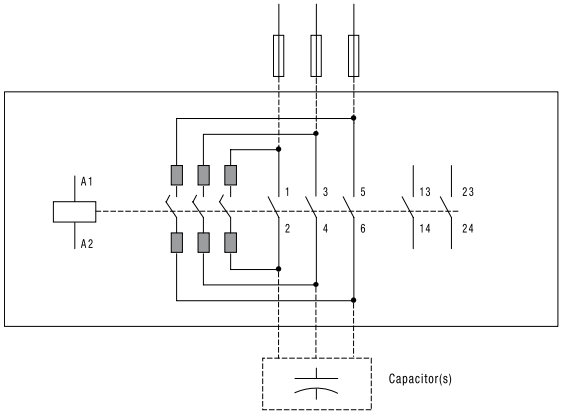
Figure 2

Circuit Diagrams



CAQ7-16-✱-11 and CAQ7-37-✱-11
(1 NO and 1 NC auxiliary contact)

Figure 3



CAQ7-16-✱-20 and CAQ7-37-✱-20
(2 NO auxiliary contacts)

Figure 4

SSNA9000

Non-Reversing, Three Pole Special Purpose Contactors With AC Coil (Open type only) ❶❷

Full Load Amps	Locked Rotor Amps - 3Ø			Resistive Amps ❹	Maximum Horsepower						Auxiliary Contacts per Contactor		Catalog Number	Price
					1 Ø		3 Ø							
	200V 230V	460V	575V		115V	230V	200V/ 208V	230V	460V	575V	NO	NC		
15	91	91	66	25	1-1/2	3	4	5	10	10	1	0	CNX-205-✱	174
											0	1	CNX-206-✱	174
30	180	150	120	40	2	5	7-1/2	10	20	20	1	0	CNX-207-✱	240
											0	1	CNX-208-✱	240
40	240	200	160	50	3	5	10	10	25	25	0	0	CNX-209-00-✱	261
											1	0	CNX-209-10-✱	281
											0	1	CNX-209-01-✱	281
50	300	250	200	65	3	7-1/2	10	15	30	30	0	0	CNX-212-00-✱	281
											1	0	CNX-212-10-✱	302
											0	1	CNX-212-01-✱	302
90	540	450	360	120	~	~	25	30	60	60	0	0	CNX-218-00-✱	452
											1	0	CNX-218-10-✱	472
											0	1	CNX-218-01-✱	472

CNX-208-120
Special Purpose contactor

Description

Series CNX Special Purpose Contactors are standard CA7 contactors that have been tested, approved and labeled by UL for heating, ventilation and air conditioning (HVAC) applications. ❷

Coil Codes ❸

AC Coil Code	Voltage Range	
	50 Hz	60 Hz
24Z	**24V**	**24V**
120	**110V**	**120V**
208	~	208V
220W	**~**	**208V-240V**
240	220V	277V
277	240V	440V
380	380V-400V	480V
480	**440V**	**480V**
600	550V	600V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ Special order contactors. Contact your Sprecher + Schuh representative for availability.
❷ All CNX contactors listed here are ARI (Air Conditioning and Refrigeration Institute) approved.
❸ Other voltages available, see page A61. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❹ Reference page A81 for Operation Life Data.

SSNA9000

Non-Reversing, Three Pole Special Purpose Contactors With DC Coil (Open type only) ❶❷

Full Load Amps	Locked Rotor Amps - 3Ø			Resistive Amps ❹	Maximum Horsepower						Auxiliary Contacts per Contactor		Catalog Number	Price
					1 Ø		3 Ø							
	200V 230V	460V	575V		115V	230V	200V/ 208V	230V	460V	575V	NO	NC		
15	91	91	66	25	1-1/2	3	4	5	10	10	1	0	CNX-205C-✱	209
											0	1	CNX-206C-✱	209
30	180	150	120	40	2	5	7-1/2	10	20	20	1	0	CNX-207C-✱	288
											0	1	CNX-208C-✱	288
40	240	200	160	50	3	5	10	10	25	25	0	0	CNX-209C-00-✱	323
											1	1	CNX-209C-10-✱	343
											0	1	CNX-209C-01-✱	343
50	300	250	200	65	3	7-1/2	10	15	30	30	0	0	CNX-212C-00-✱	397
											1	0	CNX-212C-10-✱	417
											0	1	CNX-212C-01-✱	417
90	540	450	360	120	~	~	25	30	60	60	0	0	CNX-218D-00-✱	575
											1	0	CNX-218D-10-✱	595
											0	1	CNX-218D-01-✱	595

CNX-208C-24D
Special Purpose contactor

Description

Series CNX Special Purpose Contactors are standard CA7 contactors that have been tested, approved and labeled by UL for heating, ventilation and air conditioning (HVAC) applications. ❷

Coil Codes ❸

CNX-205C...212C	CNX-218D	
DC Coil Code	DC Coil Code	Voltage
24D ❺	24DD ❻	24V
110D ❺	110DD ❻	110V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ Special order contactors. Contact your Sprecher + Schuh representative for availability.
❷ All CNX contactors listed here are ARI (Air Conditioning and Refrigeration Institute) approved.
❸ Other voltages available, see page A61. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❹ Reference page A61 for Operation Life Data.
❺ DC coils for CNX-205C...212C are True DC Coils.
❻ DC coils for CNX-218D contactors are two winding DC Coil Series and include integrated diode surge suppressor.

SSNA9000

Hydraulic Elevator Wye Delta, with AC Coils (Two Contactor Type ❶)

Maximum Horsepower Three Phase				Auxiliary Contacts per Contactor		Open Type	
200V	230V	460V	575V	NO ❹	NC ❸	Catalog No.	Price
10 / 10	15 / 10	30 / 30	30 / 30	0	1	CA7Y2-30-02-✱-LW	551
				1	1	CA7Y2-30-22-✱-LW	593
15 / 10	20 / 15	40 / 30	40 / 40	0	1	CA7Y2-37-02-✱-LW	639
				1	1	CA7Y2-37-22-✱-LW	679
20 / 15	25 / 15	50 / 40	50 / 50	0	1	CA7Y2-43-02-✱-LW	691
				1	1	CA7Y2-43-22-✱-LW	732
30 / 15	40 / 25	75 / 50	75 / 60	0	1	CA7Y2-60-02-✱-LW	912
				1	1	CA7Y2-60-22-✱-LW	952
40 / 25	50 / 30	100 / 60	100 / 75	0	1	CA7Y2 -72-02-✱-LW	1033
				1	1	CA7Y2 -72-22-✱-LW	1073
50 / 30	60 / 40	125 / 75	125 / 100	0	1	CA7Y2-85-02-✱-LW	1150
				1	1	CA7Y2-85-22-✱-LW	1192
50 / TBD	60 / TBD	125 / TBD	125 / TBD	0	1	CA7Y2-97-02-✱-LW	1390
				1	1	CA7Y2-97-22-✱-LW	1432

HP Selection

Industrial Application ❺ / UL/CSA Elevator Duty ❻

Larger sizes available, see page A100. Contact your Sprecher + Schuh representative.

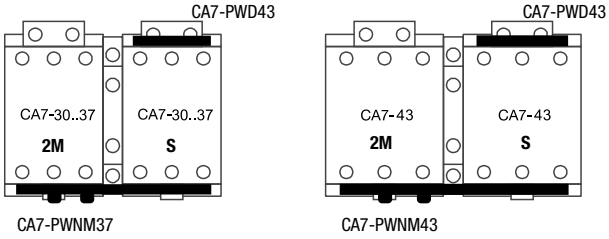
CA7Y2-30 Wye-Delta contactor

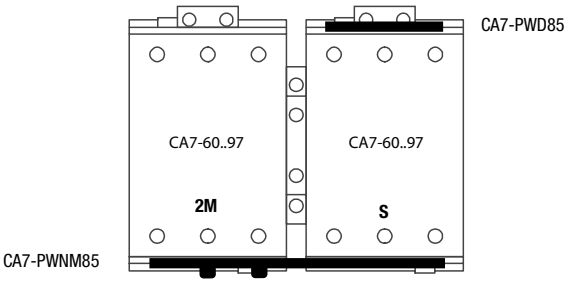
Includes:

- Line side coil terminations
- Mechanical and electrical Interlocks ❷
- CA7Y2-60…85 includes back pan

Optional:

- Power Wiring available but not included (see page A59) ❶❼
- Elevator controllers often require additional auxiliary contacts. ❸





Coil Codes ❹

AC Coil Code	Voltage Range	
	50 Hz	60 Hz
24Z	24V	24V
120	110V	120V
208	~	208V
220W	~	208V - 240V
240	220V	240V
277	240V	277V
380	380V-400V	440V
480	440V	480V
600	550V	600V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ For Contactors *with* power wiring change catalog number suffix "-LW" to "**-PW**" and add the following amount:
CA7Y2-30…37 add $25
CA7Y2-43 add $32
CA7Y2-60…97 add $45 (without backpan)
Ex: CA7Y2-30-22-✱-**LW** becomes CA7Y2-30-22-✱-**PW.**

❷ The NC auxiliary contacts are supplied as part of the mechanical interlock (Cat.# CM7-02) and are used to electrically interlock the contactors.

❸ The NO auxiliary contacts supplied are side mounted. Top mount NO auxiliary contacts must be special ordered. Contact your Sprecher+Schuh representative.

❹ Other voltages available, see page A61. *Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❺ HP selection based on UL508 for Industrial Applications.

❻ HP selection based on UL/CSA Elevator Duty Ratings.

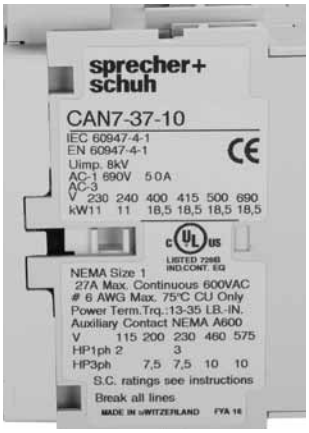
❼ See typical Wye-Delta Wiring Diagram on page C72.

SSNA9000

Non-Reversing, Three Pole NEMA Labeled Contactors with AC Coil ❶❸

NEMA Size	Maximum Horsepower						Standard Auxiliary Contacts		Catalog Number	Price
	1Ø		3Ø							
	115V	230V	200V	230V	460V	575V	NO	NC		
00	1/3	1	1-1/2	1-1/2	2	2	1	0	CAN7-12-10-✱	155
0	1	2	3	3	5	5	1	0	CAN7-16-10-✱	174
1	2	3	7-1/2	7-1/2	10	10	1	0	CAN7-37-10-✱	288
2	3	7-1/2	10	15	25	25	1	0	CAN7-43-10-✱	308
3	7-1/2	15	25	30	50	50	1	0	CAN7-85-10-✱	482
4	~	~	40	50	100	100	1	1	CAN6-180-11-✱	1608
									CAN6-180-EI-11-✱	1850
5	~	~	75	100	200	200	1	1	CAN6-300-EI-11-✱	2375

CAN7 NEMA labeled contactor (AC)



Application Notes

- NEMA contactors are UL Listed and rated in accordance with the requirements of NEMA standards publication ICS-2. These contactors are labeled for applications that require compliance with NEMA standards.
- Sizes are based on standard NEMA classifications.
- Easy coil change and contact replacement. See page A61 for CAN7 coils and pages A106-108 for CA(N)6 coils and contacts.
- Snap-on auxiliary contact blocks available in many configurations. See pages A52-53 (CA[N]7) and page A104 (CA[N]6).
- Available as open units or in NEMA 1, 3R, 4, 4X and 12 enclosures. Contact your Sprecher + Schuh representative for enclosed pricing. NEMA sized starters with AC Coils are listed on page C26.

Note: CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

CAN7 AC Coil Codes ❷

CAN7-12...85		
AC Coil Code	Voltage Range	
	50 Hz	60 Hz
24Z	24V	24V
120	110V	**120V**
208	~	208V
220W	~	**208V-240V**
240	220V	240V
277	240V	277V
380	380V-400V	440V
480	440V	**480V**
600	**550V**	**600V**

CAN6 AC Coil Codes Conventional Coils ❷

CAN6-180		
AC Coil Code	Voltage Range	
	50 Hz	60 Hz
24	~	24V
120B	**110V**	**120V**
208	~	208V
240B	220-230V	260V
277	240V	277V
380	380V-400V	440V
480	**415V**	**480V**
575	500V	575V

CAN6 AC Coil Codes "EI" Electronic Coils ❷❸

CAN6-180-EI...300-EI	
AC Coil Code	Voltage Range
	50 Hz / 60 Hz
24 ❹	24V
120	**110-130V**
220W	208-277V
460W	380-500V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ Refer to page A87 for CAN7 dimensional information and page A127 for CA(N)6 dimensions.

❷ Other voltages available, see page A61 for CAN7 and pages A106-107 for CA(N)6. *Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❸ "-EI" designates contactor with Electronic Interface coil.

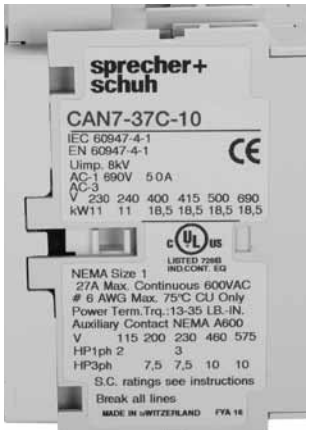
❹ 24 V AC coil not available for CAN6-300-EI.

SSNA9000

Non-Reversing, Three Pole NEMA Labeled Contactors with DC Coil ❶

NEMA Size	Maximum Horsepower						Standard Auxiliary Contacts		Catalog Number	Price
	1Ø		3Ø							
	115V	230V	200V	230V	460V	575V	NO	NC		
00	1/3	1	1-1/2	1-1/2	2	2	1	0	CAN7-12E-10-24E ❺	242
									CAN7-12C-10-✱	200
0	1	2	3	3	5	5	1	0	CAN7-16E-10-24E ❺	267
									CAN7-16C-10-✱	225
1	2	3	7-1/2	7-1/2	10	10	1	0	CAN7-37E-10-24E ❺	414
									CAN7-37C-10-✱	372
2	3	7-1/2	10	15	25	25	1	0	CAN7-43E-10-24E ❺	475
									CAN7-43C-10-✱	432
3	7-1/2	15	25	30	50	50	2	1	CAN7-85D-10-✱	612
4	~	~	40	50	100	100	1	1	CAN6-180-EI-11-✱ ❸	2290
5	~	~	75	100	200	200	1	1	CAN6-300-EI-11-✱ ❸	2950

CAN7 NEMA labeled contactor (AC)



Application Notes

- NEMA contactors are UL Listed and rated in accordance with the requirements of NEMA standards publication ICS-2. These contactors are labeled for applications that require compliance with NEMA standards.
- Sizes are based on standard NEMA classifications.
- Easy coil change and contact replacement. See page A62 for CA(N)7 coils and pages A106-107 for CA(N)6 coils and contacts.
- Snap-on auxiliary contact blocks available in many configurations. See pages A52-53 (CAN7) and page A104 (CA[N]6).
- Available as open units or in NEMA 1, 3R, 4, 4X and 12 enclosures. Contact your Sprecher + Schuh representative for enclosed pricing.

Note: CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

CAN7 DC Coil Codes ❷

CAN7-12C...72C	
DC Coil Code	Voltage Range
24D	24V
110D	110V

CAN7 DC Coil Codes with integrated Diode ❷

CAN7-85D	
DC Coil Code	Voltage Range
24DD	24V
110DD	110V

CAN6 DC Coil Codes "EI" Electronic Coils ❷❹

CAN6-180-EI...300-EI	
DC Coil Code	Voltage Range
24D	24V
120D	110 - 130V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ Refer to page A88 for CAN7 dimensional information and page A127 for CA(N)6 dimensions.
❷ Other voltages available, see page A62 for CAN7 and pages A106-107 for CA(N)6. *Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❸ "-EI" designates contactor with Electronic Interface coil.
❹ Refer to page A120 for CA6-EI Application Notes for 24 volt DC Electronic Coils.
❺ CAN7-12E..43E have an electronic 24VDC coil that is not interchangeable.

Series CAL7 Lighting Contactors

Compact contactors for North American lighting applications

Sprecher + Schuh CA7 and CA6 contactors can be used to control a wide variety of lighting loads. These contactors are well suited to handle the high inrush currents typical of this application as well as other non-motor (resistive) loads.

Lamps can basically be divided into three categories:

- Tungsten Filament Lamps
  - General purpose incandescent
  - Special purpose incandescent
  - Infrared
  - Sodium Iodine
- Discharge Lamps (with Ballast)
  - Fluorescent lamps
  - Mercury vapor
  - High/low pressure sodium
  - Quartz
  - Halogen metal-vapor
- Mixed Light Lamps

In application…

The tungsten filaments of incandescent lamps have a very low ohmic resistance when cold. As a result, the closing current is very high but also very short.

The closing current of discharge lamps (lighting with ballast) is highly inductive (due to series-connected transformers or chokes), and its duration depends on the lamp type.

In general, North Americans refer to Lighting Contactor ratings in amperes without distinction between incandescent or ballast type of load. The lighting contactor selection table provided on the following page is for North American use, so ratings are selected for mixed lamp loads which account for the higher incandescent inrush.

Europeans usually separate the values for incandescent from discharge (ballast) lighting. Both values are provided in the technical section of our general catalog and may be more appropriate for those applying by CE standards.

Electrically held contactors

Electrically held contactors are available for use where the control signal is activated by a timer or other maintained electrical signal. The coil is energized as long as the contactor is closed. This design is well suited for applications where lights are operated frequently or where the control panel is in a remote location.

Mechanically held contactors

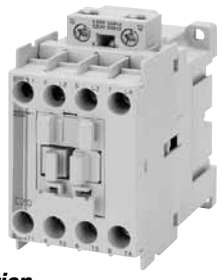
Mechanically held contactors are available for applications where quiet operation or critical lighting is required, i.e., institutions, hospitals and residential/commercial areas. After the contactor closes, the voltage is disconnected from the operating coil and the contactor is held closed by the mechanical latch. Built-in clearing interlocks allow control from either a momentary or maintained pilot device for the separate “pull-in” and “release” functions.

SSNA9000

Lighting Contactors with AC Coil

Continuous Ampere Rating ❹	Number of Poles	Standard Auxiliary Contacts		Electrically Held		Mechanically Held ❶	
		NO	NC	Open Type Catalog Number	Price	Open Type Catalog Number	Price
20	4	0	0	**CAL7-20-M40-✱**	**195**	**CAVL7-20-M40-✱-L10**	**379**
30	4	0	0	**CAL7-30-M40-✱**	**288**	**CAVL7-30-M40-✱-L10**	**427**
60	4	0	0	**CAL7-60-M40-✱**	**489**	**CAVL7-60-M40-✱-L10**	**600**
100	3	1	1	**CA6-110-11-✱**	**750**	~	~
150	3	1	1	**CA6-180-11-✱**	**1608**	~	~
200	3	1	1	**CA6-210-E1-11-✱**	**1917**	~	~

Larger sizes available. Contact your Sprecher + Schuh representative.



Description

The CAL7 electrically held contactors and CAVL7 mechanical held contactors are cUL rated and labeled for tungsten and ballast lighting duty applications at 20, 30, and 60 amperes respectively.

The CA6 contactors shown are selections based on available technical data. These CA6 units do not bear a cUL rating for use as a lighting contactor.

CA(L)7 Coil Codes ❷

AC Coil Code	Voltage Range	
	50 Hz	60 Hz
24Z	24V	24V
120	110V	120V
208	~	208V
220W	~	208V-240V
240	220V	240V
277	240V	277V
380	380V-400V	480V
480	440V	480V
600	550V	600V

CA6 Coil Codes ❷

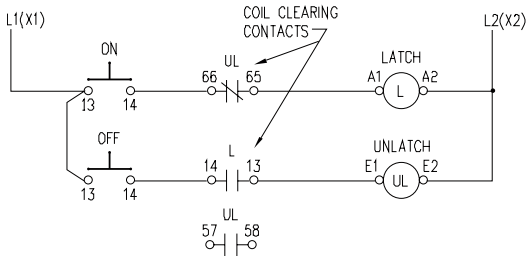
CA6-110…180		
AC Coil Code	Voltage Range	
	50 Hz	60 Hz
24	~	24V
120B	110V	120V
208	~	208V
240B	220-230V	260V
277	240V	277V
380	380-400V	440V
480	415V	480V
575	500V	575V

CA6 EI-Coil Codes ❸❷

CA6-210-EI		
AC Coil Code	Voltage Range	
	50 Hz	60 Hz
120	110-130V	110-130V
220W	208-277V	208-277V
380	380-400V	380-400V

Operation of Mechanically Held Contactor with "ON-OFF" Pushbutton

Catalog number "CAVL7" consists of a CAL7 contactor with CV7-11 mechanical latch. Depressing the "ON" button energizes the "L" coil and the contactor closes. The mechanical latch locks the contactor in the closed position. The "L" coil is then de-energized by the coil, clearing contact "UL" (Terminals 65-66) to remove voltage. Depressing the "OFF" button energizes the "UL" coil, and the mechanical latch releases the contactor. The "UL" coil is immediately de-energized by the coil clearing contact "L" (Terminals 13-14) to remove voltage. The contactor is now open.



Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ The N.O. auxiliary on the mechanical latch is used by the control circuit and is not available to the customer for other uses.

❷ Other voltages available, see page A61. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❸ "-EI" designates contactor with Electronic Interface coil.

❹ Engineering practice permits 2.5 x I_e to be applied to a contactor when 3 poles are connected in parallel for single phase discharge lamp (ballast lighting) applications. Example: A CAL7-20-M40-✱ Lighting Contactor plus a CA7-P-B23 Paralleling Link can be used on a 50A ballast load. Applying parallel conductors to incandescent lamp loads does NOT result in a greater permissible load. Paralleling Links can be found in the Accessories section.

SSNA9000

Top (Front) Mount Auxiliary Contact Blocks ❶

Top mount auxiliary contact blocks snap-on to the top (front) of any CA7 contactor

4-pole auxiliary

2-pole auxiliary contact block (typical)

Auxiliary Contact Blocks for Top Mounting -

- 2 and 4 pole
- Snap on design - mounts without tools
- Electronic compatible contacts
- Mutual positive guidance to the main contactor poles (excluding L types)
- Several terminal numbering choices even for models wit equal function
- Late break /early make (L) available

Bifurcated Contacts

Bifurcated auxiliary contacts provides a higher degree of reliability than the standard cross-stamped auxiliary contacts because it H-bridge divides each movable contact into two sections at the tip of the spanner. Typical application is low-voltage low-current applications (i.e.: PLC). Cross-stamped contacts are good for a minimum of 5mA at 17v while bifurcated contacts are good for a minimum of 3mA at 5v.

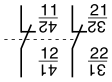
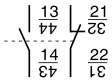
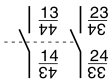
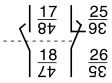
Contact Block	Description	NO	NC	Contact Arrangement	For use with...	Standard Contacts Catalog Number	Price	Bifurcated Contacts Catalog Number ❷	Price
		0	2	51 61 / 52 62	CA7 all	**CS7-PV-02**	**27**	**CS7-PVB-02**	**42**
				11 21 / 12 22	CA7-30...85-✱-00	**CA7-PV-02**	**27**	**CA7-PVB-02**	**42**
		1	1	53 61 / 54 62	CA7 all	**CS7-PV-11**	**27**	**CS7-PVB-11**	**42**
				13 21 / 14 22	CA7-30...85-✱-00	**CA7-PV-11**	**27**	**CA7-PVB-11**	**42**
				23 31 / 24 32	CA7-9...23-✱-10 CA7-9...23-✱-01	**CA7-PV-S11**	**27**	**CA7-PVB-S11**	**42**
		2	0	53 63 / 54 64	CA7 all	**CS7-PV-20**	**27**	**CS7-PVB-20**	**42**
				13 23 / 14 24	CA7-30...85-✱-00	**CA7-PV-20**	**27**	**CA7-PVB-20**	**42**
		1EM	1LB	17 25 / 18 26	CA7-30...85-✱-00	**CA7-PV-L11**	**37**	**NOT AVAILABLE**	**~**
		1	3	53 61 71 81 / 54 62 72 82	CA7-30...85-✱-00	**NOT AVAILABLE**	**~**	**CA7-PVB-13**	**79**
		2	2	53 61 71 83 / 54 62 72 84	CA7 all	**CS7-PV-22**	**53**	**CS7-PVB-22**	**79**
				13 21 31 43 / 14 22 32 44	CA7-30...85-✱-00	**CA7-PV-22**	**53**	**CA7-PVB-22**	**79**
				21 31 43 53 / 22 32 44 54	CA7-9...23-✱-10 CA7-9...23-✱-01	**CA7-PV-S22**	**53**	**CA7-PVB-S22**	**79**
		3	1	53 61 73 83 / 54 62 74 84	CA7 all	**CS7-PV-31**	**53**	**CS7-PVB-31**	**79**
				21 33 43 53 / 22 34 44 54	CA7-9...23-✱-01	**CA7-PV-S31**	**53**	**CA7-PVB-S31**	**79**
		1	3	53 61 71 81 / 54 62 72 82	CA7 all	**CS7-PV-13**	**53**	**CS7-PVB-13**	**79**
		4	0	53 63 73 83 / 54 64 74 84	CA7 all	**CS7-PV-40**	**53**	**CS7-PVB-40**	**79**
		0	4	51 61 71 81 / 52 62 72 82	CA7 all	**CS7-PV-04**	**53**	**CS7-PVB-04**	**79**
		1+1EM	1+1LB	53 61 75 87 / 54 62 76 88	CA7 all	**CS7-PV-L22**	**74**	**NOT AVAILABLE**	**~**

❶ Max. number of auxiliary contacts that may be mounted:
- AC Coil contactors - max. 4 N.O. contacts on the front of the contactor, 2-N.O. contacts on the side, 4-N.C. front or side: 6 total.
- DC Coil contactors - max. 4 N.O. contacts on the front of the contactor, or max. 2-N.O. contacts on side, 4-N.C. front or side: (4) total.

❷ Detailed ratings can be found on page A79.

SSNA9000

Side Mount Auxiliary Contact Blocks (1 & 2 Pole) ❶

Contact Block	Description	NO	NC	Contact Arrangement	For use with...	Catalog Number ❸	Price
 *1-pole (typical)*  *2-pole (typical)*	**Auxiliary Contact Blocks for Side Mounting - ❶** • 1 and 2-pole • Two way numbering for right or left mounting on the contactor • Snap-on design - mounts without tools • Electronic compatible contacts down to 24V, 20mA • Late break / early make (L) available • Mutual positive guidance to the main contactor poles (excluding L-types)	0	1		CA7 all	**CA7-PA-01**	**17**
		1	0		CA7 all ❷	**CA7-PA-10**	**17**
		0	2		CA7 all	**CA7-PA-02**	**27**
		1	1		CA7 all ❷	**CA7-PA-11**	**27**
		2	0		CA7 all ❷	**CA7-PA-20**	**27**
		1EM	1LB		CA7 all	**CA7-PA-L11**	**37**

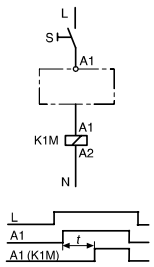
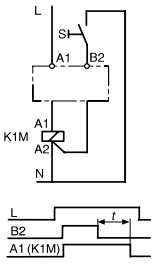
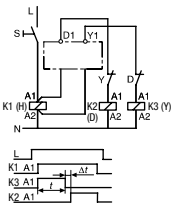
❶ Max. number of auxiliary contacts that may be mounted:
- AC Coil contactors - max. 4 N.O. contacts on the front of the contactor, 2-N.O. contacts on the side, 4-N.C. front or side: 6 total.
- DC Coil contactors - max. 4 N.O. contacts on the front of the contactor, or max. 2-N.O. contacts on side, 4-N.C. front or side: (4) total.

❷ Left mounting only is recommended when using with CA7-9…CA7-23 contactors. These contactors have built-in auxiliaries, which will result in duplicate terminal markings if mounted on the right.

❸ Detailed ratings can be found on page A79.

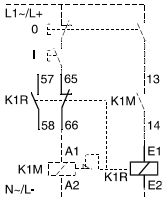
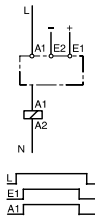
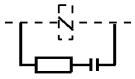
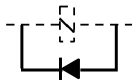
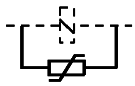
SSNA9000

Control Modules ❶

Module	Description	For use with. . .	Connection Diagrams	Function	Catalog Number	Price
	**Pneumatic Timing Module –** The contacts in the Pneumatic Timing Element switch after the delay time. The contacts on the main contactor continue to operate without delay. • Continuous adjustment range	CA7 all		**ON-Delay** 0.3…30s 1.8…180s	**CZE7-30** **CZE7-180**	**160**
		CA7 all		**OFF-Delay** 0.3…30s 1.8…180s	**CZA7-30** **CZA7-180**	**160**
	**Electronic Timing Module –** **ON-Delay** The contactor is energized at the end of the delay time.	CA7 all		110…240V 50/60Hz 110…250V DC 0.1…3s 1…30s 10…180s	**CRZE7-3-110/240** **CRZE7-30-110/240** **CRZE7-180-110/240**	**98**
				24…48V DC 0.1…3s 1…30s 10…180s	**CRZE7-3-24/48VDC** **CRZE7-30-24/48VDC** **CRZE7-180-24/48VDC**	**104**
	**Electronic Timing Module –** **OFF-Delay** After interruption of the control signal, the contactor is de-energized at the end of the delay time.	CA7 all		110…240V 50/60Hz 0.3…3s 1…30s 10…180s	**CRZA7-3-110/240** **CRZA7-30-110/240** **CRZA7-180-110/240**	**112**
		CA7-9… CA7-37		24V AC 50/60Hz 0.3…3s 1…30s 10…180s	**CRZA7-3-24VAC** **CRZA7-30-24VAC** **CRZA7-180-24VAC**	**112**
	**Electronic Timing Module –** **Wye-Delta Transition Timer** Contactor K3 (Y) is de-energized and contactor K2 (D) is energized after the end of the set transition time. Switching delay at 50ms. • Continuous adjustment range • High repeat accuracy	CA7 all		110…240V 50/60Hz 1…30s	**CRZY7-30-110/240**	**112**
 *CM7* *CM7-02*	**Mechanical/Electrical Interlocks –** • Common to all CA7 contactors; interlocks different contactor sizes • Mechanical and electrical interlocking possible in one module by means of integrated auxiliary contacts • Dovetail (CA7-S9) connector included (9mm)	CA7 all ❶		**Mechanical** Without auxiliaries	**CM7**	**34**
				**Mechanical/ Electrical** Two NC aux contacts	**CM7-02**	**40**

❶ Not for use with CA7-40 or CA7-90 (4-pole) Contactors.

Control Modules *(continued)*

Module	Description	For use with…	Connection Diagrams	Function	Catalog Number	Price
	**Mechanical Latch –** Following contactor latching, the contactor coil is immediately de-energized by the NC auxiliary contact (65-66). • Electrical or manual release • 1 NO + 1 NC auxiliary switch • Suitable for all CA7 contactors	CA7-9…97 (except true DC coils)			**CV7-11-✱** *Replace ✱ with coil code below (See Application Note below)*	**94**
	**Electronic Interface –** Interface between the DC control signal from a PLC and the AC operating mechanism of the contactor. • Requires no additional surge suppression for the coils • Switching capacity 200VA • Suitable for all CA7 contactors ❹	CA7 all (with AC control)		Input: **24V DC ❶**, 12V DC, 48V DC Output: 110…240V AC	**CRI7E-24** **CRI7E-12** **CRI7E-48** *Indicates special order*	**72**
	**Surge Suppressors -** Limits coil switching transients. • Plug-in, coil mounted • Suitable for all CA7 contactors	CA7 all		**RC Module -** AC Control (50/60Hz) 24…48V 110…280V 380…480V	**CRC7-48** **CRC7-280** **CRC7-480**	**34**
				**Diode Module -** DC Control 12-250VDC	**CRD7-250**	**34**
				**Varistor Module -** AC/DC Control 12…55VAC/ 12…77VDC 56…136VAC/ 78…180VDC 137…277VAC/ 181…350VDC 278…575VAC	**CRV7-55** **CRV7-136** **CRV7-277** **CRV7-575**	**21**

CV7 Mechanical Latch Coil Codes ❷❸❻

Coil Code	Application Range			Latch & Contactor Coil Rating
	50 Hz	60 Hz	VDC	
24Z	**24 VAC**	24 VAC	12 VDC	24V 50/60 Hz
48Z	48 VAC	48 VAC	**24 VDC**	48V 50/60 Hz
120	110 VAC	**120 VAC**	~	110V50/120V60
220W	~	**208…240 VAC**	~	208…240V60
230Z	230 VAC	230 VAC	110 VDC	230V 50/60 Hz
240Z	**240 VAC**	**240 VAC**	125 VDC	240V 50/60 Hz
277	240 VAC	277 VAC	~	240V50/277V60
380	380…400 VAC	440 VAC	~	380…400V50/440V60
400Z	400 VAC	400 VAC	220 VDC	400V 50/60 Hz
415	400…415 VAC	~	~	400…415 V50 Hz
480	440 VAC	**480 VAC**	~	440V50/480V60
600 ❺	550 VAC	600 VAC	~	550V50/600V60

APPLICATION NOTE: The CV7 Mechanical Latch for CA7 may be used for both AC and DC applications. However, when using in a DC application, both the Contactor and Latch must still be AC, using the Coil Code Table shown. For example, if needing a latched contactor for 24 V DC, choose coil code 48Z for a CA7 contactor and Latch for 48V AC. This combination will work at 24V DC momentary due to coil clearing contacts.

❶ Control voltage 18…30V DC (10…15mA)
❷ Other voltages available. Contact your Sprecher + Schuh representative.
❸ CV7 must be wired for momentary operation only.
❹ Minimum actuation current is 5 volts, 2ma. The leakage current is <1MA for the following:
- CRI7E-12 @ 2.5 VDC input
- CRI7E-24 @5 VDC input
- CRI7E-48 @ 10 VDC input.

❺ Use 600V AC when 575 V is required.
❻ Command duration 0.03…10 seconds.

AC Voltage Sag Immunity Modules

Module	Description	Full-Wave Bridge Rectifier		Catalog Number	Price
		Module Input	Module Output		
		Control circuit voltage range	For use with CA7 contactors with DC coil CS7 control relays with DC coil		
	**SEMI-F47-Module**	24-250 VAC	24-250 VDC ❶	**CA7-SF47**	**109**
	**Semi-F47-Module with 1...30s on-delay timer**	110-250 VAC	110-250 VDC ❶	**CA7-SF47A30**	**175**

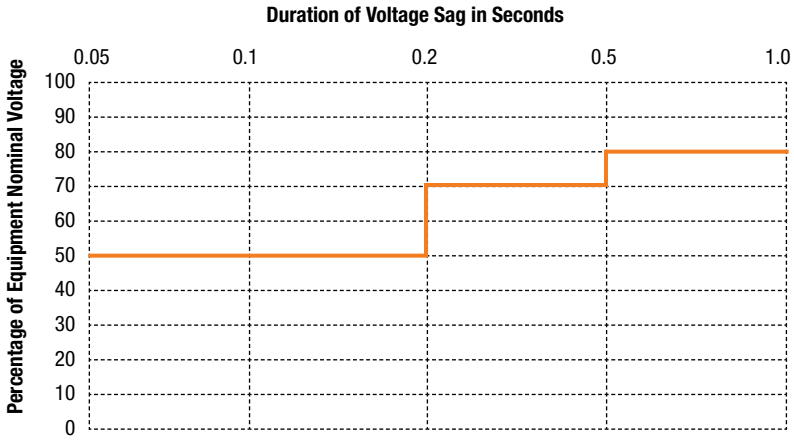
Sprecher + Schuh's CA7-SF47 module meets the Semi-F47 AC voltage sag immunity requirements to 50% voltage sag for 200 ms. Voltage sags can affect the readiness and operation of contactors and starters, resulting in shut downs, lost production, and diminished revenue. It is essential for process equipment to be compatible with its electrical environment. The CA7-SF47 voltage sag immunity module is an essential component to achieve equipment reliability during voltage sag events.

Product Features

- Meets Semi-F47 standard requirements
- For use with CA7 contactors and CS7 control relays with DC coils. A full-wave bridge rectifier internal to the CA7-SF47 module provides AC to DC coil voltage rectification.
- Suitable for contactor range (with screw terminals)
  - CA7-9 ... 85, 3-Pole contactors
  - CA7-9 ... 90, 4-Pole contactors
- Suitable for control relays (with screw terminals)
  - CS7
- Optional 1 to 30 seconds On-Delay timer function.

Benefits

- Direct mounting to the coil terminals of the CA7 contactors and CS7 control relays. Only 24 mm is added to the component height.
- Direct electrical connection to the contactor or control relay. Customer coil power connections are made at the terminals of the CA7-SF47 module
- The CA7-SF47A30 module includes a 1 to 30 seconds adjustable On-Delay timer in addition to the voltage sag immunity functionality. Two independent functions in a single module.



VOLTAGE SAG DURATION				VOLTAGE SAG
Seconds	*Milliseconds*	*Cycles at 60 hz*	*Cycles at 50 hz*	*Percent (%) of Equipment Nominal Voltage*
< 0.05 s	< 50 ms	< 3 cycles	< 2.5 cycles	Not specified
0.05 to 0.2 s	50 to 200 ms	3 to 12 cycles	2.5 to 10 cycles	50%
0.2 to 0.5 s	200 to 500 ms	12 to 30 cycles	10 to 25 cycles	70%
0.5 to 1.0 s	500 to 1000 ms	30 to 60 cycles	25 to 50 cycles	80%
> 1.0 s	> 1000 ms	> 60 cycles	> 50 cycles	Not specified

❶ Input AC control circuit voltage must be matched when selecting the contactor/relay DC coil voltage.

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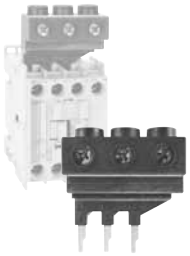
Terminal Lug Kits ❶

Component	Description	For use with . . .	Maximum Resistive Current Ratings (A) ❷ IEC (40°C)	IEC (60°C)	UL/CSA (40°C)	Pkg. Qty.	Catalog Number ❶	Price Each
	**3 Pole Lug Kit –** Allows larger wires to be used with the contactor. Ideal for wye-delta, reversing and multispeed contactors and starters. Can increase IEC AC-1 current rating, as well as the UL/CSA continuous current (resistive) rating of the contactor. Three pole kit used for smaller contactors.	CA7-9. . .23 -line side -load side	45	45	40	1	**CA7-P-KN23 CA7-P-KL23**	**41**
		CA7-30. . .37	60	55	55	1	**CA7-P-K37**	**56**
	**1 Pole Lug Kit –** Allows larger wires to be used with the contactor. Ideal for wye-delta, reversing and multispeed contactors and starters. Can increase AC-1 current rating of the contactor. One pole kit used for larger contactors.	CA7-43	90	75	75	3 ❸	**CA7-P-K43**	**28 ❸ Each**
		CA7-60 . . .97	130	130	130	3 ❸	**CA7-P-K85**	**33 ❸ Each**

Paralleling Links ❶❷

Component	Description	For use with . . .	Maximum Resistive Current Ratings (A) ❷ IEC (40°C)	IEC (60°C)	UL/CSA (40°C)	Pkg. Qty.	Catalog Number ❶	Price Each
	**3 Pole Paralleling Link –** Allows smaller CA7 contactors to be used on single-phase resistive applications. By paralleling the three power poles, the contacts see only a portion of the actual load. ❹	CA7-9. . .23	100	100	100	2 ❸	**CA7-P-B23**	**10 ❸ Each**
		CA7-30. . .37	150	135	150	2 ❸	**CA7-P-B37**	**15 ❸ Each**

Quick Connectors

Component	Description	For use with . . .	Pkg. Qty.	Catalog Number	Price Each
	**Stab Connectors -** Dual stab (0.250 inch)	CA7-9…97 coil term. CA7-9…23 power term. CA7 accessories	20 100 100	**CA7-SC2** **CA7-SC10** **CA4-SC11**	**1.75**

❶ cULus Approved (File E33916).

❷ Lighting applications are not considered purely resistive loads. Therefore, the IEC and UL/CSA resistive ratings listed here do not apply to lighting loads. Lighting contactor ratings are provided in the Technical Information section.

❸ Priced per piece. Total cost is package quantity x price. Minimum order, 3 pieces.

❹ Engineering practice permits 2.5 x I_e to be applied to a contactor when 3 poles are connected in parallel for single phase discharge lamp (ballast lighting) applications.

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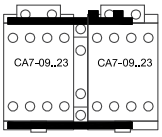
Reversing Components

Component	Description	For Use With…	Pkg. Qty.	Catalog Number	Price Each
	**Dovetail Connectors –** Connects multiple contactor and starter assemblies together.	CA7 all	10	**CA7-S9**	**1.75**
	**Reversing Power Wiring Kit - ❶** Provides a solid "wireless" connection for reversing applications. May be used with both solid state and thermal O/L relays.	CA7-9…12 CA7-16…23	1	**CAUT7-PW23**	**17**
		CA7-30…37 CA7-43 CA7-60…97	1 1 1	**CAUT7-PW37** **CAUT7-PW43** **CAUT7-PW85**	**20** **37** **94**

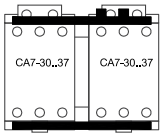
Reversing Power Wiring Kits

Only the kits are catalog items. Single components are available by special order in bulk packages of 20 pieces.

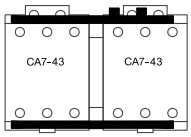
Reversing Starter Connection Kits ❷

Kit=CAUT7-PW23
CA7-PWNM23


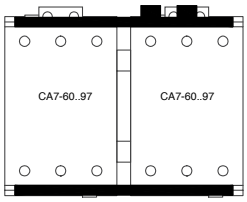
CA7-PWLM23

Kit =CAUT7-PW37
CA7-PWNM37


CA7-PWLM37

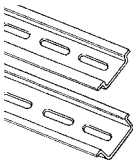
Kit =CAUT7-PW43
CA7-PWNM43


CA7-PWLM43

Kit =CAUT7-PW85
CA7-PWNM85


CA7-PWLM85

Assembly Components

Component	Description	For Use With…	Pkg. Qty.	Catalog Number	Price Each
	**Protective Covers -** Protects against unintended manual operation.	CA7-9…97	1	**CA7-SCC**	**3.35**
	**Protective Covers -** For front mounted auxiliary contacts, pneumatic timers and latches.	CS7-PV, CA7-PV, CZE7, CZA7, CV7	1	**CA7-SCF**	**1.75**
	**DIN-rail** - 2 meter lengths (6' 6"); price per rail Top Hat, low profile Top Hat, high profile	CA7 all	20 10	**3F** **3AF**	**29** **44**

Marking Systems

Component	Description	Pkg. Qty.	Catalog Number	Price Each
	**Label Sheet –** 1 sheet with 105 self-adhesive paper labels each, 6 x 17mm	1	**CA7-FMS**	**1.75**
	**Marking Tag Sheet -** 1 sheet with 160 perforated paper labels each, 6 x 17mm. To be used with transparent cover.	1	**CA7-FMP**	**1.75**
	Transparent Cover - To be used with Marking Tag Sheets.	100 ❷	**CA7-FMC**	**.17**
	Tag Carrier - For marking with Clip-on Tags. See Terminals Section N for complete listing of Clip-on Tags.	100 ❷	**CA7-FMA2**	**.17**

❶ cULus Approved (File E33916).

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Wye-Delta Starter Kits ❶

Wye-Delta power wiring kits were designed to aid in the field assembly of open-transition wye-delta starters that use CA7 contactors. These kits include line, load and start-point (shorting) connections. Assembling a wye-delta starter requires the use of the following components:

- Contactors and overload relay
- Mechanical / Electrical Interlock (Cat.No: CM7-02)
- Electronic Wye-delta Timer (Cat. No: CRZY7-30-110/240)
- Dovetail Connector to couple 1M and 2M contactor (Cat. No: CA7-S9); optional

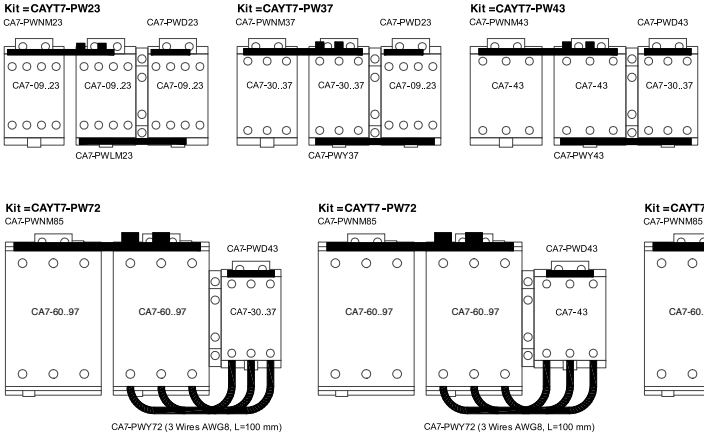
Power Jumper Connection

Shorting Bar

Reversing Power Connection

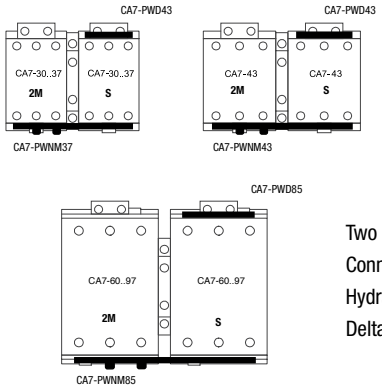
Three Contactor Assembly Components

3-Phase Rating											For 3 contactor assembly ❷	
kW (50Hz)				HP (60Hz)				Use with catalog number . . .				
								Delta		Wye		
230V	380V 415V	500V	690V	200V	230V	460V	575V	1M	2M	1S	Catalog Number	Price
5.5	8	8	8	5	5	10	10	CA7-9	CA7-9	CA7-9	CAYT7-PW23	22
7.5	11	11	11	5	7.5	15	15	CA7-12	CA7-12	CA7-9		
10	14	15	14	7.5	10	20	20	CA7-16	CA7-16	CA7-12		
14	21	21	19	7.5	10	25	25	CA7-23	CA7-23	CA7-12		
18	28	28	28	10	15	30	30	CA7-30	CA7-30	CA7-16	CAYT7-PW37	27
19	35	35	32	15	20	40	40	CA7-37	CA7-37	CA7-23		
23	40	40	41	20	25	50	50	CA7-43	CA7-43	CA7-30	CAYT7-PW43	44
33	58	60	56	30	40	75	75	CA7-60	CA7-60	CA7-37	CAYT7-PW72	79
39	69	67	70	40	50	100	100	CA7-72	CA7-72	CA7-43		
47	82	82	81	50	60	125	125	CA7-85	CA7-85	CA7-60	CAYT7-PW85	106
50	90	90	90	50	60	125	125	CA7-97	CA7-97	CA7-60		



Two Contactor Assembly Components

When Connecting...		Load Side Power Connection		Shorting Bar	
Delta	Wye				
2M	1S	Catalog Number	Price	Catalog Number	Price
CA7-30	CA7-30	CA7-PWNM37	11	CA7-PWD43	14
CA7-37	CA7-37				
CA7-43	CA7-43	CA7-PWNM43	18	CA7-PWD43	14
CA7-60	CA7-60	CA7-PWNM85	46	CA7-PWD85	23
CA7-72	CA7-72				
CA7-85	CA7-85				
CA7-97	CA7-97				



Two Contactor Wiring Connections are for Hydraulic Elevator Wye-Delta Contactors CA7Y2

❶ cULus Approved (File E33916).

❷ Individual parts of kits are available for unique applications by special order. Contact your Sprecher + Schuh Representative.

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Refer to page C65.1

SSNA9000

Renewal Coils - A.C. ❶❷❸

AC Control Voltages			AC Coil Codes ❷	For use with contactor . . .				
				CA7-9...16	CA7-23...37	CA7-43	CA7-60...85	CA7-97
				CA7-9-M...16-M...	CA7-23-M...37-M...	~	~	CA7-90-M...
				CAQ7-16	CAQ7-37	~	~	~
				CNX-205...206	CNX-207...209	CNX-212	CNX-218	~
				CAN7-12…16	CAN7-37	CA7-40-M, CAN7-43	CAN7-85	~
				~	CAL(V)7-20-M40	CAL(V)7-30-M40	~	CAL(V)7-60-M40
50 Hz	60 Hz	50/60 Hz		Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
~	12V	~	12B	**TA006**	**TC006**	**TD006**	**TE006**	**TF006**
12V	~	~	12A	**TA404**	**TC404**	**TD404**	**TE404**	**TF404**
~	24V	~	24B	**TA013**	**TC013**	**TD013**	**TE013**	**TF013**
24V	~	~	24A	**TA407**	**TC407**	**TD407**	**TE407**	**TF407**
~	~	24V	**24Z**	**TA855**	**TC855**	**TD855**	**TE855**	**TF855**
32V	36V	~	36	**TA481**	**TC481**	**TD481**	**TE481**	**TF481**
36V	~	~	36A	**TA410**	**TC410**	**TD410**	**TE410**	**TF410**
42V	48V	~	48	**TA482**	**TC482**	**TD482**	**TE482**	**TF482**
48V	~		48A	**TA414**	**TC414**	**TD414**	**TE414**	**TF414**
~	~	48V	48Z	**TA860**	**TC860**	**TD860**	**TE860**	**TF860**
100V	100...110V	100	110	**TA861**	**TC861**	**TD861**	**TE861**	**TF861**
110V	120V	~	**120**	**TA473**	**TC473**	**TD473**	**TE473**	**TF473**
~	~	110V	110Z	**TA856**	**TC856**	**TD856**	**TE856**	**TF856**
120V	~	~	120A	**TA425**	**TC425**	**TD425**	**TE425**	**TF425**
127V	~	~	127	**TA428**	**TC428**	**TD428**	**TE428**	**TF428**
200V	200.. 220V	200V	220	**TA862**	**TC862**	**TD862**	**TE862**	**TF862**
~	208V	~	**208**	**TA049**	**TC049**	**TD049**	**TE049**	**TF049**
200...220V	208.. 240V	~	**220W**	**TA296**	**TC296**	**TD296**	**TE296**	**TF296**
220V	240V	~	**240**	**TA474**	**TC474**	**TD474**	**TE474**	**TF474**
200V...230V	~	~	230A	**TA441**	**TC441**	**TD441**	**TE441**	**TF441**
~	~	230V	230Z	**TA851**	**TC851**	**TD851**	**TE851**	**TF851**
230V...240V	~	~	240A	**TA440**	**TC440**	**TD440**	**TE440**	**TF440**
240V	277V	~	**277**	**TA480**	**TC480**	**TD480**	**TE480**	**TF480**
~	~	240V	240Z	**TA858**	**TC858**	**TD858**	**TE858**	**TF858**
~	347V	~	347	**TA065**	**TC065**	**TD065**	**TE065**	**TF065**
~	380V	~	380B	**TA067**	**TC067**	**TD067**	**TE067**	**TF067**
380V...400V	440V	~	**380**	**TA071**	**TC071**	**TD071**	**TE071**	**TF071**
~	~	400V	400Z	**TA863**	**TC863**	**TD863**	**TE863**	**TF863**
400V...415V	~	~	415	**TA457**	**TC457**	**TD457**	**TE457**	**TF457**
440V	480V	~	**480**	**TA475**	**TC475**	**TD475**	**TE475**	**TF475**
~	~	440V	440Z	**TA859**	**TC859**	**TD859**	**TE859**	**TF859**
500V	~	~	500	**TA479**	**TC479**	**TD479**	**TE479**	**TF479**
550V	600V	~	**600**	**TA476**	**TC476**	**TD476**	**TE476**	**TF476**
Price				**59**	**84**	**101**	**118**	**118**

CA7 AC Coil (typical)

❶ Other coil voltages available. Contact your Sprecher + Schuh representative for information.
❷ AC Codes in bold letters and shaded indicate coils that are standard stocked items.
❸ AC and DC coils on CNX-xxx contactors are not interchangeable.

Renewal Coils - D.C. ❶❷❼

AC Control Voltages	DC Coil Codes ❷	True DC Replacement Coils ❼ For use with contactor...			Two Winding DC Replacement Coils ❻ For use with contactor...				
		CA7-9C(D)... 16C(D)	CA7-23C(D)... 37C(D)	CA7-43C	CA-9Y...16Y	CAY-23Y...37Y	CA7-43Y	CA7-60D...85D ❺	CA7-97D ❺
		CA7-9C(D)-M... 16C (D)-M...	CA7-23C(D)-M...	CA7-43C(D)	~	~	~	~	CA7-90D-M...
		CAQ7-16C	CAQ7-37C	CA7-40C-M...	~	~	~	~	~
		CNX-205...206	CNX7-207...209	CNX7-212	~	~	~	CNX7-218	~
		CAN7-12C…16C	CAN7-37C	CAN7-43C	~	~	~	CAN7-85D	~
		Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
9V ❸	9D	**TA766**	**TC766**	**TD766**	~	~	~	~	~
9V Diode ❸	9DD	~	~	~	**TA766Y**	**TC766Y**	**TD766Y**	**TE766M**	**TF766M**
12V	**12D**	**TA708**	**TC708**	**TD708**	~	~	~	~	~
12V Diode ❽	**12DD**	~	~	~	**TA708Y**	**TC708Y**	**TD708Y**	**TE708M**	**TF708M**
24V ❹	**24D**	**TA714**	**TC714**	**TD714**	~	~	~	~	~
24V Diode ❹❽	**24DD**	**TA714M**	**TC714M**	**TD714M**	**TA714Y**	**TC714Y**	**TD714Y**	**TE714M**	**TF714M**
36V	36D	**TA719**	**TC719**	**TD719**	~	~	~	~	~
36V Diode	36DD	~	~	~	**TA719Y**	**TC719Y**	**TD719Y**	**TE719M**	**TF719M**
48V	**48D**	**TA724**	**TC724**	**TD724**	~	~	~	~	~
48V Diode	**48DD**	~	~	~	**TA724Y**	**TC724Y**	**TD724Y**	**TE724M**	**TF724M**
60V	60D	**TA774**	**TC774**	**TD774**	~	~	~	~	~
60V Diode	60DD	~	~	~	**TA774Y**	**TC774Y**	**TD774Y**	**TE774M**	**TF774M**
64V	64D	**TA727**	**TC727**	**TD727**	~	~	~	~	~
64V Diode	64DD	~	~	~	**TA727Y**	**TC727Y**	**TD727Y**	**TE727M**	**TF727M**
72V	72D	**TA728**	**TC728**	**TD728**	~	~	~	~	~
72V Diode	72DD	~	~	~	**TA728Y**	**TC728Y**	**TD728Y**	**TE728M**	**TF728M**
80V	80D	**TA729**	**TC729**	**TD729**	~	~	~	~	~
80V Diode	80DD	~	~	~	**TA729Y**	**TC729Y**	**TD729Y**	**TE729M**	**TF729M**
110V	**110D**	**TA733**	**TC733**	**TD733**	~	~	~	~	~
110V Diode	**110DD**	~	~	~	**TA733Y**	**TC733Y**	**TD733Y**	**TE733M**	**TF733M**
115V	115D	**TA734**	**TC734**	**TD734**	~	~	~	~	~
115V Diode	115DD	~	~	~	**TA734Y**	**TC734Y**	**TD734Y**	**TE734M**	**TF734M**
125V	125D	**TA737**	**TC737**	**TD737**	~	~	~	~	~
125V Diode	125DD	~	~	~	**TA737Y**	**TC737Y**	**TD737Y**	**TE737M**	**TF737M**
220V	**220D**	**TA747**	**TC747**	**TD747**	~	~	~	~	~
220V Diode	**220DD**	~	~	~	**TA747Y**	**TC747Y**	**TD747Y**	**TE747M**	**TF747M**
230V	230D	**TA749**	**TC749**	**TD749**	~	~	~	~	~
230V Suppres.	230DS	~	~	~	**TA749Y**	**TC749Y**	**TD749Y**	**TE749M**	**TF749M**
250V	250D	**TA751**	**TC751**	**TD751**	~	~	~	~	~
250V Suppres.	250DS	~	~	~	**TA751Y**	**TC751Y**	**TD751Y**	**TE751M**	**TF751M**
Price (coil without diode)		**92**	**126**	**160**	~	~	~	~	~
Price (coil with diode)		**134**	**168**	**202**	**134**	**168**	**202**	**235**	**235**

Note: The "DD" coils listed above include an integrated bidirectional diode. Drop out time of this design is significantly improved when compared to an external diode. See ratings on page A73.

True DC coil (typical)

Two Winding DC coil (typical) ❻

❶ Other coil voltages available. Contact your Sprecher + Schuh representative for information.
❷ DC Codes in bold letters and shaded indicate coils that are standard stocked items.
❸ Voltage operating range: 0.65…1.3 x U_s.
❹ Voltage operating range: 0.7…1.25 x U_s.
❺ CA7-60D…97D contactors have a two winding coil with built-in late break auxiliary contact and coil suppression.
❻ CA7-9Y…43Y two winding coils are sold for renewal parts only and are not interchangeable with standard CA7-9…43 AC coil contactors or CA7-9C…43C true DC coil contactors. CA7-9Y…43Y contactors should be tested following a coil swap to insure functionality of the timed auxiliary contact.
❼ AC and DC coils on CNX-xxx contactors are not interchangeable.
❽ "DD" coils with integrated surge suppression diode fit CA7-xxD contactors.

SSNA9000

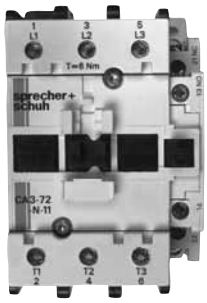
Replacement Contactors Cross Reference, Series CA1 to Series CA7 (Open Type Only) ❶

I_e [A] ❶		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Series CA1U Obsolete	Series CA7 Equivalent
		kW (50 Hz)				UL/CSA HP (60 Hz)							
						1 Ø		3 Ø					
AC-3	AC-1	230V	400V / 415V	500V	690V	115V	230V	200V	230V	460V	575V	Catalog Number	Catalog Number
						1	3	5	5	10	10	CA1U-10	
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15		CA7-16-10
						2	3	7-1/2	7-1/2	15	20	CA1U-14	
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15		CA7-23-10
						2	5	7-1/2	10	20	25	CA1U-16	
30	65	10	15	15	15	2	5	7-1/2	10	20	25		CA7-30-10
						3	7-1/2	10	15	30	40	CA1U-25	
43	85	13	22	25	22	3	7-1/2	10	15	30	30		CA7-43-10
72	100	22	40	45	40	5	15	20	25	50	60		CA7-72-10
						5	15	25	25	50	60	CA1U-40	
85	100	25	45	55	45	7-1/2	15	25	30	60	60		CA7-85-10

CA1U-10 Contactor

Replacement Contactors Cross Reference, Series CA3 to Series CA7 (Open Type Only) ❶

I_e [A] ❶		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Series CA3 Obsolete	Series CA7 Equivalent
		kW (50 Hz)				UL/CSA HP (60 Hz)							
						1 Ø		3 Ø					
AC-3	AC-1	230V	400V / 415V	500V	690V	115V	230V	200V	230V	460V	575V	Catalog Number	Catalog Number
								2	2	5	7-1/2	CA3-9-10	
9	32	3	4	4	4	1/2	1 1/2	2	2	5	7-1/2		CA7-9-10
								3	3	7-1/2	10	CA3-12-10	
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10		CA7-12-10
								5	5	10	15	CA3-16-10	
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15		CA7-16-10
								5	5	10	15	CA3-23A-10	
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15		CA7-23-10
								7-1/2	7-1/2	15	20	CA3-23-10	
30	65	10	15	15	15	2	5	7-1/2	10	20	25		CA7-30-10
								10	10	20	25	CA3-30-10	
								10	10	25	30		CA7-37-10
37	65	11	18.5/20	20	18.5	3	5	10	10	25	30	CA3-37	
43	85	13	22	25	22	3	7-1/2	10	15	30	30		CA7-43-10
								10	15	30	40	CA3-43	
								15	20	40	50	CA3-60	
60	100	18.5	37	37	32	5	10	15	20	40	50		CA7-60-10
								20	20	50	60	CA3-72	
72	100	22	40	45	40	5	15	20	25	50	60		CA7-72-10
85	100	25	45	55	45	7-1/2	15	25	30	60	60		CA7-85-10



CA3-72 Contactor

❶ Available auxiliary contacts may vary. See selection pages for more information.

Electrical Data

			CA7-9	CA7-12	CA7-16	CA7-23	CA7-30	CA7-37	CA7-43	CA7-60	CA7-72	CA7-85	CA7-97
Rated Insulation Voltage U_i													
IEC, AS,BS,SEV, VDE 0660		[V]						690V					
UL; CSA		[V]						600V					
Rated Impulse Voltage U_{imp}		[kV]						8kV					
Rated Voltage U_e-Main Contacts													
AC 50/60Hz		[V]					115, 200, 208, 230, 240, 380, 400, 415, 460, 500, 575, 690V						
DC		[V]					24, 48, 110, 115, 220, 230, 300, 440V						
Operating Frequency for AC Loads		[Hz]						50...60Hz					
Switching Motor Loads													
Standard IEC Ratings													
AC-2, AC-3, AC-4	230V	[A]	12	15	20	26.5	35	38	44	62	72	85	96
DOL Reversing	240V	[A]	12	15	20	26.5	35	38	44	62	72	85	95
50Hz/60˚ C	400V	[A]	9	12	16	23	30	37	43	60	72	85	97
	415V	[A]	9	12	16	23	30	37	43	60	72	85	97
	500V	[A]	7	10	14	20	25	30	38	55	67	80	78
	690V	[A]	5	7	9	12	18	21	25	34	42	49	57
	230V	[kW]	3	4	5.5	7.5	10	11	13	18.5	22	25	30
	240V	[kW]	3	4	5.5	7.5	10	11	13	18.5	22	25	30
	400V	[kW]	4	5.5	7.5	11	15	18.5	22	32	40	45	55
	415V	[kW]	4	5.5	7.5	11	15	20	22	32	40	45	55
	500V	[kW]	4	5.5	7.5	13	15	20	25	37	45	55	55
	690V	[kW]	4	5.5	7.5	10	15	18.5	22	32	40	45	55
UL/CSA/IEC													
DOL Reversing	115V	[A]	9.8	9.8	16	24	24	34	34	56	56	80	100
60Hz/60˚ C 1Ø ❶	230V	[A]	10	12	17	17	28	28	40	50	68	68	88
	115V	[HP]	1/2	1/2	1	2	2	3	3	5	5	7-1/2	10
	230V	[HP]	1 1/2	2	3	3	5	5	7-1/2	10	15	15	20
	200V	[A]	7.8	11	17.5	17.5	25.3	32.2	32.2	48.3	62.1	78.2	92
3Ø	230V	[A]	6.8	9.6	15.2	22	28	28	42	54	68	80	80
	460V	[A]	7.6	11	14	21	27	34	40	52	65	77	96
	575V	[A]	9	11	17	17	27	32	32	52	62	62	77
	200V	[HP]	2	3	5	5	7-1/2	10	10	15	20	25	30
	230V	[HP]	2	3	5	7-1/2	10	10	15	20	25	30	30
	460V	[HP]	5	7-1/2	10	15	20	25	30	40	50	60	75
	575V	[HP]	7-1/2	10	15	15	25	30	30	50	60	60	75
Maximum Operating Rate (at max. amps) ❷	AC2	[ops/hr]	450	450	450	400	400	400	400	300	250	200	200
	AC3	[ops/hr]	700	700	700	600	600	600	600	500	500	500	500
	AC4	[ops/hr]	200	150	120	80	80	70	70	70	60	50	50

❶ Approved by Lloyd's register of shipping.
❷ See page A84 for additional detail.

SSNA9000

Electrical Data

				CA7-9	CA7-12	CA7-16	CA7-23	CA7-30	CA7-37	CA7-43	CA7-60	CA7-72	CA7-85	CA7-97
Switching Motor Loads *(continued)*														
AC-4		230V	[A]	4.3	6.6	9	9	12	14	16.5	25.5	31	38	44
200,000 Op. Cycles		240V	[A]	4.3	6.6	9	9	12	14	16.5	25.5	31	38	44
50Hz		400V	[A]	4.3	6.6	9	9	12	14	16.5	25.5	31	38	44
		415V	[A]	4.3	6.6	9	9	12	14	16.5	25.5	31	38	44
		500V	[A]	4.3	6.6	9	9	12	14	16.5	25.5	31	38	44
		690V	[A]	4.3	6.6	9	9	12	14	16.5	25.5	31	38	44
		230V	[kW]	0.75	1.5	2.2	2.2	3	3.7	4	6.3	7.5	11	11
		240V	[kW]	0.75	1.5	2.2	2.2	3	4	4	7.5	7.5	11	11
		400V	[kW]	1.8	3	4	4	5.5	6.3	7.5	13	15	20	22
		415V	[kW]	1.8	3	4	4	5.5	6.3	7.5	13	17	20	22
		500V	[kW]	2.2	3.7	5.5	5.5	7.5	7.5	10	15	20	25	30
		690V	[kW]	3	5.5	7.5	7.5	10	11	15	22	25	32	37
60Hz	1Ø	115V	[A]	4.3	6.6	9	10	12	14	16.5	25.5	31	38	44
		230V	[A]	4.3	6.6	9	10	12	14	16.5	25.5	31	38	44
		115V	[HP]	1/8	1/4	1/3	1/2	1/2	3/4	1	2	2	3	3
		230V	[HP]	1/3	1/2	1	1-1/2	2	2	2	3	5	5	7-1/2
		200V	[A]	4.3	6.6	9	10	12	14	16.5	25.5	31	38	44
	3Ø	230V	[A]	4.3	6.6	9	10	12	14	16.5	25.5	31	38	44
		460V	[A]	4.3	6.6	9	10	12	14	16.5	25.5	31	38	44
		575V	[A]	4.3	6.6	9	10	12	14	16.5	25.5	31	38	44
		200V	[HP]	3/4	1	2	2	3	3	3	7-1/2	7-1/2	10	10
		230V	[HP]	1	1-1/2	2	3	3	3	5	7-1/2	10	10	15
		460V	[HP]	2	3	5	5	7-1/2	10	10	15	20	25	30
		575V	[HP]	3	5	7-1/2	7-1/2	10	10	10	20	25	30	40
Maximum Operating Rate			[ops/ hour]	250	250	220	200	200	200	200	120	120	120	120
Wye-Delta (Star Delta)		230V	[kW]	5.5	7.5	10	13	17	20	22	32	37	45	50
50 Hz		240V	[kW]	5.5	7.5	10	13	18.5	20	22	32	40	50	50
		400V	[kW]	7.5	10	13	20	25	32	40	55	63	80	90
		415V	[kW]	7.5	11	15	22	25	37	40	55	63	80	90
		500V	[kW]	7.5	11	15	22	25	32	45	63	80	90	90
		690V	[kW]	7.5	10	13	18.5	25	32	40	55	63	80	90
		200V	[HP]	5	5	7-1/2	7-1/2	10	15	20	30	40	50	50
60 Hz		230V	[HP]	5	7-1/2	10	10	15	20	25	40	50	60	60
		460V	[HP]	10	15	20	25	30	40	50	75	100	125	125
		575V	[HP]	10	15	20	25	30	40	50	75	100	125	125
AC Elevator Control Ratings														
UL / CSA		Max FLC	[A]	8.0	11.0	16.0	21.0	27.0	31.0	37.0	43.0	54.0	62.0	❶
500,000 operations		200V	[A]	7.8	11.0	11.0	17.5	25.3	25.3	32.2	32.2	48.3	62.1	
		230V	[A]	6.8	9.6	15.2	15.2	22.0	28.0	28.0	42.0	54.0	68.0	
		460V	[A]	7.6	11.0	14.0	21.0	27.0	27.0	34.0	40.0	52.0	65.0	
		575V	[A]	6.1	9.0	11.0	17.0	22.0	27.0	32.0	41.0	52.0	62.0	
		200V	[HP]	2	3	3	5	7-1/2	7-1/2	10	10	15	20	
		230V	[HP]	2	3	5	5	7-1/2	10	10	15	20	25	
		460V	[HP]	5	7-1/2	10	15	20	20	25	30	40	50	
		575V	[HP]	5	7-1/2	10	15	20	25	30	40	50	60	

❶ Testing incomplete at the time of this printing.

Electrical Data

			CA7-9	CA7-12	CA7-16	CA7-23	CA7-30	CA7-37	CA7-43	CA7-60	CA7-72	CA7-85	CA7-97
AC-1 Load, 30 Switching	I_{th}	[A]	32	32	32	32	65	65	85	100	100	100	130
Ambient Temperature 40° C	230V	[kW]	13	13	13	13	26	26	34	40	40	40	52
	240V	[kW]	13	13	13	13	27	27	35	42	42	42	54
	400V	[kW]	22	22	22	22	45	45	59	69	69	69	90
	415V	[kW]	23	23	23	23	47	47	61	72	72	72	93
	500V	[kW]	28	28	28	28	56	56	74	87	87	87	113
	690V	[kW]	38	38	38	38	78	78	102	120	120	120	155
Ambient Temperature 60° C	I_{th}	[A]	32	32	32	32	65	65	80	100	100	100	110
	230V	[kW]	13	13	13	13	26	26	25	40	40	40	44
	240V	[kW]	13	13	13	13	27	27	26	42	42	42	46
	400V	[kW]	22	22	22	22	45	45	44	69	69	69	76
	415V	[kW]	23	23	23	23	47	47	45	72	72	72	76
	500V	[kW]	28	28	28	28	56	56	55	87	87	87	95
	690V	[kW]	38	38	38	38	78	78	75	120	120	120	131
Maximum Operating Rate		[ops/ hour]	1,000	1,000	1,000	1,000	1,000	1,000	300	600	600	600	600
Continuous Current (UL/CSA)													
General Purpose Rating (40°)	Open	[A]	25	25	30	30	55	60	75	90	90	100	120
	Enclosed	[A]	25	25	30	30	55	60	75	90	90	100	120
Maximum Operating Rate		[ops/ hour]	1,400	1,400	1,200	1,200	1,200	1,000	1000	700	700	600	600
Lighting Loads ❶													
Elec.Dischrg.Lamps-AC-5a,	Open	[A]	22.5	25	28	29	40.5	45	77	81	85	90	115
single compensated	Enclosed	[A]	22.5	25	28	29	37	41	57	57	81	90	100
Max. capacitance at prospective	10kA	[µf]	1,000	1,000	1,000	1,000	2,700	2,700	3,200	4,000	4,000	4,700	4,700
short circuit current available at	20kA	[µf]	500	500	500	500	1,350	1,350	1,600	2,000	2,000	2,350	2,350
the contactor	50kA	[µf]	200	200	200	200	540	540	640	800	800	940	940
Incandescent Lamps - AC -5b													
Electrical endurance ~ 100,000 operations		[A]	12	16	18	22	30	37	43	60	70	76	90
Switching power transformers AC-6a													
50Hz													
Inrush / Rated transformer current	= n												
		[A]	10.9	10.9	10.9	10.9	20	20	23.5	40.8	40.8	40.8	48.5
n=30	230 VAC	[kVA]	4.3	4.3	4.3	4.3	8	8	9.3	16	16	16	19.3
	240 VAC	[kVA]	4.5	4.5	4.5	4.5	8.3	8.3	9.8	17	17	17	20.2
	380 VAC	[kVA]	7.2	7.2	7.2	7.2	13.2	13.2	15.4	26.9	26.9	26.9	31.9
	400 VAC	[kVA]	7.5	7.5	7.5	7.5	14	14	16.3	28	28	28	33.6
	415 VAC	[kVA]	7.8	7.8	7.8	7.8	14	14	16.9	29	29	29	34.9
	500 VAC	[kVA]	9.4	9.4	9.4	9.4	17	17	20.3	35	35	35	42
	690 VAC	[kVA]	13	13	13	13	24	24	28	49	49	49	58
		[A]	16.3	16.3	16.3	16.3	30	30	35.2	61.3	61.3	61.3	72.8
n=20	230 VAC	[kVA]	6.5	6.5	6.5	6.5	12	12	14	24.4	24.4	24.4	29.0
	240 VAC	[kVA]	6.8	6.8	6.8	6.8	12.5	12.5	14.6	25.5	25.5	25.5	30.3
	380 VAC	[kVA]	10.7	10.7	10.7	10.7	19.7	19.7	23.2	40.3	40.3	40.3	47.9
	400 VAC	[kVA]	11.3	11.3	11.3	11.3	20.8	20.8	24.4	42.5	42.5	42.5	50.4
	415 VAC	[kVA]	11.7	11.7	11.7	11.7	21.6	21.6	25.3	44.1	44.1	44.1	52.3
	500 VAC	[kVA]	14.1	14.1	14.1	14.1	26	26	30.5	53.1	53.1	53.1	63.0
	690 VAC	[kVA]	19.5	19.5	19.5	19.5	35.9	35.9	42.1	73.3	73.3	73.3	86.9
		[A]	21.7	21.7	21.7	21.7	40	40	46.9	81.7	81.7	81.7	97.0
n=15	230 VAC	[kVA]	8.7	8.7	8.7	8.7	15.9	15.9	18.7	32.5	32.5	32.5	38.6
	240 VAC	[kVA]	9	9	9	9	16.6	16.6	19.5	33.9	33.9	33.9	40.3
	380 VAC	[kVA]	14.3	14.3	14.3	14.3	26.3	26.3	30.9	53.8	53.8	53.8	63.8
	400 VAC	[kVA]	15.1	15.1	15.1	15.1	27.7	27.7	32.5	56.6	56.6	56.6	67.2
	415 VAC	[kVA]	15.6	15.6	15.6	15.6	28.8	28.8	33.7	58.7	58.7	58.7	69.7
	500 VAC	[kVA]	18.8	18.8	18.8	18.8	34.6	34.6	40.6	70.7	70.7	70.7	84.0
	690 VAC	[kVA]	26	26	26	26	47.8	47.8	56.1	97.6	97.6	97.6	115.9

❶ CA7 ratings for lighting loads are provided for technical reference. For cUL rated and labeled devices, see CAL7 contactors listed in this section.

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Electrical Data

			CA7-9	CA7-12	CA7-16	CA7-23	CA7-30	CA7-37	CA7-43	CA7-60	CA7-72	CA7-85	CA7-97
Switching power transformers AC-6a													
60Hz													
Inrush / Rated transformer current	= n												
		[A]	10.9	10.9	10.9	10.9	20	20	23	40.8	40.8	40.8	48.5
n=30	200 VAC	[kVA]	3.8	3.8	3.8	3.8	6.9	6.9	8.0	14.1	14.1	14.1	16.8
	208 VAC	[kVA]	3.9	3.9	3.9	3.9	7.2	7.2	8.3	14.7	14.7	14.7	17.5
	240 VAC	[kVA]	4.5	4.5	4.5	4.5	8.3	8.3	9.6	17	17	17	20.2
	480 VAC	[kVA]	9.1	9.1	9.1	9.1	16.6	16.6	19.1	33.9	33.9	33.9	40.3
	600 VAC	[kVA]	11.3	11.3	11.3	11.3	20.8	20.8	23.9	42.4	42.4	42.4	50.4
	660 VAC	[kVA]	12.5	12.5	12.5	12.5	22.9	22.9	26.3	46.6	46.6	46.6	55.4
		[A]	16.3	16.3	16.3	16.3	30	30	34.5	61.3	61.3	61.3	72.8
n=20	200 VAC	[kVA]	5.6	5.6	5.6	5.6	10.4	10.4	12	21.2	21.2	21.2	25.2
	208 VAC	[kVA]	5.9	5.9	5.9	5.9	10.8	10.8	12.4	22.1	22.1	22.1	26.2
	240 VAC	[kVA]	6.8	6.8	6.8	6.8	12.5	12.5	14.3	25.5	25.5	25.5	30.3
	480 VAC	[kVA]	13.6	13.6	13.6	13.6	24.9	24.9	28.7	51	51	51	60.5
	600 VAC	[kVA]	16.9	16.9	16.9	16.9	31.2	31.2	35.9	63.7	63.7	63.7	75.7
	660 VAC	[kVA]	18.6	18.6	18.6	18.6	34.3	34.3	39.4	70.1	70.1	70.1	83.2
		[A]	22	22	22	22	40	40	46	82	82	82	97
n=15	200 VAC	[kVA]	7.5	7.5	7.5	7.5	13.9	13.9	15.9	28.4	28.4	28.4	33.6
	208 VAC	[kVA]	7.8	7.8	7.8	7.8	14.4	14.4	16.6	29.5	29.5	29.5	34.9
	240 VAC	[kVA]	9	9	9	9	16.6	16.6	19.1	34.1	34.1	34.1	40.3
	480 VAC	[kVA]	18.1	18.1	18.1	18.1	33.3	33.3	38.2	68.2	68.2	68.2	80.6
	600 VAC	[kVA]	22.6	22.6	22.6	22.6	41.6	41.6	47.8	85.2	85.2	85.2	100.8
	660 VAC	[kVA]	24.9	24.9	24.9	24.9	45.7	45.7	52.6	93.7	93.7	93.7	110.9
DC-1 Switching - 60°C													
	24VDC	[A]	25	25	32	32	45	45	50	70	80	80	80
	48VDC	[A]	20	20	20	20	25	25	30	40	40	40	40
1 Pole	60VDC	[A]	20	20	20	20	25	25	30	40	40	40	40
	110VDC	[A]	6	6	6	6	8	8	9	11	11	11	11
	220VDC	[A]	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2	2
	440VDC	[A]	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5
	24VDC	[A]	25	25	32	32	45	45	50	70	80	80	80
	48VDC	[A]	25	25	32	32	45	45	50	70	80	80	80
2 Poles in Series	60VDC	[A]	25	25	32	32	45	45	50	70	80	80	80
	110VDC	[A]	25	25	32	32	45	45	50	70	80	80	80
	220VDC	[A]	8	8	8	8	10	10	10	15	15	15	15
	440VDC	[A]	1	1	1	1	1	1	1	1.5	1.5	1.5	1.5
	24VDC	[A]	25	25	32	32	45	45	63	90	90	100	100
	48VDC	[A]	25	25	32	32	45	45	63	90	90	100	100
3 Poles in Series	60VDC	[A]	25	25	32	32	45	45	63	90	90	100	100
	110VDC	[A]	25	25	32	32	45	45	63	90	90	100	100
	220VDC	[A]	25	25	32	32	45	45	50	70	80	80	80
	440VDC	[A]	3	3	3	3	3.5	3.5	4	5	5	5	5
DC-2, 3, 5 Switching - 60°C													
Starting, reverse current	24VDC	[A]	25	25	32	32	45	45	63	90	90	100	100
braking, reversing, DC-5, 60ºC	48VDC	[A]	25	25	32	32	45	45	50	70	70	80	80
	60VDC	[A]	25	25	32	32	45	45	50	70	70	80	80
Shunt Wound	110VDC	[A]	20	20	25	25	30	30	35	70	70	80	80
3 Poles in Series	220VDC	[A]	6	6	6	10	15	15	20	25	25	30	30
	440VDC	[A]	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	24VDC	[A]	25	25	32	32	45	45	63	90	90	100	100
	48VDC	[A]	25	25	32	32	45	45	50	70	70	80	80
Series-wound Motors	60VDC	[A]	25	25	32	32	45	45	50	70	70	80	80
3 Poles in Series	110VDC	[A]	20	20	25	25	30	30	35	70	70	80	80
	220VDC	[A]	6	6	6	10	15	15	20	25	25	30	30
	440VDC	[A]	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

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CA7 Ratings ❶

AC-6b			CA7-9	CA7-12	CA7-16	CA7-23	CA7-30	CA7-37	CA7-43	CA7-60	CA7-72	CA7-85	CA7-97
Capacitor Switching - 50Hz													
Single Capacitor - 40°C	230 V	[kVar]	8	8	8.5	9	14	14	24	28	28	28	28
	240 V	[kVar]	8	8	8.5	9	14	14	25	29	29	29	29
	400 V	[kVar]	8	8	10	12.5	20	24	35	48	48	48	48
	415 V	[kVar]	8	8	10	12.5	20	25	35	50	50	50	50
	500 V	[kVar]	8	8	10	12.5	20	25	35	50	55	60	60
	690 V	[kVar]	8	8	10	12.5	20	25	35	50	55	60	60
Single Capacitor - 60°C	230 V	[kVar]	8	8	8.5	9	12.5	12.5	18	28	28	28	28
	240 V	[kVar]	8	8	8.5	9	12.5	12.5	18	29	29	29	29
	400 V	[kVar]	8	8	10	12.5	20	21.5	30	42	48	48	48
	415 V	[kVar]	8	8	10	12.5	20	22	30	42	50	50	50
	500 V	[kVar]	8	8	10	12.5	20	25	30	42	50	55	55
	690 V	[kVar]	8	8	10	12.5	20	25	30	42	50	55	55
Capacitor Bank - 40°C ❷	230 V	[kVar]	5	5	8	9	12.5	14	20	28	28	28	28
	240 V	[kVar]	5	5	8	9	12.5	14	20	29	29	29	29
	400 V	[kVar]	5	5	8	10	15	20	25	40	48	48	48
	415 V	[kVar]	5	5	8	10	15	20	25	40	50	50	50
	500 V	[kVar]	5	5	8	10	15	20	25	40	50	50	50
	690 V	[kVar]	5	5	8	10	15	20	25	40	50	50	50
Capacitor Bank - 60°C ❷	230 V	[kVar]	5	5	8	9	12.5	12.5	18	28	28	28	28
	240 V	[kVar]	5	5	8	9	12.5	12.5	18	29	29	29	29
	400 V	[kVar]	5	5	8	10	15	20	25	40	48	48	48
	415 V	[kVar]	5	5	8	10	15	20	25	40	50	50	50
	500 V	[kVar]	5	5	8	10	15	20	25	40	50	50	50
	690 V	[kVar]	5	5	8	10	15	20	25	40	50	50	50
Capacitor Switching - 60Hz													
Single Capacitor - 40°C	200 V	[kVar]	5	5	8	9	12.5	14	20	28	28	28	28
	230 V	[kVar]	5	5	8	9	12.5	14	20	29	29	29	29
	460 V	[kVar]	5	5	8	10	15	20	25	40	50	50	50
	600 V	[kVar]	5	5	8	10	15	20	25	40	50	60	60
Capacitor Bank - 40°C ❷	200 V	[kVar]	5	5	8	9	12.5	12.5	18	28	28	28	28
	230 V	[kVar]	5	5	8	9	12.5	12.5	18	29	29	29	29
	460 V	[kVar]	5	5	8	10	15	20	25	40	50	50	50
	600 V	[kVar]	5	5	8	10	15	20	25	40	50	50	50
Capacitor Switching - cUL ❸													
	200 V	[kVar]	~	~	❹	~	~	❹	~	20	25	30	❺
	480 V	[kVar]	~	~	❹	~	~	❹	~	40	50	60	❺
	600 V	[kVar]	~	~	❹	~	~	❹	~	40	50	60	❺

CAQ7 Ratings ❹

IEC Ratings for Switching Capacitor Bank per IEC 60947-4 (AC-6b)

	1-phase 50 Hz (kVar)					3-phase 50 Hz (kVar)				
Capacitor Banks	230V 240V	400V	415V	500V	690V	230V 240V	400V	415V	500V	690V
- 40°C										
CAQ7-16(C)	5	8.5	9	10.5	15	8.5	15	15.5	18.5	25
CAQ7-37(C)	8	14	14.5	17.5	24	14	25	25	30	40
- 60°C										
CAQ7-16(C)	5	8.5	9	10.5	15	8.5	15	15.5	18.5	25
CAQ7-37(C)	8	14	14.5	17.5	24	14	25	25	30	40

3-Pole Capacitor Switching per UL/CSA

	1-phase 60 Hz (kVar)		3-phase 60 Hz (kVar)			
	115V	400V	200V	230V	460V	575V
CAQ7-16(C)	2.2	4.5	6.5	7.5	15	18.5
CAQ7-37(C)	3.6	7.5	11	12.5	20	25

❶ These CA7 capacitor ratings are provided for technical reference. For cUL rated and labeled devices, see CAQ7 contactors listed above.

❷ CA7-9…CA7-30 = L min. 30 µH; CA7-37…CA7-85 = L min. 6 µH

❸ CA7-60(D)…85(D) contactors do not require resistor packs (per footnote 4) or coils of wire (per footnote 2) to add inductance. KVar ratings shown here per UL file E41850-6-4 p.4A. Standard HP rated cUL label is provided on the contactors.

❹ CAQ7 contactors incorporate a built-in set of resistors and early-make contacts, wired in parallel with the power contacts. This manages the peak inrush common with capacitor switching. The circuitry is housed in a front mounted add-on deck. CAQ contacts have capacitor switching (kVar) rated labels.

❺ To be determined - Data not available at time of this printing.

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Electrical Data

			CA7-9	CA7-12	CA7-16	CA7-23	CA7-30	CA7-37	CA7-43	CA7-60	CA7-72	CA7-85	CA7-97
Resistance and Watt Loss I_e AC3													
Resistance per power pole		[mΩ]	2.7	2.7	2.7	2.0	2.0	2.0	1.5	0.9	0.9	0.9	0.9
Watt Loss - 3 power poles		[W]	0.66	1.2	2.1	3.2	5.4	8.2	8.3	9.7	14.0	19.5	19.5
Coil and 3 power poles	AC	[W]	3.3	3.8	4.7	6.2	8.4	11.2	11.5	11	13.8	17.5	17.5
	DC	[W]	6.7	7.2	8.1	12.4	14.6	17.4	18.4	11	13.8	17.5	17.5
Coil only	AC	[W]	2.6	2.6	2.6	3.0	3.0	3.0	3.2	4.5	4.5	4.5	4.5
	DC	[W]	6.0	6.0	6.0	9.2	9.2	9.2	10.0	4.9	4.9	4.9	4.9
Short-Circuit Coordination													
Max. Fuse or circuit breaker ratings													
DIN Fuses -gG, gL													
Available Fault Current		[A]	50 KA	50 KA	50 KA	50 KA	50 KA	50 KA	50 KA	50 KA	50 KA	50 KA	50 KA
Type "1" (690V) ❸		[A]	50	50	50	80	125	125	160	250	250	250	250
Type "2" (690V) ❸		[A]	25	35	35	40	80	80	100	160	160	160	200
BS 88 Fuses													
Available Fault Current		[A]	50 KA	50 KA	50 KA	50 KA	50 KA	50 KA	50 KA	50 KA	50 KA	50 KA	❹
Type "1" (690V) ❸		[A]	25	32	35	50	63	80	100	100	125	160	❹
Type "2" (690V) ❸		[A]	25	32	35	50	63	80	100	100	125	160	❹
cUL Short-Circuit Ratings													
Class K1, RK1, K5, and RK5 Fuses													
Available Fault Current		[A]	5 KA	5 KA	5 KA	5 KA	5 KA	5 KA	5 KA	5 KA	10 KA	10 KA	10 KA
cUL Max. Rating (600V) ❷ Type 1		[A]	35	40	70	90	110	125	150	200	250	300	350
Class CC & CSA HRCI Fuses													
Available Fault Current		[A]	100 KA	100 KA	100 KA	100 KA	~	~	~	~	~	~	~
cUL Max. Rating (600V) ❷ Type 2		[A]	15	20	30	30	~	~	~	~	~	~	~
Class J CSA & HRCI-J Fuses													
Available Fault Current		[A]	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	❹
cUL Max. Rating (600V) Type 2		[A]	15	20	30	30	50	50	70	80	100	150	❹
Inverse-Time Circuit Breaker ❶													
Available Fault Current		[A]	5 KA	5 KA	5 KA	5 KA	5 KA	5 KA	5 KA	5 KA	10 KA	10 KA	10 KA
cUL Max. Rating 480V ❷ Type 1		[A]	30	30	50	50	125	125	125	200	250	250	250
cUL Max. Rating 600V ❷ Type 1		[A]	~	~	~	~	125	125	125	200	250	250	250
Short Time Current Withstand Ratings													
I_{cw} 60° C	10 s	[A]	170	170	170	215	300	304	375	700	700	700	840
Off Time Between Operations		[Min.]	20	20	20	20	20	20	20	20	20	20	20

❶ When used as a Branch Circuit Protection device, NEC 430-152 defines the maximum rating of an Inverse-time circuit breaker to be sized at 250% of the motor nameplate FLA for most applications.

❷ UL Listed Combination. (UL File E41850) Per UL508A, NEC409 abd CSA 22.2 No.14 for contactor and fuses or circuit breaker only.

❸ Per IEC 60947-1 for contactor and fuses only.

❹ To be determined - Test data not available at time of this printing.

Short Circuit Ratings

High Fault Short Circuit Ratings per UL508 and CSA 22.2 No.14

CEP7 Second Generation Cat. No.		Contactor Cat. No.	Max. starter FLC (A)	Fuse Ratings			UL Listed Circuit Breaker Ratings ❶		
				Max. available fault current (kA)	Max. voltage (V)	UL Class J, CC, CSA HRCI-J fuse max. (A)	Short Circuit Rating (kA)	Max. voltage (V)	Max. CB Rating (A)
CEP7	ED1AB, EEAB	CA7-09	0.5	100	600	3	5 ~	480 600	30 ~
	ED1BB, EEBB		1			6			
	ED1CB, ED1DB, ED1EB, EEEB, EECB, EEDB	CA7-09	09			20			
		CA7-12 CAN7-12	12			20			
		CA7-16 CAN7-16	16	100	600	30	5 ~	480 600	50 ~
		CA7-23	23			30			
	ED1ED, ED1FD, EEED, EEFD	CA7-30	30	100	600	50	50 30	480 600	50 50
		CA7-37 CAN7-37	37			50			
		CA7-43 CAN7-43	43			70			
	EEEE, EEFE EEGE	CA7-60	60	100	600	80	65 ~	480 600	100 ~
		CA7-72	72			100			
		CA7-85 CAN7-85	85			150			
	EEVE	CA7-97	97	❺	❺	❺	10	600	250

UL508 Tested Combination Assemblies - Motor Circuit Protector (HMCP per UL 489) - Magnetic Only ❷❸

Motor 3 ph [HP]	Eaton MCP Catalog Number (Max)	Magnetic Setting [A]	Contactor Catalog Number	Overload Relay Catalog Number	Rated Short-Circuit Current		IEC Coordination Type
					460 V 60 Hz (480 V line)	575 V 60 Hz (600 V line)	
1/2 to 3	HMCPE050K2C	3 - 10X	CA7-30-10-*	CEP7-EECD	65kA	30kA	Type 2
5 to 20	HMCPE050K2C	3 - 10X	CA7-30-10-*	CEP7-EEDB	65kA	30kA	Type 2
25	HMCPE050K2C	3 - 10X	CA7-37-10-*	CEP7-EEFD	65kA	30kA	Type 2
30	HMCPE050K2C	3 - 10X	CA7-43-10-*	CEP7-EEFD	65kA	30kA	Type 2
40	HMCPE100R3C	3 - 10X	CA7-60-10-*	CEP7-EEGE	65kA	30kA	Type 2
50	HMCPE100R3C	3 - 10X	CA7-72-10-*	CEP7-EEGE	65kA	30kA	Type 2
60	HMCPE100R3C	3 - 10X	CA7-85-10-*	CEP7-EEGE	65kA	30kA	Type 2
❺	❺	❺	CA7-97-10-*	CEP7-EEVE	❺	❺	❺

UL508 Tested Combination Assemblies - Molded Case Circuit Breakers (MCCB per UL 489) - Thermal-Magnetic ❷❸

Motor 3 ph [HP]	Eaton MCCB Catalog Number (Max)	Magnetic Setting [A]	Contactor Catalog Number	Overload Relay Catalog Number	Rated Short-Circuit Current		IEC Coordination Type
					460 V 60 Hz (480 V line)	575 V 60 Hz (600 V line)	
1/2 to 2	EGH3050FFG	500	CA7-30-10-*	CEP7-EECD	65kA	30kA	Type 1 ❹
3 to 20	EGH3050FFG	500	CA7-30-10-*	CEP7-EEDB	65kA	30kA	Type 1 ❹
25	EGH3050FFG	500	CA7-37-10-*	CEP7-EEFD	65kA	30kA	Type 1 ❹
30	EGH3050FFG	500	CA7-43-10-*	CEP7-EEFD	65kA	30kA	Type 1 ❹
40	EGH3110FFG	1100	CA7-60-10-*	CEP7-EEGE	65kA	30kA	Type 1
50	EGH3110FFG	1100	CA7-72-10-*	CEP7-EEGE	65kA	30kA	Type 1
60	EGH3110FFG	1100	CA7-85-10-*	CEP7-EEGE	65kA	30kA	Type 1
❺	❺	❺	CA7-97-10-*	CEP7-EEVE	❺	❺	❺

❶ Various Mfg. of UL Listed Circuit Breakers may be used.
❷ UL File pending approval at the time of this catalog printing. Refer to UL website at http://ul.com/controlequipment/shortcircuit.html.
❸ UL508 Tested combinations may not be substituted, ie: Eaton Breakers with Sprecher+Schuh contactors and overloads are specified.
❹ Type 2 Coordination when contactor is upsized to CA6-210.
❺ To be determined - Test data not available at time of this printing.

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Short Circuit Ratings

Standard Fault Short Circuit Ratings per UL508 and CSA 22.2 No.14

CEP7 Second Generation Cat. No.		Max. available fault current (kA)	Conditional S.C. current, Iq (kA)	S.C.P.D.
CEP7	ED1AB, EEAB ED1BB, EEBB	1	600V Max. Voltage	Suitable for use with fuses only
	ED1CB, ED1DB, ED1EB, ED1ED, ED1FD, EECB, EEDB, EEEB, EEED, EEFD, EEPB, EERB, EESB, EETD	5		Not restricted to fusing only
	EEEE, EEFE, EEGE, EEUE	10		

IEC Short Circuit Ratings per EN60947-4-1

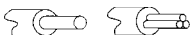
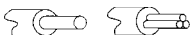
CEP7 Second Generation Cat. No.		Prospective S.C. current, Ir (kA)	Conditional S.C. current, Iq (kA)	Max. voltage (V)	S.C.P.D.
CEP7	ED1AB, EEAB ED1BB, EEBB	1	100	690	Suitable for use with fuses only
	ED1CB, ED1DB, EECB, EEDB, EEPB, EERB	1			Not restricted to fusing only
	ED1EB, EEEB, ED1ED, ED1FD, EEED, EEFD, EEEE, EEFE, EESB, EETD	3			
	EEGE, EEUE	5			

IEC Type 1 and Type II Fuse Coordination with CA7 Series contactors per EN60947-4-1

CEP7 Second Generation Cat. No.		Contactor Cat. No.	Max. starter FLC (A)	Prospective S.C. current, Ir (kA)	Conditional S.C. current, Iq (kA)	Max. voltage (V)	Type I with Class J fuse max. (A)	Type II with Class J fuse max. (A)
CEP7	ED1AB, EEAB	CA7-09	0.5	1	100	600	3	3
	ED1BB, EEBB		1				6	6
	ED1CB, ED1DB, EECB, EEDB	CA7-09	09	1			20	15
		CA7-12	12				20	20
		CA7-16	16				30	30
		CA7-23	23				30	30
	ED1EB, EEEB	CA7-09	09	3			20	15
		CA7-12	12				20	20
		CA7-16	16				30	30
		CA7-23	23				30	30
	ED1ED, ED1FD, EEED, EEFD	CA7-30	30	3			50	50
		CA7-37	37				50	50
		CA7-43	43				70	70
	EEEE, EEFE	CA7-60	60	3			80	80
		CA7-72	72				100	100
		CA7-85	85				150	150
	EEGE	CA7-60	60	5			80	80
		CA7-72	72				100	100
		CA7-85	85				150	150
	EEVE	CA7-97	97	❶	❶	❶	❶	❶

❶ To be determined - Test data not available at time of this printing.

Electro-Mechanical Data

			CA7-9	CA7-12	CA7-16	CA7-23	CA7-30	CA7-37	CA7-43	CA7-60	CA7-72	CA7-85	CA7-97
Service Life													
Mechanical	AC	[Mil.]	13	13	13	13	13	13	12	6	6	6	6
	DC	[Mil.]	13	13	13	13	13	13	13	6	6	6	6
Electrical AC-3 (400V)	AC	[Mil.]	1.3	1.3	1.3	1.3	1.3	1.3	1.0	1.0	1.0	1.0	1.0
Shipping Weights													
AC - CA7		[kg]	0.39	0.39	0.39	0.39	0.48	0.49	0.51	1.45	1.45	1.45	1.45
		[Lbs.]	0.86	0.86	0.86	0.86	1.06	1.08	1.12	3.20	3.20	3.20	3.20
AC -CAU7		[kg]	0.85	0.85	0.85	0.85	1.08	1.08	1.15	3.14	3.14	3.14	3.14
		[Lbs.]	1.89	1.89	1.89	1.89	2.39	2.39	2.54	6.92	6.92	6.92	6.92
DC - CA7		[kg]	0.60	0.60	0.60	0.73	0.85	0.85	1.00	1.47	1.47	1.47	1.47
		[Lbs.]	1.32	1.32	1.32	1.61	1.87	1.87	2.20	3.24	3.24	3.24	3.24
DC - CAU7		[kg]	1.27	1.27	1.27	1.53	1.81	1.81	2.13	3.22	3.22	3.22	3.22
		[Lbs.]	2.81	2.81	2.81	3.39	4.00	4.00	4.70	7.10	7.10	7.10	7.10
Terminations - Power													
Description													
			One saddleclamp per pole: cross, slotted or Pozidrive No. 2/blade No. 3 screw				Dual connection; one saddleclamp and one box lug per pole; cross, slotted or Pozidrive No. 2/blade No. 4 screw			Dual connection; two box lugs per pole Allen Head: 4mm, 5/32			
	1 Wire	[mm²]	1...4	1...4	1...4	1...4	2.5...10	2.5...10	2.5...16	2.5...35	2.5...35	2.5...35	2.5...35
	2 Wires	[mm²]	1...4	1...4	1...4	1...4	2.5...10	2.5...10	2.5...10	2.5...25	2.5...25	2.5...25	2.5...25
	1 Wire	[mm²]	1.5...6	1.5...6	1.5...6	1.5...6	2.5...16	2.5...16	2.5...25	2.5...50	2.5...50	2.5...50	2.5...50
	2 Wires	[mm²]	1.5...6	1.5...6	1.5...6	1.5...6	2.5...16	2.5...16	2.5...16	2.5...35	2.5...35	2.5...35	2.5...35
	1 Wire	[AWG]	16...10	16...10	16...10	16...10	14...4	14...4	14...4	14...1	14...1	14...1	14...1
	2 Wires	[AWG]	16...10	16...10	16...10	16...10	14...4	14...4	14...4	14...1	14...1	14...1	14...1
Torque Requirement		[Nm]	1.5...2.5	1.5...2.5	1.5...2.5	1.5...2.5	2.5...3.5	2.5...3.5	2.5...3.5	4.5...6	4.5...6	4.5...6	4.5...6
		[Lb-in]	9...22	9...22	9...22	9...22	22...31	22...31	22...31	40...53	40...53	40...53	40...53
Terminations - Control													
Description													
			Combination Screw Head: Cross, Slotted, Pozidrive										
Coils	1 or 2	[mm²]	1.5...6										
Wires		[AWG]	16...12										
Control Modules	1or 2	[mm²]	1.5...6										
Wires		[AWG]	16...12										
Torque Requirement		[Nm]	1...2.5										
		[Lb-in]	9...13										
Degree of Protection - contactor			IP 2LX per IEC 529 and DIN 40 050 (with wires installed)										
Protection Against Accidental Contact			Safe from touch by fingers and back-of-hand per VDE 0106; Part 100										

Environmental and General Specifications

Ambient Temperature	
Storage	-55...+80˚ C (-67...176˚ F) - [CRI7E Electronic Interface -50...+80˚ C (-58...176˚ F)]
Operation	-25...+60˚ C (-13...140˚ F)
Conditioned 15% current reduction after AC-1 at >60˚ C	-25...+70˚ C (-13...158˚ F)
Altitude at installed site	2000 meters above sea level per IEC 947-4
Resistance to Corrosion/Humidity	Damp-alternating climate: cyclic to IEC 68-2, 56 cycles Dry heat: IEC 68-2, +100˚C (212˚ F), relative humidity <50%, 7 days. Damp tropical: IEC 68-2, +40˚C (104˚F), relative humidity <92%, 56 days.
Shock Resistance	IEC 68-2: Half sinusoidal shock 11ms, 30g (in all three directions)
Vibration Resistance	IEC 68-2: Static > 2g, in normal position no malfunction <5g
Pollution Degree	3
Operating Position	Refer to Dimension Pages
Standards	IEC947-1/4, EN 60947; UL 508; CSA 22.2, No. 14
Approvals	CE, UL, CSA

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Lug Kit and Paralleling Link Specifications

			CA7-P-KN23 / KL23	CA7-P-K37	CA7-P-K43	CA7-P-K85	CA7-P-B23	CA7-P-B37
Approvals					UL Listed; CSA Certified; C			
Conformity to Standards					UL508; CSA 22.2 No. 14; IEC 60947-4			
Protection Against Accidental Contact					IP2LX Finger Protection			
Terminations								
Description			Cross, slotted or Pozidrive screw		Allen Head; 5mm, 3/16		Allen Head; 7 mm, 15/32	
Wire Size								
	1 Wire	[mm²]	4...16	4..16	6...35	10...70	35...70	35...70
	1 Wire	[mm²]	4...25	4..25	6...50	10...95	35...95	35...95
	1 Wire	[AWG]	10...4	10...4	8...2	8..2/0	0...2/0	0...2/0
Torque Requirement		[Nm]	2...3	2...3	3..6	8...12	6...12	6....12
		[Lb-in]	18...27	18...27	27...54	72...108	54...108	54...108

Coil Data

			CA7-9	CA7-12	CA7-16	CA7-23	CA7-30	CA7-37	CA7-43	CA7-60	CA7-72	CA7-85	CA7-97
Voltage Range													
AC: 50Hz, 60Hz, 50/60 Hz	Pickup	[xU_s]					0.85...1.1						
	Dropout	[xU_s]					0.3...0.6						
DC, True & Two Winding	Pickup	[xU_s]					0.8...1.1 (9V coils = 0.65...1.3; 24V coils = 0.7...1.25)						
	Dropout	[xU_s]					0.1...0.6						
DC, Electronic Coil (9E…43E)	Pickup	[xU_s]					0.7…1.25						
	Dropout	[xU_s]					0.1...0.5						
Coil Consumption													
AC: 50Hz, 60Hz, 50/60 Hz	Pickup	[VA/W]	70/50	70/50	70/50	70/50	80/60	80/60	130/90	200/110	200/110	200/110	400/240
	Hold-in	[VA/W]	8/2.6	8/2.6	8/2.6	9/3	9/3	9/3	10/3.2	16/4.5	16/4.5	16/4.5	24/9
True DC Coils (CA7C)	Pickup	[W]	6.5	6.5	6.5	9.2	9.2	9.2	10.1	~	~	~	~
	Hold-in	[W]	6.5	6.5	6.5	9.2	9.2	9.2	10.1	~	~	~	~
Two Winding DC Coils	Pickup	[W]	120	120	120	200	200	200	200	200	200	200	325
CA7Y & CA7D	Hold-in	[W]	1.1	1.1	1.1	1.2	1.2	1.2	1.3	4.5	4.5	4.5	5.5
DC, Electronic Coil (9E…43E)❷	Pickup Avg	[W]	10	10	10	10	10	10	12	~	~	~	~
	Pickup Peak	[W]	22	22	22	22	22	22	28				
	Hold-in	[W]	1.5	1.5	1.5	1.5	1.5	1.5	2.5	~	~	~	~
Operating Times													
AC: 50Hz, 60Hz, 50/60 Hz	Pickup	[ms]	15...30	15...30	15...30	15...30	15...30	15...30	15...30	20...40	20...40	20...40	20...40
	Dropout	[ms]	10...60	10...60	10...60	10...60	10...60	10...60	10...60	10...60	10...60	10...60	20...40
with RC Suppressor	Dropout	[ms]	10...60	10...60	10...60	10...60	10...60	10...60	10...60	10...60	10...60	10...60	20...40
True DC Coils (CA7C)	Pickup	[ms]	40...70	40...70	40...70	40...70	50...80	50...80	50...80	~	~	~	~
without Suppression	Dropout	[ms]	7...15	7...15	7...15	7...15	7...15	7...15	7...15	~	~	~	~
with Integrated Suppression	Dropout	[ms]	14...20	14...20	14...20	17...23	17...23	17...23	17...23	~	~	~	~
with External Suppression	Dropout	[ms]	70...95	70...95	70...95	80...125	80...125	80...125	80...125	~	~	~	~
Two Winding DC Coils (CA7Y/D)	Pickup	[ms]	17...26	17...26	15...27	15...27	15...27	15...27	15...27	20...40	20...40	20...40	15...25
with Internal Suppression	Dropout	[ms]	9...20	9...20	14...24	14...24	14...24	14...24	14...24	20...35 ❶	20...35 ❶	20...35 ❶	15...25 ❶
DC, Electronic Coil (9E…43E)	Pickup	[ms]	20...40	20...40	20...40	20...40	20...40	20...40	20...40	~	~	~	~
	Dropout	[ms]	20...40	20...40	20...40	20...40	20...40	20...40	20...40	~	~	~	~

❶ ≤ 220V.

❷ The hold-in demand of the CA7-9E…43E is very low but the pick-up demand is approximately 1 ampere at 24 VDC. When sizing (dimensioning) a power supply for applications involving parallel switched contactors then multiply the peak demand by the number of contactors to be simultaneously switched and add to the hold-in demand of all other control circuit burdens, including other contactors, pilot devices, solenoids, etc.

Electrical Data

			CA7-9-M40(31; 22)	CA7-12-M40(31; 22)	CA7-16-M40(31; 22)	CA7-23-M40(31; 22)	CA7-40-M22	CA7-40-M40	CA7-90-M22	CA7-90-M40
Rated Insulation Voltage U_i										
IEC, AS, BS, SEV, VDE 0660							690V			
UL; CSA							600V			
Rated Impulse Voltage U_{imp}							8 kV			
Rated Voltage U_e - Main Contacts										
AC 50/60Hz						115, 200, 208, 230, 240, 380, 400, 415, 460, 500, 575, 690V				
DC						24, 48, 110, 115, 220, 230, 300, 440V				
Operating Frequency for AC Loads							50...60Hz			
Switching Motor Loads										
Standard IEC Ratings										
AC-2, AC-3, AC-4	230V	[A]	12	15	20	26.5	38	38	85	85
DOL & Reversing	240v	[A]	12	15	20	26.5	38	38	85	85
50Hz/60ºC	400V	[A]	9	12	16	23.	37	37	85	85
	415V	[A]	9	12	16	23	37	37	85	85
	500V	[A]	7	10	14	20	29	30	80	80
	690V	[A]	5	7	9	12	9	21	22	49
	230V	[kW]	3	4	5.5	7.5	11	11	25	25
	240V	[kW]	3	4	5.5	7.5	11	11	25	25
	400V	[kW]	4	5.5	7.5	11	18.5	18.5	45	45
	415V	[kW]	4	5.5	7.5	11	18.5	18.5	45	45
	500V	[kW]	4	5.5	7.5	13	18.5	20	55	55
	690V	[kW]	4	5.5	7.5	10	7.5	18.5	18.5	45
UL/CSA/IEC										
DOL & Reversing	115V	[A]	7.2	9.8	16	24	34	34	80	80
60Hz/60ºC 1Ø	230V	[A]	18	12	17	17	28	28	68	68
	115V	[HP]	1/2	1/2	1	2	3	3	7-1/2	7-1/2
	230V	[HP]	1-1/2	2	3	3	5	5	15	15
	200V	[A]	7.8	11	17.5	17.5	32.2	32.2	78.2	78.2
	230V	[A]	6.8	9.6	15.2	22	28	28	80	80
	460V	[A]	7.6	11	14	21	34	34	65	77
	575V	[A]	9	11	17	17	17	32	22	52
	200V	[HP]	2	3	5	5	10	10	25	25
	230V	[HP]	2	3	5	7-1/2	10	10	30	30
	460V	[HP]	5	7-1/2	10	15	25	25	50	60
	575V	[HP]	7-1/2	10	15	15	15	30	20	50
Maximum Operating Rate	AC2	[ops/hr]	450	450	450	400	400	400	200	200
(at max. amps)	AC3	[ops/hr]	700	700	700	600	600	600	500	500
	AC4	[ops/hr]	200	150	120	80	70	70	50	50

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Electrical Data

			CA7-9-M40(31; 22)	CA7-12-M40(31; 22)	CA7-16-M40(31; 22)	CA7-23-M40(31; 22)	CA7-40-M22	CA7-40-M40	CA7-90-M22	CA7-90-M40
AC-1 Load, 3Ø Switching		[A]								
Ambient Temperature 40ºC	I_{th}	[kW]	32	32	32	32	75	75	130	130
	230V	[kW]	13	13	13	13	30	30	52	52
	240V	[kW]	13	13	13	13	31	31	54	54
	400V	[kW]	22	22	22	22	52	52	90	90
	415V	[kW]	23	23	23	23	54	54	93	93
	500V	[kW]	28	28	28	28	65	65	113	113
	690V	[kW]	38	38	38	38	90	90	155	155
	I_{th}	[kW]	32	32	32	32	60	60	110	110
	230V	[kW]	13	13	13	13	24	24	44	44
Ambient Temperature 60º	240V	[kW]	13	13	13	13	25	25	46	46
	400V	[kW]	22	22	22	22	42	42	76	76
	415V	[kW]	23	23	23	23	43	43	79	79
	500V	[kW]	28	28	28	28	52	52	95	95
	690V	[kW]	38	38	38	38	72	72	131	131
Max Operating Rate		[ops/hour]	1,000	1,000,	1,000,	1,000	300	300	600	600
Continuous Current (UL/CSA)										
General Purpose Rating (40º)	Open	[A]	25	25	30	30	60	60	125	130
	Enclosed	[A]	25	25	30	30	60	60	125	130
Max. Operating Rate		[ops/hour]	1,400	1,400	1,200	1,200	1,000	1,000	600	600
Lighting Loads ❶										
Elec. Dischrg.Lamps-AC-5a,	Open	[A]	22.5	25	28	29	65	65	115	115
single compensated	Enclosed	[A]	22.5	25	28	29	54	54	95	95
Incandescent Lamps AC-5b, Electrical endurance~100,000 operations			12	16	18	22	18	25	60	75
DC-1 Switching - 60ºC	24VDC	[A]	25	25	32	32	45	45	80	80
	48VDC	[A]	20	20	20	20	25	25	40	40
1 Pole	60VDC	[A]	20	20	20	20	25	30	40	40
	110VDC	[A]	6	6	6	6	10	10	11	11
	220VDC	[A]	1.5	1.5	1.5	1.5	1.5	1.5	1.8	1.8
	440VDC	[A]	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5
	24VDC	[A]	25	25	32	32	45	45	80	80
	48VDC	[A]	25	25	32	32	45	45	80	80
2 Pole in Series	60VDC	[A]	25	25	32	32	45	45	80	80
	110VDC	[A]	25	25	32	32	45	45	80	80
	220VDC	[A]	8	8	8	8	10	10	15	15
	440VDC	[A]	1	1	1	1	1	1	1.5	1.5
	24VDC	[A]	25	25	32	32	~	48	~	100
	48VDC	[A]	25	25	32	32	~	48	~	100
3 Poles in Series	60VDC	[A]	25	25	32	32	~	48	~	100
	110VDC	[A]	25	25	32	32	~	48	~	100
	220VDC	[A]	25	25	32	32	~	48	~	80
	440VDC	[A]	3	3	3	3	~	3.5	~	5
	24VDC	[A]	25	25	32	32	~	60	~	110
	48VDC	[A]	25	25	32	32	~	60	~	110
4 Poles in Series	60VDC	[A]	25	25	32	32	~	60	~	110
	110VDC	[A]	25	25	32	32	~	60	~	110
	220VDC	[A]	25	25	32	32	~	60	~	100
	440VDC	[A]	8	8	8	8	~	10	~	15

❶ CA7 ratings for lighting loads are provided for technical reference. For cUL rated and labeled devices, see CAL7 contactors listed in this section.

Electrical Data

			CA7-9-M40 (31; 22)	CA7-12-M40 (31; 22)	CA7-16-M40 (31; 22)	CA7-23-M40 (31;22)	CA7-40-M22	CA7-40-M40	CA7-90-M22	CA7-90-M40
Resistance and Watt Loss I_e AC3										
Resistance per power pole		[mΩ]	2.7	2.7	2.7	2.0	2.0	1.5	0.8	0.7
Watt Loss - 4 power poles		[W]	2.8	2.8	2.8	2.0	11.3	8.4	13.5	11.8
Coil and 4 power poles	AC	[W]	13.7	13.7	13.7	10.8	26.1	37.4	36.0	56.3
	DC (true)	[W]	17.6	17.6	17.6	17.4	32.6	43.9	~	~
	DC (2 winding)	[W]	~	~	~	~	~	~	32.5	52.8
Short Circuit Coordination										
DIN Fuses -gG, gL										
Available Fault Current		[A]	100 KA	100 KA	100 KA	100 KA	50 KA	50 KA	50 KA	50 KA
Type "1" (690V) ❸		[A]	50	50	50	80	160	160	250	250
Type "2" (690V) ❸		[A]	25	35	35	40	100	100	160	160
BS 88 Fuses										
Available Fault Current		[A]	80 KA	80 KA	80 KA	80 KA	~	~	~	~
Type "1" (690V) ❸		[A]	25	32	35	50	~	~	~	~
Type "2" (690V) ❸		[A]	25	32	35	50	~	~	~	~
Class K1, RK1 Fuses										
Available Fault Current		[A]	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA
Type "2" (600V) ❸		[A]	15	20	20	30	70	70	100	100
cUL Short-Circuit Ratings										
Class K1, RK1, K5, and RK5 Fuses										
Available Fault Current		[A]	5 KA	5 KA	5 KA	5 KA	5 KA	5 KA	10 KA	10 KA
cUL Max. Rating (600V) ❷ Type 1		[A]	35	40	70	90	125	125	300	300
Class CC & CSA HRCI Fuses										
Available Fault Current		[A]	100 KA	100 KA	100 KA	100 KA	~	~	~	~
cUL Max. Rating (600V) ❷ Type 2		[A]	15	20	30	30	~	~	~	~
Class J CSA & HRCI-J Fuses										
Available Fault Current		[A]	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA
cUL Max. Rating (600V) ❷ Type 2		[A]	15	20	30	30	70 ❹	70 ❹	150 ❹	150 ❹
Inverse-Time Circuit Breaker ❶										
Available Fault Current		[A]	5 KA	5 KA	5 KA	5 KA	5 KA	5 KA	10 KA	10 KA
cUL Max. Rating 480V ❷ Type 1		[A]	30	30	50	50	125	125	250	250
cUL Max. Rating 600V ❷ Type 1		[A]	~	~	~	~	125	125	250	250
Short Time Current Withstand Ratings										
I_{cw} 60° C		[A]	170	170	170	215	304	304	700	700
Off Time Between Operations		[Min.]	20	20	20	20	5	5	5	5

❶ When used as a Branch Circuit Protection device, NEC 430-152 defines the maximum rating of an Inverse-time circuit breaker to be sized at 250% of the motor nameplate FLA for most applications.

❷ UL Listed Combination. (UL File E41850) Per UL508A, NEC409 abd CSA 22.2 No.14 for contactor and fuses or circuit breaker only.

❸ Per IEC 60947-1 for contactor and fuses only.

❹ UL Testing not complete a the time of printing this catalog.

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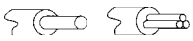
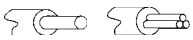
Mechanical Data

			CA7-9-M40(31; 22)	CA7-12-M40(31; 22)	CA7-16-M40(31; 22)	CA7-23-M40(31; 22)	CA7-40-M22	CA7-40-M40 CAL7-30-M40	CA7-90-M22	CA7-90-M40 CAL7-60-M40
Service Life										
Mechanical	AC	[Mil.]	13	13	13	13	10	10	10	10
	DC	[Mil.]	13	13	13	13	10	10	10	10
Shipping Weights										
AC - CA7		[kg]	0.39	0.39	0.39	0.39	0.51	0.51	1.45	1.45
		[Lbs.]	0.86	0.86	0.86	0.86	1.12	1.12	3.20	3.20
DC - CA7		[kg]	0.60	0.60	0.60	0.73	1.00	1.00	1.47	1.47
		[Lbs.]	1.32	1.32	1.32	1.61	2.20	2.20	3.24	3.24
Terminations - Power										
Description										
			One saddleclamp per pole: cross, slotted or Pozidrive No. 2/blade No. 3 screw				Dual connection; one saddleclamp and one box lug per pole; cross, slotted or Pozidrive No. 2/blade No. 4 screw		Dual connection; two box lugs per pole Allen Head: 4mm, 5/32	
	1 Wire	[mm²]	1...4	1...4	1...4	1...4	2.5...10	2.5...10	2.5...16	2.5...35
	2 Wires	[mm²]	1...4	1...4	1...4	1...4	2.5...10	2.5...10	2.5...10	2.5...25
	1 Wire	[mm²]	1.5...6	1.5...6	1.5...6	1.5...6	2.5...16	2.5...16	2.5...25	2.5...50
	2 Wires	[mm²]	1.5...6	1.5...6	1.5...6	1.5...6	2.5...16	2.5...16	2.5...16	2.5...35
	1 Wire	[AWG]	16...10	16...10	16...10	16...10	14...6	14..6	14...4	14...1
	2 Wires	[AWG]	16...10	16...10	16...10	16...10	14...6	14..6	14...4	14...1
Torque Requirement		[Nm]	1.5...2.5	1.5...2.5	1.5...2.5	1.5...2.5	2.5...4	2.5...4	2.5...4	3.5...6
		[Lb-in]	9...22	9...22	9...22	9...22	22...35	22...35	22...35	31...53
Terminations - Control										
Description										
			Combination Screw Head: Cross, Slotted, Pozidrive							
Coils	1 or 2	[mm²]	1.5...6							
Wires		[AWG]	16...12							
Control Modules	1or 2	[mm²]	1.5...6							
Wires		[AWG]	16...12							
Torque Requirement		[Nm]	1...2.5							
		[Lb-in]	9...13							
Degree of Protection - contactor			IP 2LX per IEC 529 and DIN 40 050 (with wires installed)							
Protection Against Accidental Contact			Safe from touch by fingers and back-of-hand per VDE 0106; Part 100							

Environmental and General Specifications

Ambient Temperature	
Storage	-55...+80˚ C (-67...176˚ F) - [CRI7E Electronic Interface -50...+80˚ C (-58...176˚ F)]
Operation	-25...+60˚ C (-13...140˚ F)
Conditioned 15% current reduction after AC-1 at >60˚ C	-25...+70˚ C (-13...158˚ F)
Altitude at installed site	2000 meters above sea level per IEC 947-4
Resistance to Corrosion/Humidity	Damp-alternating climate: cyclic to IEC 68-2, 56 cycles Dry heat: IEC 68-2, +100˚C (212˚ F), relative humidity <50%, 7 days. Damp tropical: IEC 68-2, +40˚C (104˚F), relative humidity <92%, 56 days.
Shock Resistance	IEC 68-2: Half sinusoidal shock 11ms, 30g (in all three directions)
Vibration Resistance	IEC 68-2: Static > 2g, in normal position no malfunction <5g
Pollution Degree	3
Operating Position	Refer to Dimension Pages
Standards	IEC947-1/4, EN 60947; UL 508; CSA 22.2, No. 14
Approvals	CE, UL, CSA

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Coil Data (CA7 4-Pole)

			CA7-9-M40(31; 22)	CA7-12-M40(31; 22)	CA7-16-M40(31; 22)	CA7-23-M40(31; 22)	CA7-40-M22	CA7-40-M40 CAL7-30-M40	CA7-90-M22	CA7-90-M40 CAL7-60-M40
Voltage Range										
AC: 50Hz, 60Hz, 50/60 Hz	Pickup	[xU_s]	0.85...1.1							
	Dropout	[xU_s]	0.3...0.6							
DC, True & Two Winding	Pickup	[xU_s]	0.8...1.1 (9V coils = 0.65...1.3; 24V coils = 0.7...1.25)							
	Dropout	[xU_s]	0.1...0.6							
DC, Electronic Coil (9E…40E)	Pickup	[xU_s]	0.7…1.25							
	Dropout	[xU_s]	0.1...0.5							
Coil Consumption										
AC: 50Hz, 60Hz, 50/60 Hz	Pickup	[VA/W]	70/50	70/50	70/50	70/50	130/90	130/90	400/240	400/240
	Hold-in	[VA/W]	8/2.6	8/2.6	8/2.6	9/3	12/3.6	12/3.6	24/9	24/9
True DC Coils (CA7C)	Pickup	[W]	6.5	6.5	6.5	9.2	10.1	10.1	~	~
	Hold-in	[W]	6.5	6.5	6.5	9.2	10.1	10.1	~	~
Two Winding DC Coils	Pickup	[W]	~	~	~	~	~	~	325	325
CA7Y & CA7D	Hold-in	[W]	~	~	~	~	~	~	5.5	5.5
DC, Electronic Coil (9E…40E)❶	Pickup Avg.	[W]	10	10	10	10	12	12	~	~
	Pickup Peak	[W[	22	22	22	22	28	28		
	Hold-in	[W]	1.5	1.5	1.5	1.5	2.5	2.5	~	~
Operating Times										
AC: 50Hz, 60Hz, 50/60 Hz	Pickup	[ms]	15...30	15...30	15...30	15...30	15...30	15...30	20...30	20...40
	Dropout	[ms]	10...60	10...60	10...60	10...60	10...60	10...60	20...40	20...40
with RC Suppressor	Dropout	[ms]	10...60	10...60	10...60	10...60	10...60	10...60	20...40	20...40
True DC Coils (CA7C)	Pickup	[ms]	40...70	40...70	40...70	40...70	50...80	50...80	~	~
without Suppression	Dropout	[ms]	7...15	7...15	7...15	7...15	7...15	7...15	~	~
with Integrated Suppression	Dropout	[ms]	14...20	14...20	14...20	17...23	~	~	~	~
with External Suppression	Dropout	[ms]	70...95	70...95	70...95	80...125	~	~	~	~
Two Winding DC Coils	Pickup	[ms]	~	~	~	~	~	~	15...20	15...25
with Internal Suppression	Dropout	[ms]	~	~	~	~	~	~	20...25	15...25
DC, Electronic Coil (9E…40E)	Pickup	[ms]	20...40	20...40	20...40	20...40	20...40	20...40	~	~
	Dropout	[ms]	20...40	20...40	20...40	20...40	20...40	20...40	~	~

❶ The hold-in demand of the CA7-9E…43E is very low but the pick-up demand is approximately 1 ampere at 24 VDC. When sizing (dimensioning) a power supply for applications involving parallel switched contactors then multiply the peak demand by the number of contactors to be simultaneously switched and add to the hold-in demand of all other control circuit burdens, including other contactors, pilot devices, solenoids, etc.

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Technical Information – Auxiliary Contact Data

		Mounted Standard Auxiliary	Built-in Auxiliary Contacts in Contactor CA7-9... CA7-23	Front Mounted Auxiliary Contacts CA7-PV, CS7-PV, CZE/A7, CV7	Front Mounted Bifurcated Auxiliary Contacts	Side Mounted Auxiliary Contacts CA-PA, CM7
Electrical Contact Ratings - NEMA			A600, P600	A600, Q600		A600, Q600
Min. Contact Rating			17V, 10 mA	17V, 5 mA	5V, 3 mA	17V, 10 mA
Contact Ratings - IEC AC-15 (solenoids, contactors) rated voltage IEC 60947-5-1		24V	10 A	6 A	3 A	6 A
		48V	10 A	6 A	3 A	6 A
		120V	10 A	6 A	3 A	6 A
		240V	10 A	5 A	3 A	5 A
		400V	6 A	3 A	2 A	3 A
		480V/500V	2.5 A	1.6 A	1.2 A	1.6 A
		600V	1 A	1 A	0.7 A	1 A
		690V	1 A	1 A	0.7 A	1 A
AC-12 (Control of resistive loads) IEC 60947-5-1	**40 °C**	I_{th}	20 A	10 A	10 A	10 A
		230V	8 kW			
		400V	14 kW			
		690V	24 kW			
	60 °C	I_{th}	20 A	6 A	6 A	6 A
		230V	8 kW			
		400V	14 kW			
		690V	24 kW			
DC-12 Switching DC Loads $L/R < 1$ ms, Resistive Loads IEC 60947-5-1		24V	12 A	12 A	6 A	6 A
		48V	9 A	9 A	3.2 A	3.2 A
		110V	3.5 A	3.5 A	0.45 A	0.45 A
		220V	0.55 A	0.55 A	0.18 A	0.18 A
		440V	0.2 A	0.2 A	0.1 A	0.1 A
DC-13 IEC 60947-5-1, Solenoids and contactors		24V	5 A	5 A	2.5 A	5 A
		48V	3 A	3 A	1.5 A	3 A
		110V	1.2 A	1.2 A	0.6 A	1.2 A
		220V	0.6 A	0.6 A	0.3 A	0.6 A
		440V	0.3 A	0.15 A	0.15 A	0.15 A

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Auxiliary Contacts

			Built-in Auxiliary Contacts in Contactor CA7-9...CA7-23	Front Mounted Auxiliary Contacts CA7-PV, CS7-PV, CZE/A7, CV7	Side Mounted Auxiliary Contacts CA-PA, CM7
Continuous Current Rating per UL/CSA					
Rated Voltage	AC	[V]	600 max.	600 max.	600 max.
Continuous Rating	40°C	[A]	10 A general purpose Heavy pilot duty (A600)	10 A general purpose Heavy pilot duty (A600)	10 A general purpose Heavy pilot duty (A600)
Continuous Rating	DC	[A]	5A, 600 max. Standard pilot duty (P600)	2.5A, 600 max. Standard pilot duty (Q600)	2.5A, 600 max. Standard pilot duty (Q600)
Short-Circuit Protection -gGFuse Type 2 Coordination		[A]	20	10	10
Rated Impulse Voltage U_{imp}		[kV]	8	8	6
Insulation Voltage (between control and load circuit) per DIN< VDE 0103, Part 101 (NAMUR recommendation)		[V]	380	440	440
Mechanically Linked Contacts (per IEC60947-5-1 ❶Annex L (SUVA Third-party certified)			Mutually unrestricted between all NO and NC contacts	Mutually unrestricted between all NO & NC contacts. CZE & CV7 not mechanically linked with contactor main contacts	Mutually unrestricted between all NO and NC contacts
Terminals					
Terminal Type					
Maximum Wire Size per IEC 947-1			2xA4	2xA4	2xA4
 Flexible with Wire-End Fernule	1 conductor	[mm²]	1...4	0.5...2.5	0.5...2.5
	2 conductor	[mm²]	1...4	0.75...2.6	0.75...2.6
 Solid/Stranded-Conductor	1 conductor	[mm²]	1.5...6	0.5...2.5	0.5...2.5
	2 conductor	[mm²]	1.5...6	0.75...2.6	0.75...2.6
Recommended Tightening Torque		[Nm]	1...2.5	1...15	1...15
Max. Wire Size per UL/CSA		[AWG]	16...10	18...14	18...14
Recommended Tightening Torque		[lb-in]	9...22	9...13	9...13

Accessories

Latch Attachment Release, CV7-11		
Coil Consumption	[VA/W] [W]	AC 45/40 DC 25W
Contact Signal Duration	[min/max]	0.03...15s
Time Attachment		
Reset Time		
at min. time setting	[ms]	10
at max. time setting	[ms]	70
Repeat Accuracy		±10%

Positively-Guided Contacts (Mechanically-linked)
SUVA Certified

- Restricted guidance guarantees without restrictions from contactor to auxiliary contact and auxiliary contact to contactor.❶

Contact Ratings *(Per NEMA/UL A600 & Q600)*

Standard	Circuit Voltage	Make (Amps/VA)	Break (Amps/VA	Continuous Amps
A600	120AC 240AC 480AC 600AC	60A/7200VA 30A/7200VA 15A/7200VA 12A/7200VA	6A/720VA 3A/720VA 1.5A/720VA 1.2A/720VA	10
Q600	125DC 250DC 301-600DC	0.55A/69VA 0.27A/69VA 0.1A/69VA	0.55A/69VA 0.27A/69VA 0.1A/69VA	25

❶ See Section G for additional details.

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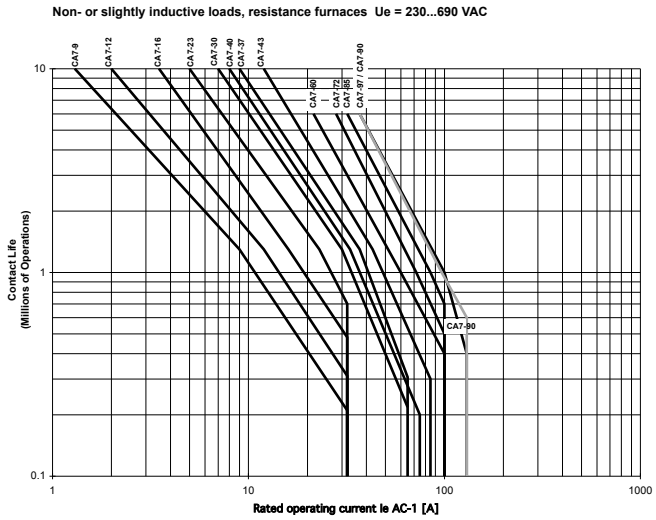
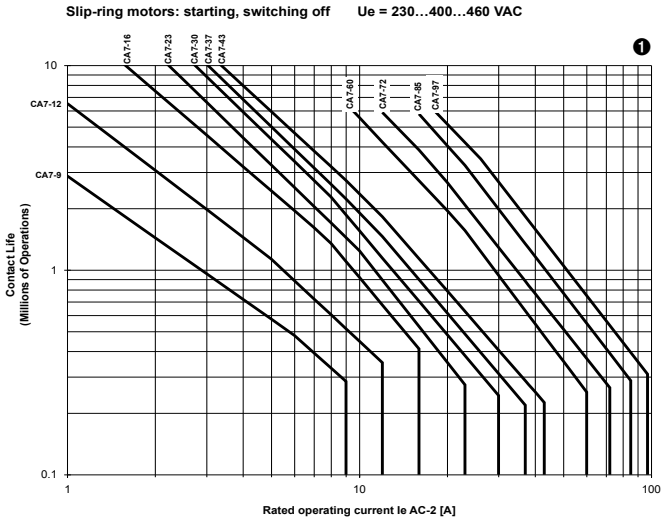
Life-Load Curves

- Locate the Rated Operational Current (I_e) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.
- Read the estimated contact life along the vertical axis.

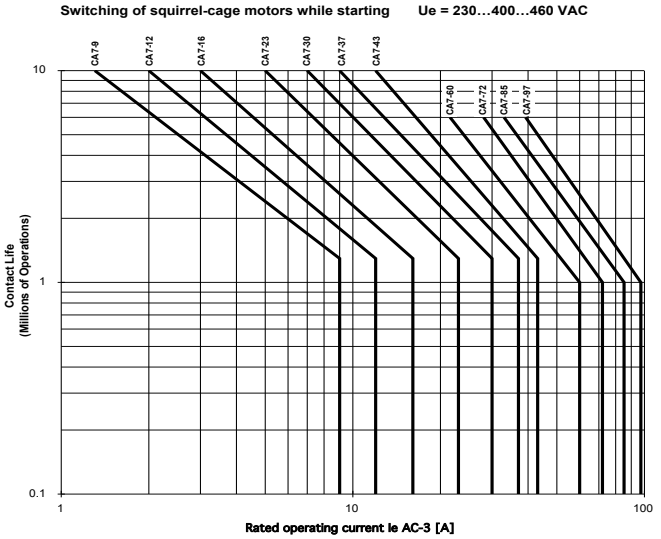
AC-1
(to 690V)



AC-2
(to 460V)



AC-3
(to 460V)



INSTRUCTIONS ON "HOW TO READ" LIFE CURVES CAN BE FOUND ON PAGE A7

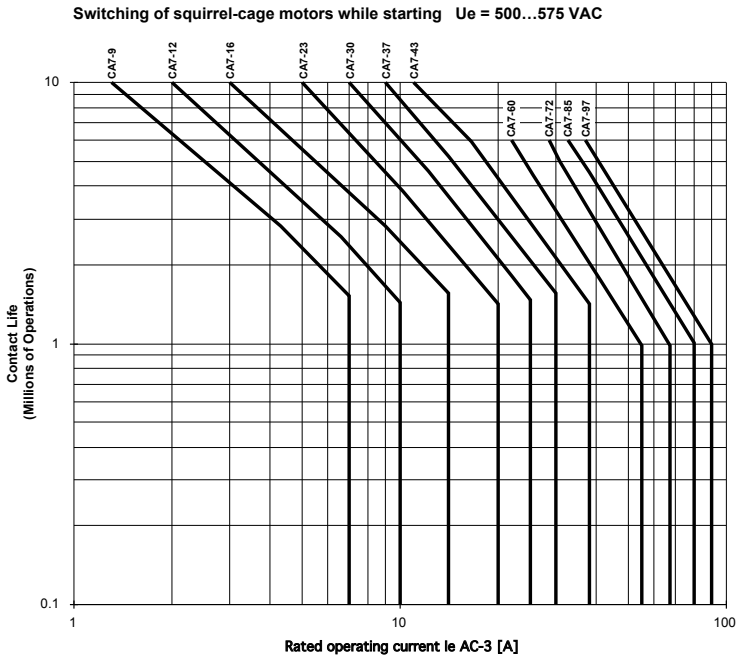
NOTE: The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 60947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

❶ 575V applications use 90% of curve value.

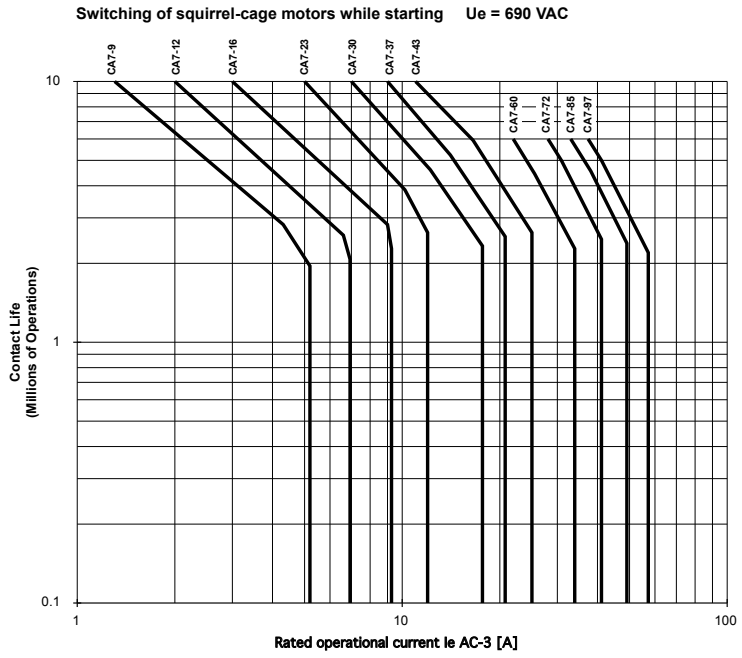
Life-Load Curves

- Locate the Rated Operational Current (I_e) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.
- Read the estimated contact life along the vertical axis.

AC-3
(to 575)



AC-3
(to 690V)



NOTE: The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 60947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

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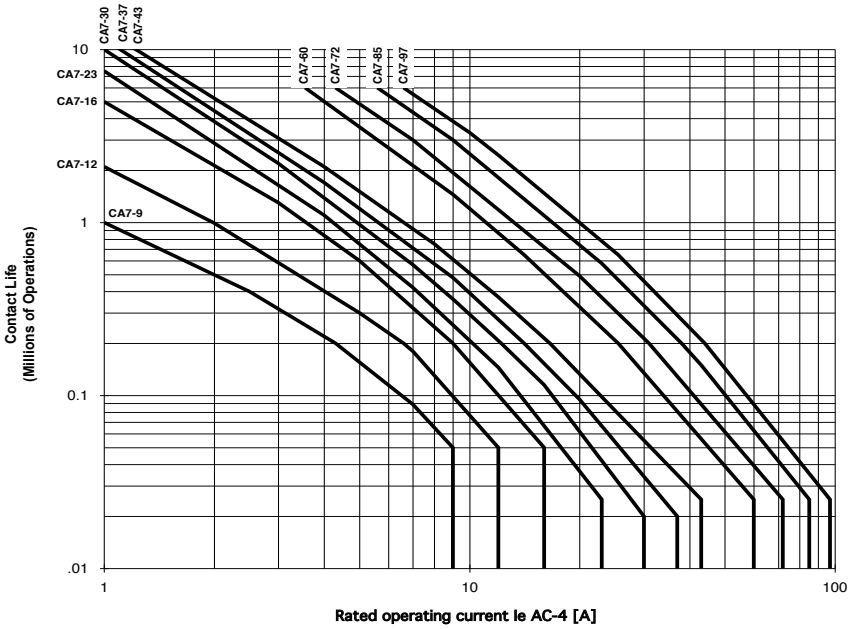
Life-Load Curves

- Locate the Rated Operational Current (I_e) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.
- Read the estimated contact life along the vertical axis.

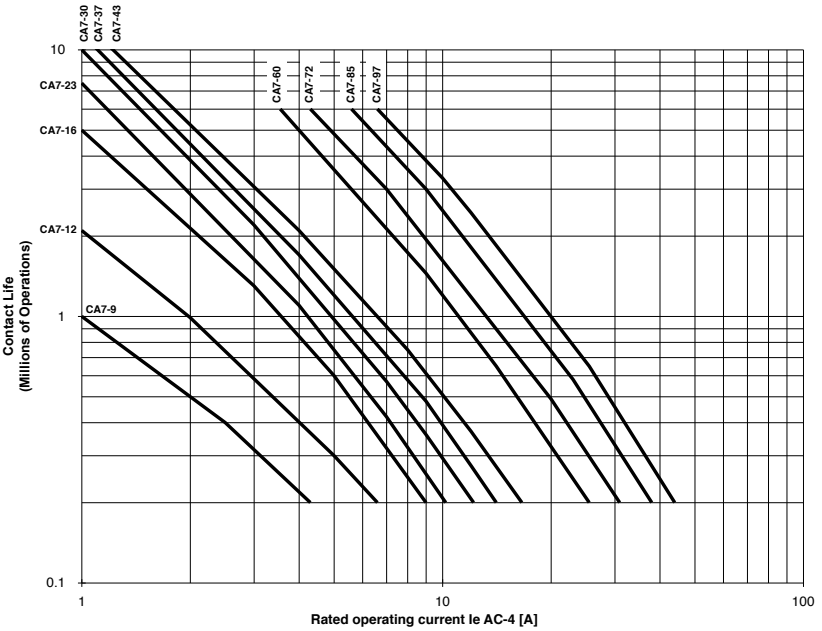
AC-4
(230…460\

Squirrel-cage motors: starting, plugging, inching Ue = 230…460 VAC



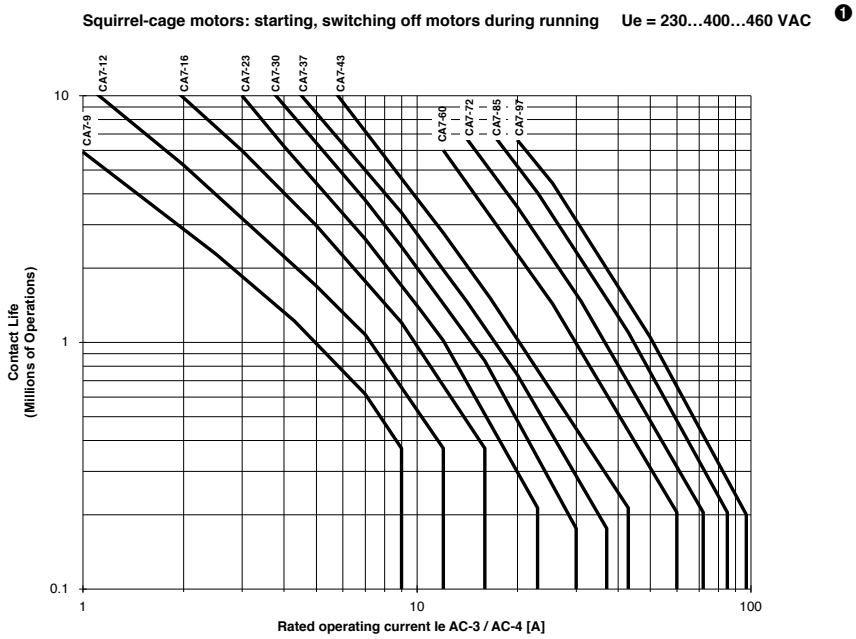
AC-3
(to 690V)

Squirrel-cage motors: starting, plugging, inching UE = 230…690 VAC

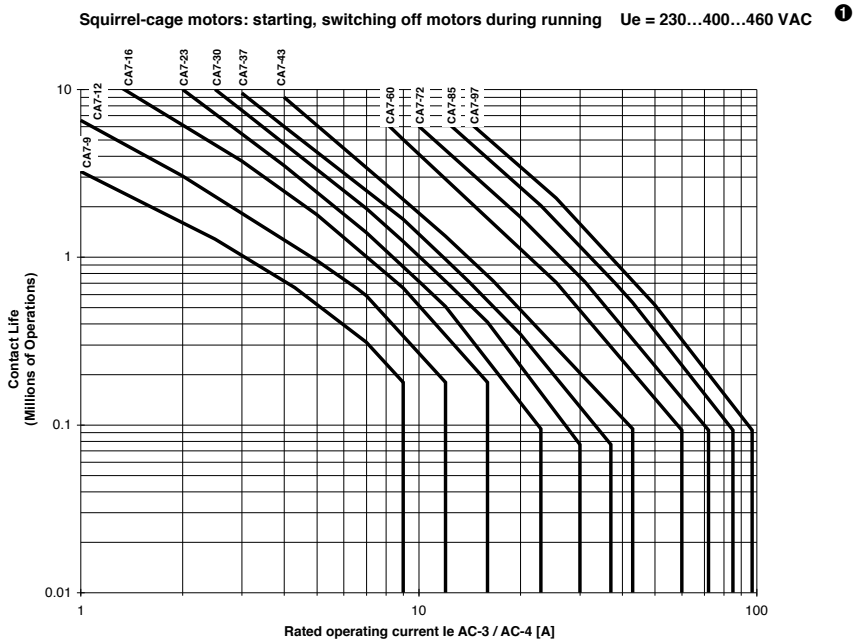


Life-Load Curves

AC-3 (90%), AC-4 (10%)



AC-3 (75%), AC-4 (25%)



NOTE: The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 60947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

❶ 575V applications use 85% of curve value.

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Contact Life for Mixed Utilization Categories AC-3 and AC-4

In many applications, the utilization category cannot be defined as either purely AC-3 or AC-4. In those applications, the electrical life of the contactor can be estimated with the following equation:

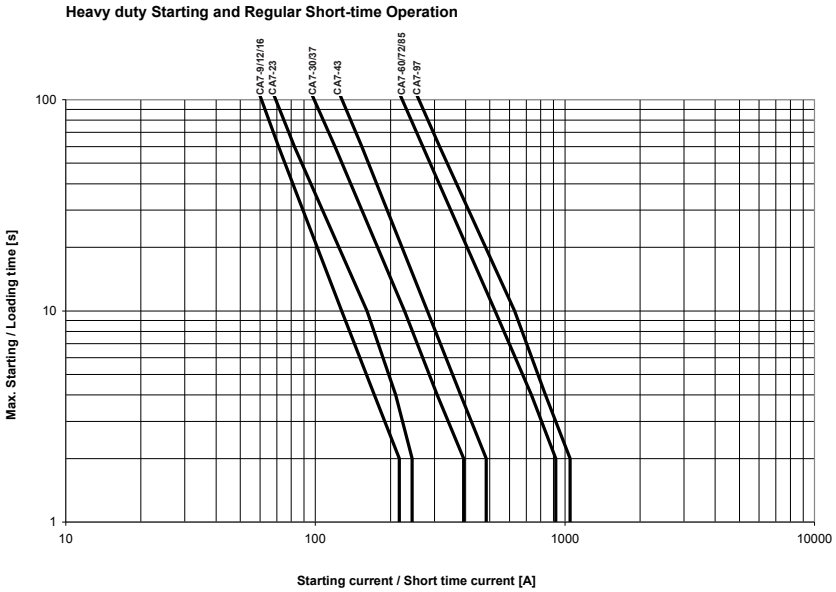
$$L_{mixed} = L_{ac3} / [1+P_{ac4} \times (L_{ac3}/L_{ac4}-1)]$$, where:

L_{mixed} Approximate contact life in operations for a mixed AC-3/AC-4 utilization category application.

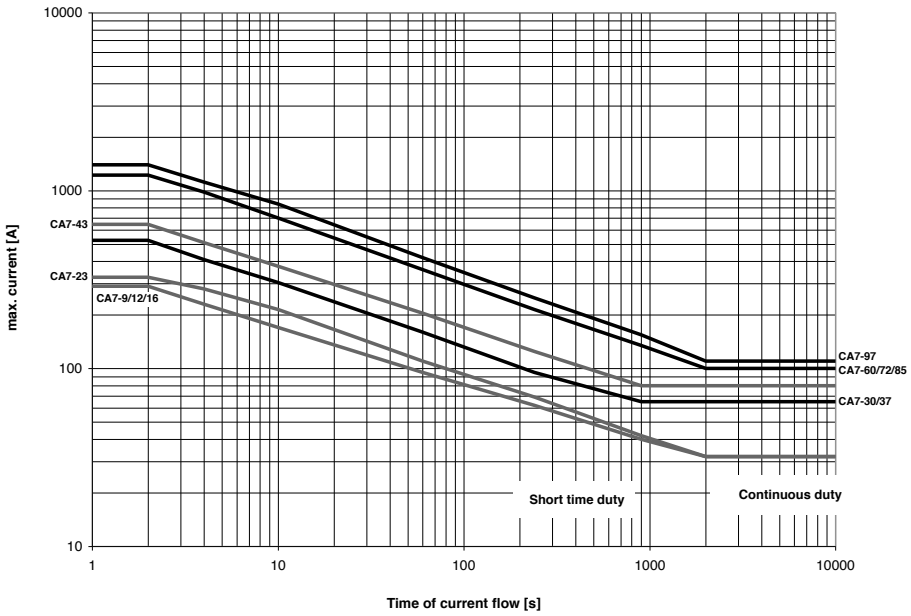
L_{ac3} Approximate contact life in operations for a pure AC-3 utilization category (from the AC-3 life-load curve).

L_{ac4} Approximate contact life in operations for a pure AC-4 utilization category (from the AC-4 life-load curve).

P_{ac4} Percentage of AC-4 operations



Short-time withstand current Icw at 60°



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Operating Rates

The estimated contact life shown in the life-load curves is based on the standard operating rates shown in Table B below. For applications requiring a higher operating frequency, the maximum operating power (Pn in kW or HP) for a given contactor must be reduced to maintain the same contact life.

To find a contactor's maximum operating power, for an operating rate greater than shown in Table B, follow these guidelines:

1. Identify the appropriate curve for the contactor and utilization category from Table B.
2. Locate the appropriate Maximum Operating Rate curve on the following pages.
3. Locate the intersection of the curve with the application's operating rate (ops/hr.) found on the vertical axis.
4. Read the percent of maximum operating power (Pn) of the contactor from the horizontal axis.
5. Multiply the % maximum power by the standard power rating.

Example: The contactor selected for an AC-4 utilization category application is a CA7-16 (10HP at 460V), however, the application requires an operating rate of 200 ops/hr., compared to the standard operating rate of 120 ops/hr. as shown in Table B.

1. Locate the AC-4 Maximum Operating Rate curve on the following pages.
2. Locate the intersection of 200 ops/hr on the CA7-16 curve. The data shows that the maximum operating power of the CA7-16 contactor in this application is 60%.
3. Therefore, the maximum horsepower that can be switched by the CA7-16 contactor in this application is 6 HP (0.60 x 10HP).

Table B – Standard Operating Rates by Contactor and Utilization Category

Contactor	AC-1 Max. ops/hr.	AC-2 Max. ops/hr.	AC-3 Max. ops/hr.	AC-4 Max. ops/hr.	AC-4 @ I_e for 200K ops. Max. ops/hr.
	Operating Parameters and Start Time				
			40% Duty Cycle 250ms ❶	250ms	250ms
CA7-9	1000	500	700	200	400
CA7-12	1000	500	700	150	300
CA7-16	1000	500	700	120	240
CA7-23	1000	400	600	80	160
CA7-30	400	400	600	80	160
CA7-37	400	400	600	70	140
CA7-43	300	400	600	70	140
CA7-60	600	300	500	70	140
CA7-72	600	250	500	60	120
CA7-85	600	200	500	50	140
CA7-97	250	200	500	50	140

❶ *Duty Cycle or Load Factor* – Defined as the "on" time for a given operating cycle per hour including the "start time." A 40% Duty Cycle is calculated in the following manner:

Contactor switches six (6) times per minute (tpm), 250ms start time; 40% duty cycle.

To determine the "on" time and "off" time:

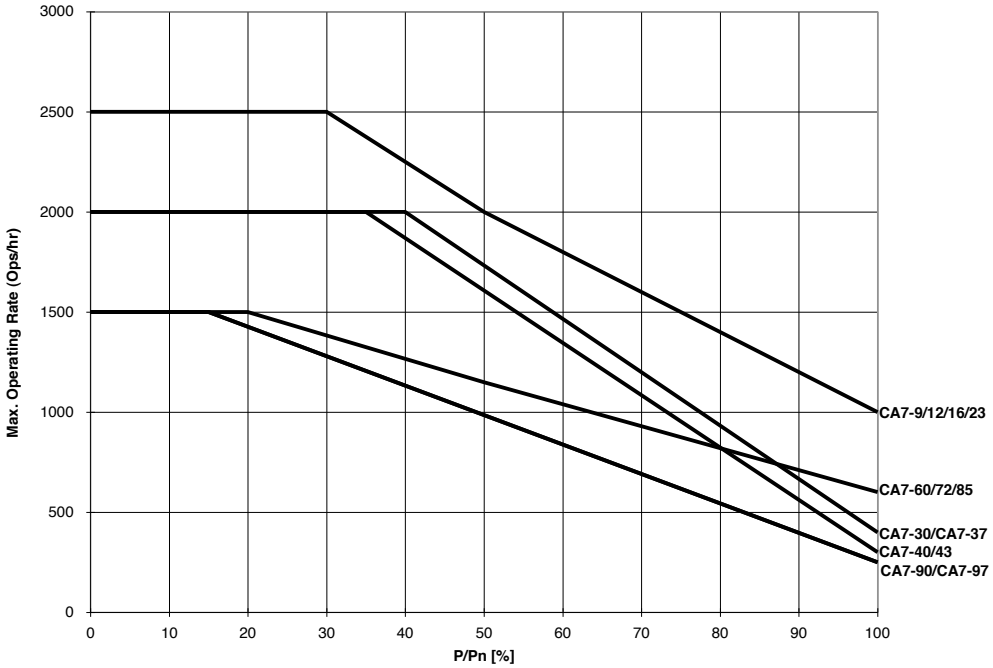
- Operations per hour = 360; [60 min x 6 tpm = 360]
- One operating cycle = 10 sec; [60 min ÷ 6 tpm = 10 sec]
- "On" time at 40% duty cycle = 4 sec; [10 sec x 0.4 (40%) = 4 sec]
- 4 sec "on" time includes the start time of 250ms
- "Off" time at 40% duty cycle = 6 sec; [10 sec – 4 sec = 6 sec]

SSNA9000

Operating Rate Curves

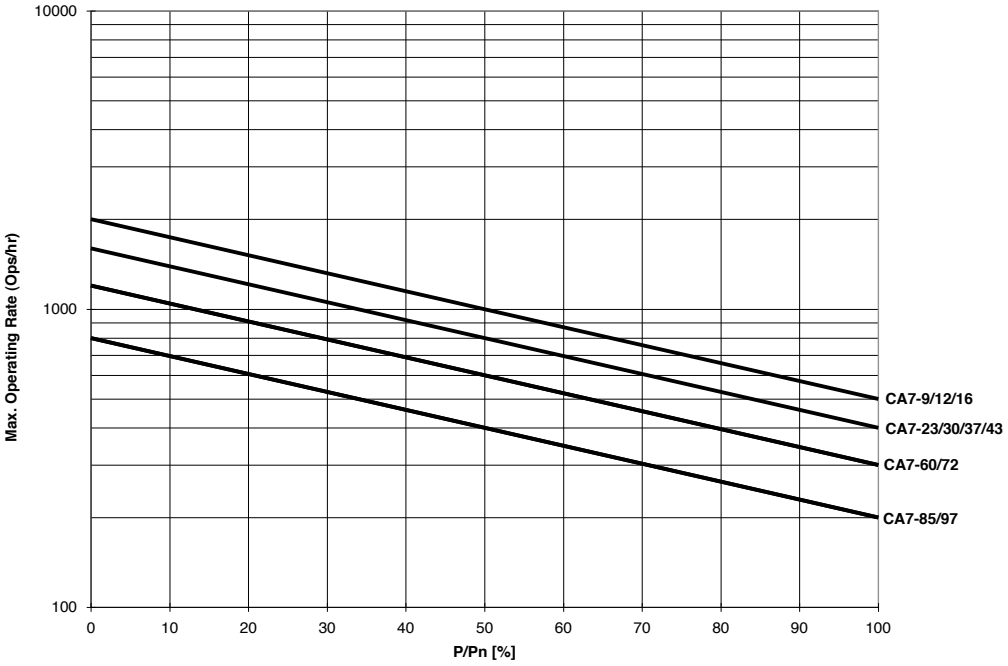
AC-1

Non- or slightly inductive loads, resistance furnaces Ue = 230…690 VAC



AC-2

Slip-ring motors: starting, switching off Ue = 230…460 VAC

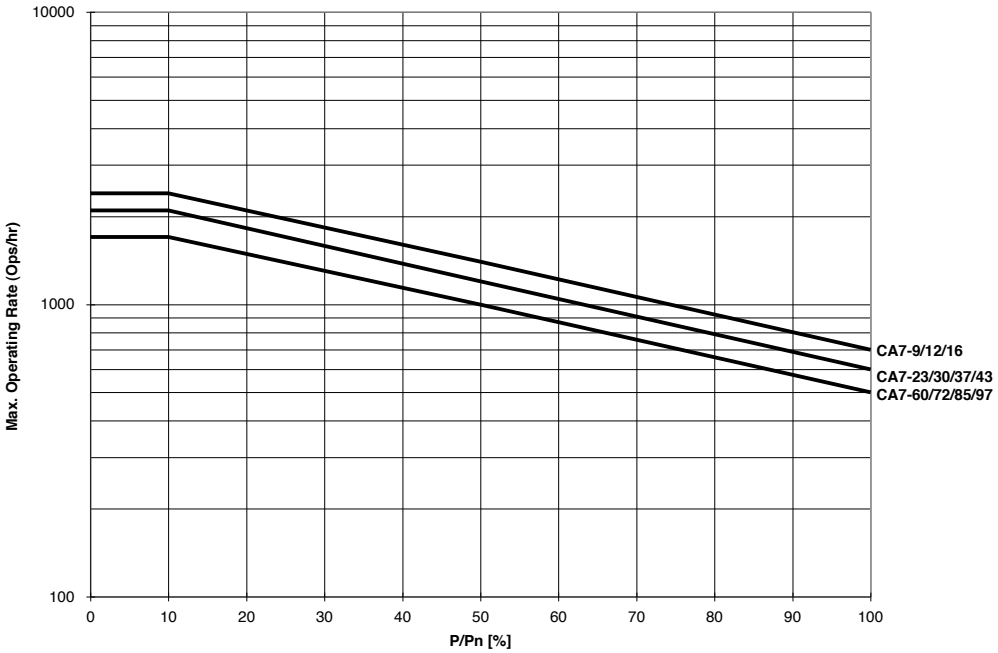


SSNA9000

Operating Rate Curves

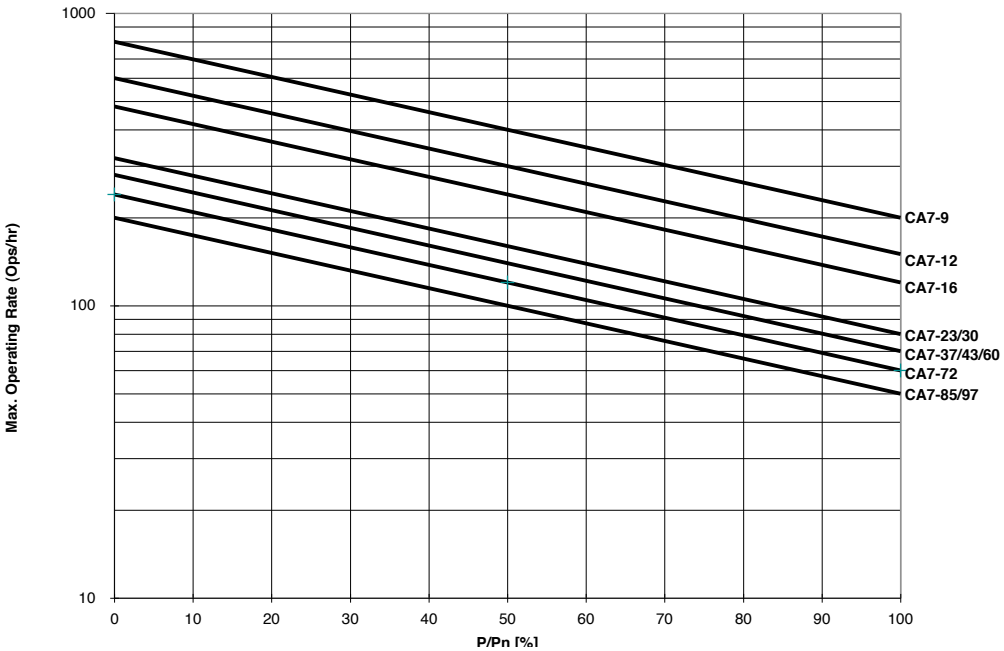
AC-3

Squirrel-cage motors: starting, switching off motors during running
250ms Start-up, 40% Duty Cycle
Ue = 230...460VAC



AC-4

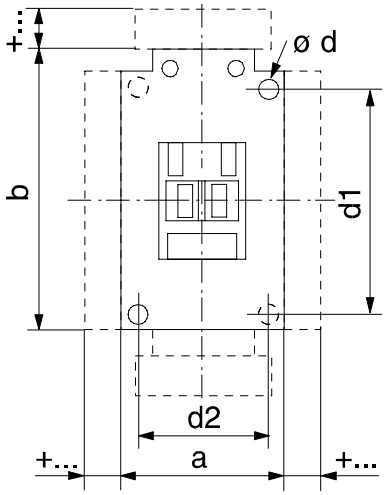
Squirrel-cage motors: starting, plugging, inching
250ms Start-up
Ue=230...460VAC

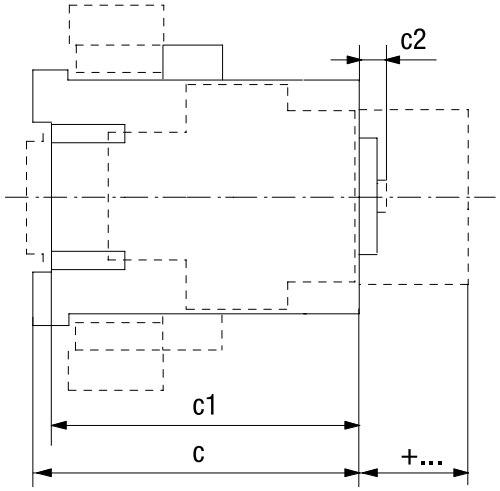


SSNA9000

Series CA7, CAU7, CAQ7, CNX, CAN7 and CAL7 (Contactors, Reversing Contactors & Special Use Contactors)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.



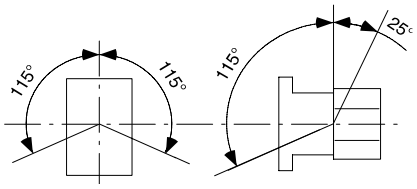


	Catalog Number	a	b	c	c1	c2	ød	d1	d2
AC Contactors	CA7-9...CA7-23; CAQ7-16; CAN7-12, CNX-205...208; CAN7-12, CA(V)L7-20	45 (1-25/32)	80 (3-3/16)	80.5 (3-11/64)	75.5 (3-3/32)	6 (1/4)	2-4.5 (2-3/16)	60 (2-23/64)	35 (1-25/64)
	CA7-30...CA7-37; CNX-209; CAN7-30... CAN7-37	45 (1-25/32)	81 (3-3/16)	97.5 (4)	92.6 (3-49/64)	6.5 (17/64)	2-4.5 (2-3/16)	60 (2-23/64)	35 (1-25/64)
	CA7-40-M... CAL7-30-M40	59 (2-21/64)	81 (3-3/16)	100.5 (4-7/64)	95.5 (3-49/64)	6.5 (17/64)	2-4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)
	CA7-43, CNX-212	54 (2-1/8)	81 (3-3/16)	100.5 (4-7/64)	95.5 (3-49/64)	6.5 (17/64)	2-4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)
	CA7-60...CA7-97 CNX-218	72 (2-53/64)	122 (4-51/64)	117 (4-49/64)	111.5 (4-35/64)	8.5 (21/64)	4-5.4 (4-7/32)	100 (3-15/16)	55 (2-11/64)
	CA7-90-M... CAL7-60-M40	95 (3-3/4)	122 (4-51/64)	117 (4-49/64)	111.5 (4-35/64)	8.5 (21/64)	4-5.4 (4-7/32)	100 (3-15/16)	55 (2-11/64)

Reversing Contactors, Capacitor Contactors & Accessories (+...)

Contactors with...		Dim. [mm]	Dim. [inches]
auxiliary contact block-front mounting	2-, or 4-pole	c/c1 + 39	c/c1 +1-37/64
(CAQ7) capacitor switching deck -front mounting		c/c1 + 39	c/c1 +1-37/64
auxiliary contact block-side mounting	1-, or 2 pole	a + 9	a + 23/64
pneumatic timing module		c/c1 + 58	c/c1 + 2-23/64
electronic timing module	on coil terminal side	b + 24	b + 15/16
reversing contactor w-mech.interlock	on side of contactor	a+9+a	a+ 23/64+a
mechanical latch		c/c1 + 61	c/c1 +2-31/64
interface module	on coil terminal side	b + 9	b + 23/64
surge suppressor	on coil terminal side	b + 3	b + 1/8
Labeling with...	label sheet marking tag sheet with clear cover marking tag adapter for V7 Terminals	+0 +0 +5.5	+0 +0 +7/32

Mounting Position

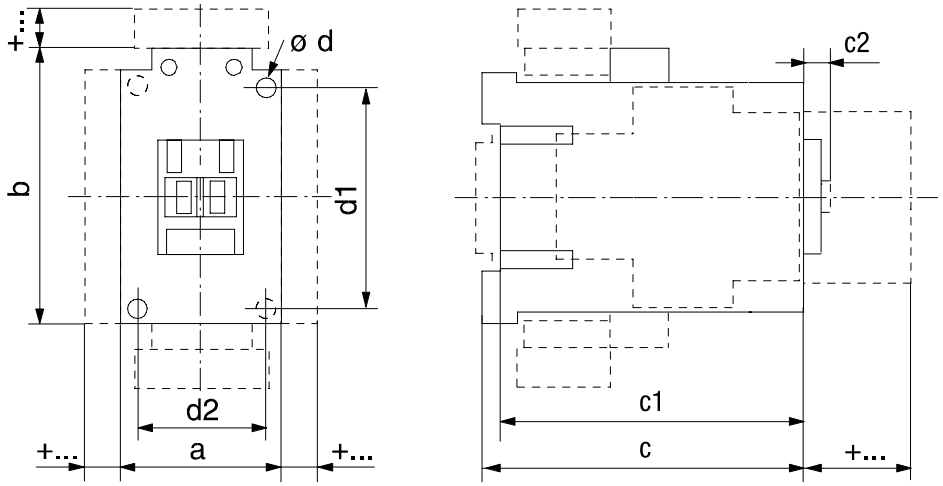


AC contactors

SSNA9000

Series CA7 with DC Coil (True DC and Electronic Coils)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

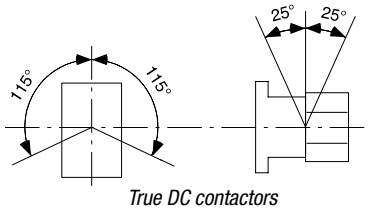


	Catalog Number	a	b	c	c1	c2	ød	d1	d2
True DC Contactors	CA7-9C...CA7-16C, CAQ7-16C CNX-205C...206C; CAN7-12C	45 (1-25/32)	81 (3-3/16)	106.5 (4-3/16)	101.5 (4)	6 (1/4)	2-4.5 (2-3/16)	60 (2-23/64)	35 (1-25/64)
	CA7-23C CNX-207C...208C	45 (1-25/32)	81 (3-3/16)	123.5 (4-55/64)	119 (4-43/64)	6 (1/4)	2-4.5 (2-3/16)	60 (2-23/64)	35 (1-25/64)
	CA7-30C...CA7-37C; CAQ7-37C; CNX-209C; CAN7-30C... CAN7-37C	45 (1-25/32)	81 (3-3/16)	141.5 (5-37/64)	136.5 (5-3/8)	6.5 (17/64)	2-4.5 (2-3/16)	60 (2-23/64)	35 (1-25/64)
	CA7-40C	59 (2-21/64)	81 (3-3/16)	144.5 (5-11/16)	139.5 (5-1/2)	6.5 (17/64)	2-4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)
	CA7-43C, CNX-212C	54 (2-1/8)	81 (3-3/16)	144.5 (5-11/16)	140 (5-33/64)	6.5 (17/64)	2-4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)
Electronic DC Contactors	CA7-9E...CA7-23E	45 (1-25/32)	81 (3-3/16)	80.5 (3-11/64)	75.5 (3-3/32)	6 (1/4)	2-4.5 (2-3/16)	60 (2-23/64)	35 (1-25/64)
	CA7-30E, CA7-37E	45 (1-25/32)	81 (3-3/16)	97.5 (4)	92.6 (3-49/64)	6.5 (17/64)	2-4.5 (2-3/16)	60 (2-23/64)	35 (1-25/64)
	CA7-40E	59 (2-21/64)	81 (3-3/16)	100.5 (4-7/64)	95.5 (3-49/64)	6.5 (17/64)	2-4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)
	CA7-43E	54 (2-1/8)	81 (3-3/16)	100.5 (4-7/64)	95.5 (3-49/64)	6.5 (17/64)	2-4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)

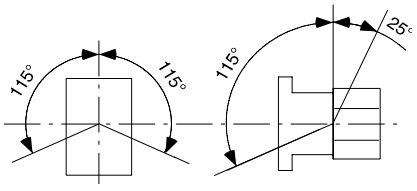
Reversing Contactors, Capacitor Contactors & Accessories (+...)

	Contactors with...	Dim. [mm]	Dim. [inches]
auxiliary contact block-front mounting	2-, or 4-pole	c/c1 + 39	c/c1 +1-37/64
auxiliary contact block- left side mounting	1-, or 2 pole	a + 9	a + 23/64
pneumatic timing module		c/c1 + 58	c/c1 + 2-23/64
electronic timing module	on coil terminal side	b + 24	b + 15/16
mechanical latch		c/c1 + 61	c/c1 +61
interface module	on coil terminal side	b + 9	c/c1 + 2-31/64
Labeling with...	label sheet marking tag sheet with clear cover marking tag adapter for V7 Terminals	+0 +0 +5.5	+0 +0 +7/32

Mounting Position



True DC contactors

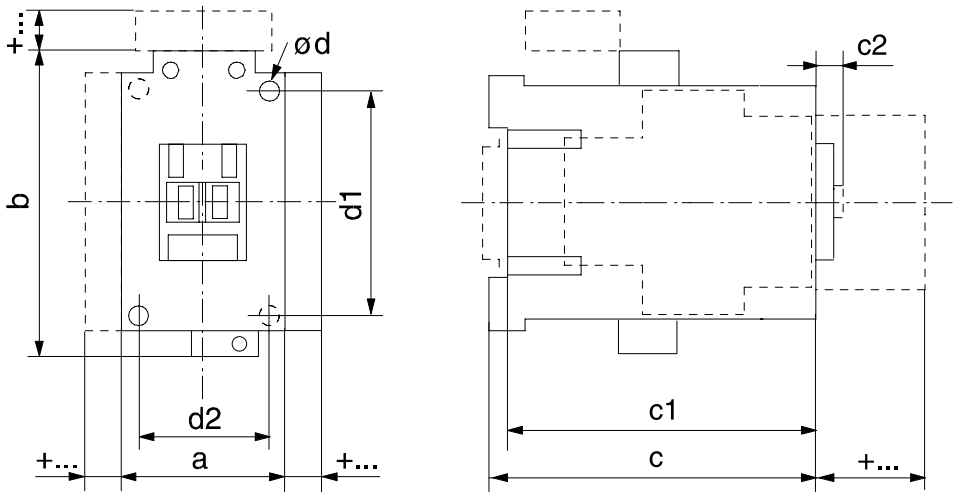


Electronic DC contactors

SSNA9000

Series CA7 with DC Coil (Two Winding)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

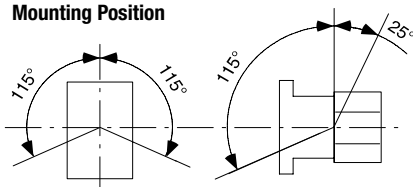


	Catalog Number	a	b	c	c1	c2	ød	d1	d2
Two Winding DC Contactors	CA7-9Y...CA7-23Y	54 (2-9/64)	90 (3-35/64)	80.5 (3-11/64)	75.5 (3-3/32)	6 (1/4)	2-4.5 (2-3/16)	60 (2-23/64)	35 (1-25/64)
	CA7-30Y, CA7-37Y	54 (2-9/64)	90 (3-35/64)	97.5 (4)	92.6 (3-49/64)	6.5 (17/64)	2-4.5 (2-3/16)	60 (2-23/64)	35 (1-25/64)
	CA7-43Y	63 (2-31/64)	90 (3-35/64)	100.5 (4-7/64)	95.6 (3-7/8)	6.5 (17/64)	2-4.5 (2-3/16)	60 (2-23/64)	45 (1-25/32)
	CA7-60D...CA7-97D CAN7-72D, CNX-218D	81 (3-3/16)	131 (5-5/32)	117 (4-49/64)	111.5 (4-35/64)	8.5 (21/64)	4-5.4 (4-7/32)	100 (3-15/16)	55 (2-11/64)
	CA7-90D	95 (3-3/4)	122 (4-51/64)	117 (4-49/64)	111.5 (4-35/64)	8.5 (21/64)	4-5.4 (4-7/32)	100 (3-15/16)	55 (2-11/64)

Reversing Contactors, Capacitor Contactors & Accessories (+...)

	Contactors with...	Dim. [mm]	Dim. [inches]
auxiliary contact block-front mounting	2-, or 4-pole	c/c1 + 39	c/c1 +1-37/64
auxiliary contact block- left side mounting	1-, or 2 pole	a + 9	a + 23/64
pneumatic timing module		c/c1 + 58	c/c1 + 2-23/64
electronic timing module	on coil terminal side	b + 24	b + 15/16
mechanical latch		c/c1 + 61	c/c1 +61
interface module	on coil terminal side	b + 9	c/c1 + 2-31/64
Labeling with...	label sheet marking tag sheet with clear cover marking tag adapter for V7 Terminals	+0 +0 +5.5	+0 +0 +7/32

Mounting Position

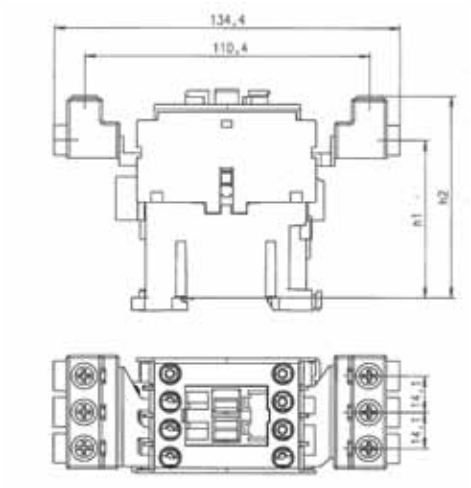


Two Winding DC contactors

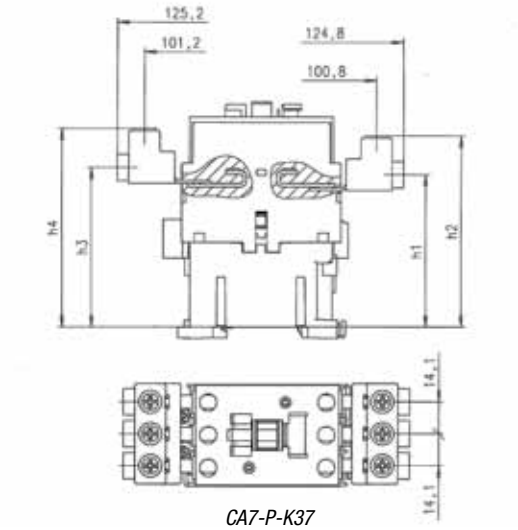
SSNA9000

CA7 Contactors with Terminal Lugs

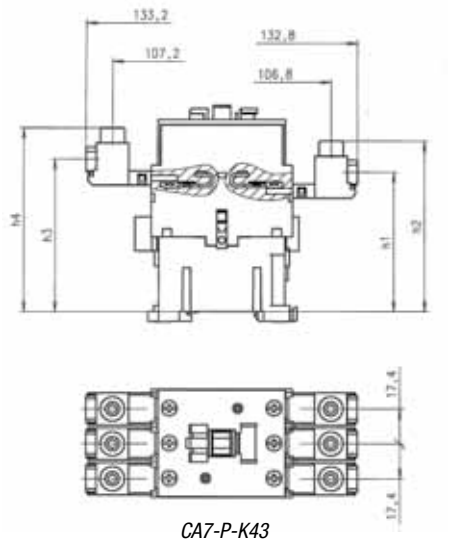
Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.



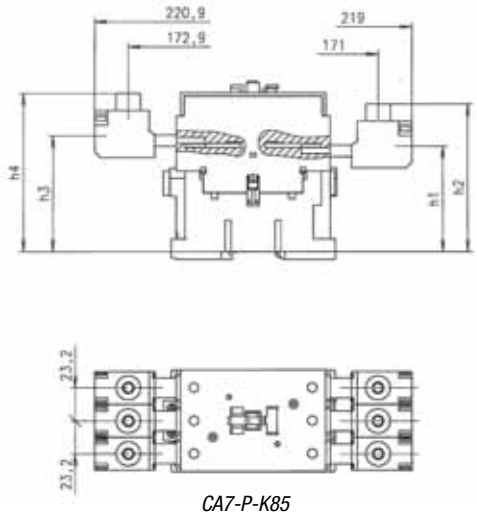
CA7-P-KN23 / KL23



CA7-P-K37



CA7-P-K43



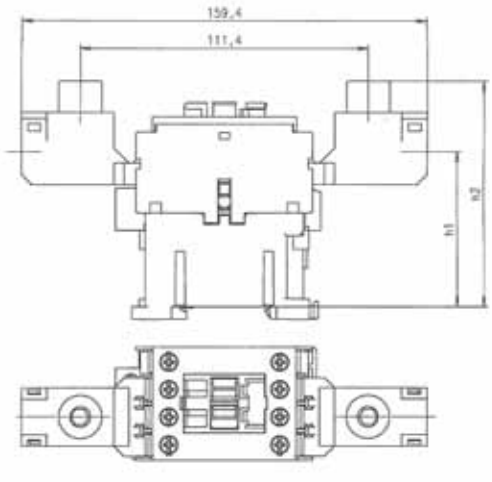
CA7-P-K85

Catalog Number	With Contactor	AC Operated Contactor				DC Operated Contactor			
		h1	h2	h3	h4	h1	h2	h3	h4
CA7-P-KN23 / KL23	CA7-9...16	61.6 (2-27/64)	78.6 (3-3/32)	~	~	87.2 (3-7/16)	104.2 (4-3/32)	~	~
	CA7-23	61.6 (2-27/64)	78.6 (3-3/32)	~	~	105.2 (4-9/64)	122.2 (4-13/16)	~	~
CA7-P-K37	CA7-30 & 37	67.6 (2-21/32)	84.6 (3-21/64)	71.5 (2-13/16)	88.5 (3-31/64)	111.2 (4-3/8)	128.2 (5-3/64)	115.1 (4-17/32)	132.1 (5-13/64)
CA7-P-K43	CA7-43	69.0 (2-23/32)	85.0 (3-11/32)	74.5 (2-15/16)	90.5 (3-9/16)	112.6 (4-7/16)	128.6 (5-1/16)	118.1 (4-21/32)	134.1 (5-9/32)
CA7-P-K85	CA7-60...97	79.7 (3-1/8)	104.7 (4-1/8)	86.7 (3-13/64)	111.7 (4-3/8)	79.7 (3-1/8)	104.7 (4-1/8)	86.7 (3-13/64)	111.7 (4-3/8)

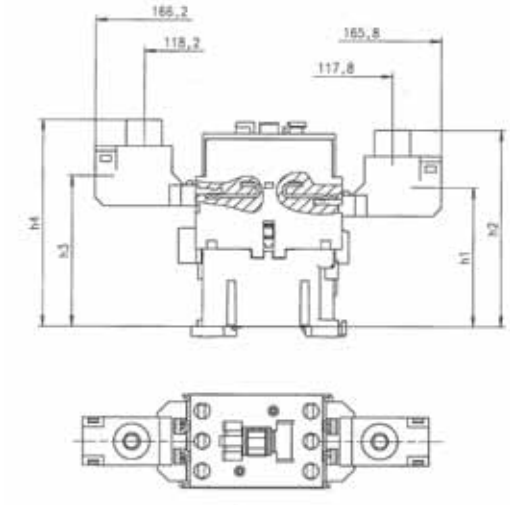
SSNA9000

CA7 Contactors with Paralleling Links

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.



CA7-P-B23



CA7-P-B37

Catalog Number	With Contactor	AC Operated Contactor				DC Operated Contactor			
		h1	h2	h3	h4	h1	h2	h3	h4
CA7-P-B23	CA7-9...16	65.1 (2-9/16)	90.1 (3-9/16)	~	~	90.7 (1/4)	104.2 (2-3/16)	~	~
	CA7-23	65.1 (2-9/16)	90.1 (3-9/16)	~	~	108.7 (4-9/32)	133.7 (5-17/64)	~	~
CA7-P-K37	CA7-30 & 37	69.0 (2-23/32)	94.0 (3-45/64)	74.5 (2-15/16)	99.5 (3-29/32)	112.6 (4-7/16)	137.6 (5-13/32)	118.1 (4-21/32)	143.1 (5-5/8)

Series CA6 Contactors

The modern contactor for demanding applications from 60 to 600HP (@460V) - 75 to 700HP (@ 575V)

Sprecher + Schuh's CA6 contactor line combines the simple function of our popular CA7 series with the rugged performance demanded in this middle horsepower range. On average these contactors are 50% smaller than traditional contactors in this size class.

A broad selection for middle horsepower applications

The CA6 range consists of ten contactors in four frame sizes covering motors from 60 to 600HP at 460V and from 75 to 700HP at 575V. This line is ideally suited for demanding applications such as steel mills, rock quarries, mines or for any middle horsepower application where a sturdy, durable contactor is needed.

Rugged and reliable

CA6 contactors conform to UL508, IEC 60947 and can be operated at rated voltages up to 600V (UL) and 1000V (IEC). High thermal and switching capacities guarantee reliable operation and long life. CA6 contactors are listed in CSA Certified Elevator Equipment for heavy duty use in elevators, refrigerators and heating installations in Canada.

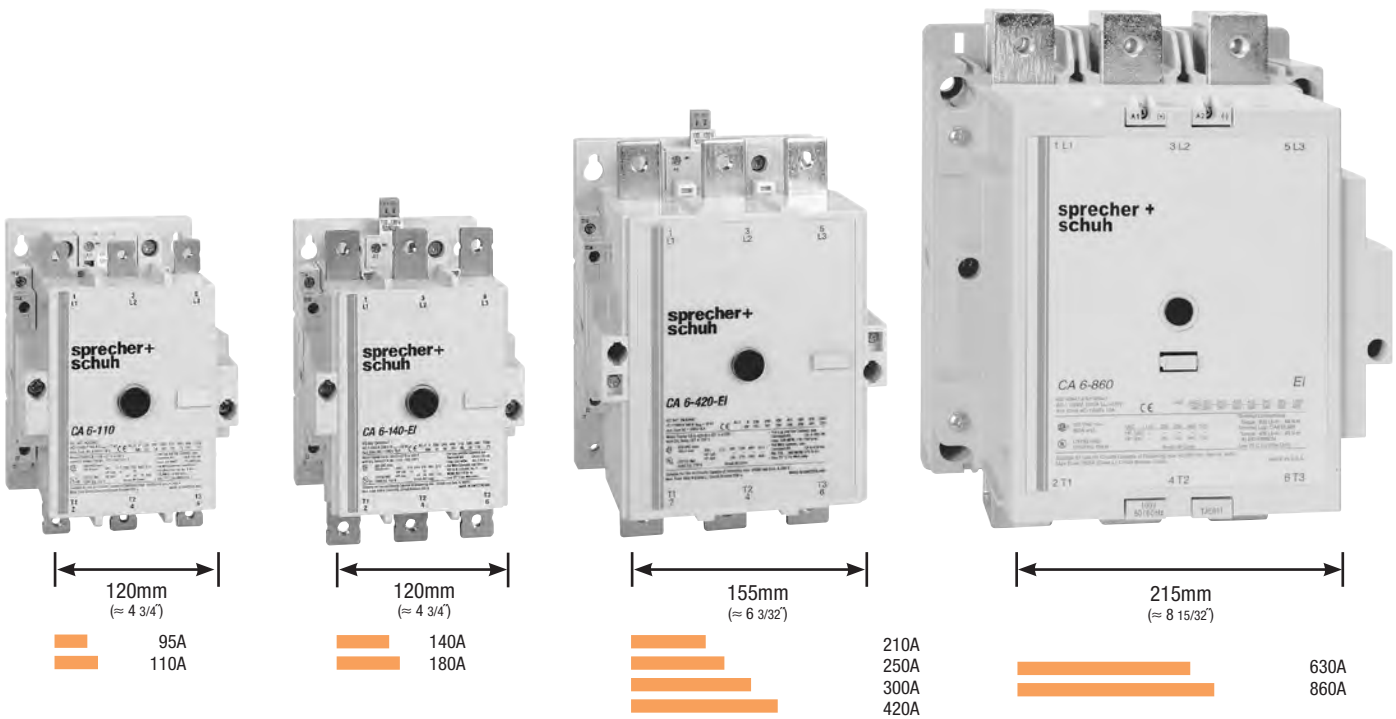
Arc quenching extends contact life

All CA6 contactors are designed with sophisticated arc quenching techniques that extinguish damaging breaking arcs quickly. This is accomplished by guiding the arc away from the contacts and into "arc chambers" which are built-in to every CA6 cover.

Safety first

CA6 arc chambers are completely enclosed (without arc exhaust vents), offering the best protection against hot arcing gases. A large safety distance in front of the contactor is unnecessary. CA6 contactors are also designed so that operation is impossible if the arc chambers are removed. Conversely, once the contactor is energized, the arc chambers cannot be removed.

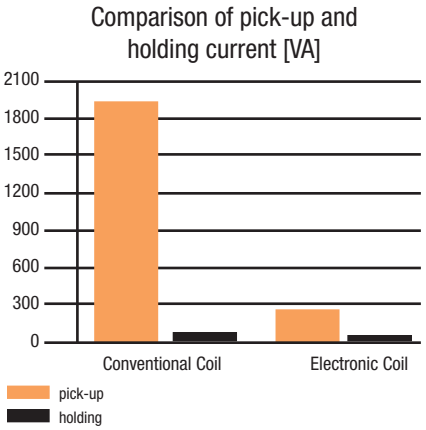
When used with terminal covers or HB Touch-Safe Lugs, CA6 contactors meet international standards for touch-safe design.



SSNA9000

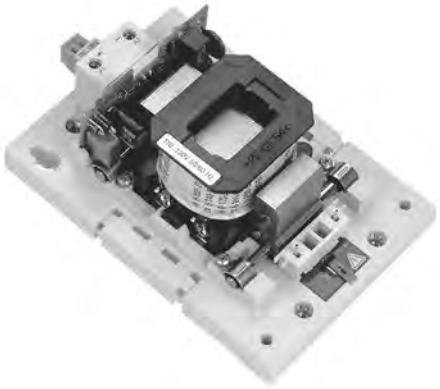
Electronic coils offer many advantages

Behind the attractive outward appearance of the CA6 contactor are advanced engineering solutions that offer convenience and savings. The entire line can be equipped with an electronically controlled coil that reduces pick-up currents by 60% on average. Holding current is also reduced.



Other advantages of the CA6 electronic coil include:

- Direct connection to a PLC
- Overvoltage protection and suppression circuits (eliminating interference from the coil) are standard

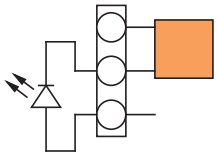


CA6 "EI" electronic coils offer many unique advantages over conventional types

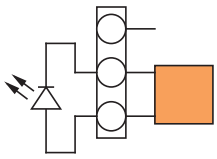
- Smooth, even operation over the entire voltage range minimizes the possibility of contact bounce
- No safeguards are necessary to bridge brief supply interruptions
- Precisely defined pick-up and drop-out voltages, eliminate the possibility of chattering
- Electronic coils operate over a much broader voltage range, providing flexibility in applications and lower costs due to reduced inventory

Two user-selectable modes

CA6 contactors with electronic coils operate in either the "E" mode for normal operation or the "EI" mode for interfacing directly with a Programmable Logic Controller (PLC) or other low level signal source (13...30.2 VDC). The coil is set in the "E" mode from the factory, offering all of the functions and advantages of an electronic coil with the exception of electronic interface. An orange "jumper" located on the bottom of the contactor can be quickly changed if interface from a PLC is desired. A detailed technical explanation of CA6-EI coils along with connection diagrams can be found in the Technical Section.



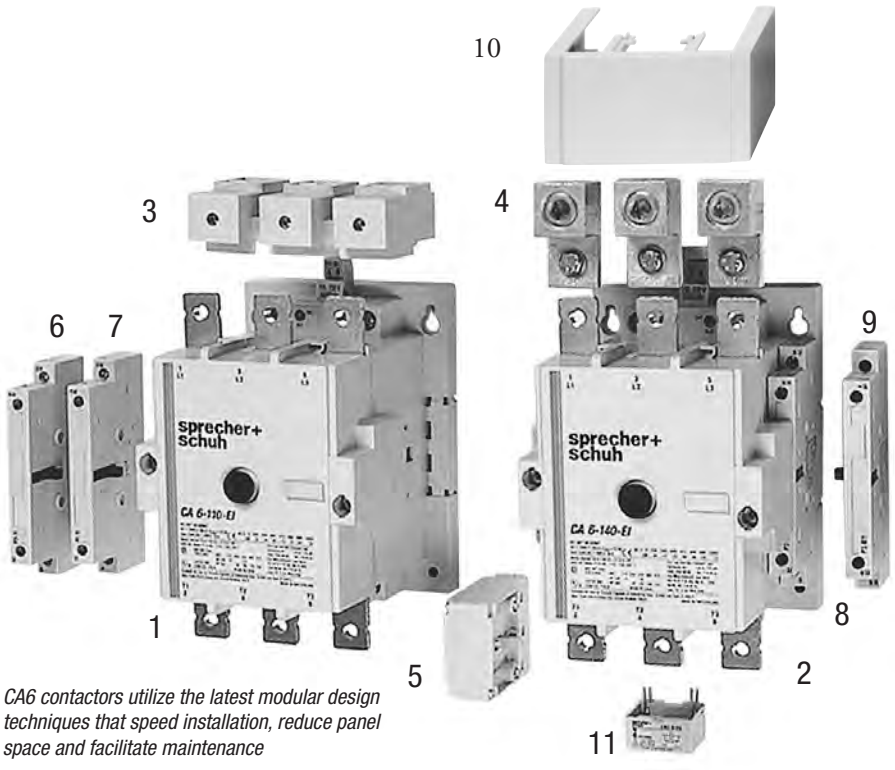
Jumper set in "E" mode (factory default)



Jumper set in "EI" mode (user selectable)

The entire CA6 line is modularly designed for easy inspection, coil change and contact replacement. Maintenance can be performed from the front so that mounting requires no additional space. Even with the installation of mechanical interlocks and auxiliary contact blocks, the units can be flush mounted side by side, saving panel space.

1 CA6-110-EI Contactor
2 CA6-140-EI Contactor
3 Main Terminal Set
4 Lug set
5 Mechanical Interlock
6 Aux. Contact Block
7 Aux. Contact Block
8 Aux. Contact Block
9 Aux. Contact Block
10 Terminal Cover
11 Surge Suppressor



CA6 contactors utilize the latest modular design techniques that speed installation, reduce panel space and facilitate maintenance

SSNA9000

Non-Reversing, Three Pole Contactors With AC Coil, Series CA6 (Open type only) ❶❸

I_e [A]		Ratings for Switching AC Motors (AC2 / AC3)										Auxiliary Contacts per Contactor		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number ❶❸	Price
95	160	30	50/55	63	90	7-1/2	15	25	30	60	75	1	1	CA6-95-11-✱ CA6-95-EI-11-✱	600 725
110	160	32	55/63	75	100	10	25	40	40	75	100	1	1	CA6-110-11-✱ CA6-110-EI-11-✱	750 880
140	250	45	75/80	80 ❹	110	15	30	40	50	100	125	1	1	CA6-140-11-✱ CA6-140-EI-11-✱	1145 1308
180	250	55	90/100	90 ❹	132 ❹	~	40	50	60	150	150	1	1	CA6-180-11-✱ CA6-180-EI-11-✱	1608 1850
210	350	63	110/125	150	200	~	50	60	75	150	200	1	1	CA6-210-EI-11-✱	1917
250	350	80	132/150	160	250	~	~	75	100	200	250	1	1	CA6-250-EI-11-✱	2180
300	450	90	160/160	200	300	~	~	100	125	250	300	1	1	CA6-300-EI-11-✱	2375
420	540	132	220/250	300 ❺	425 ❺	~	~	150	175	350	400	1	1	CA6-420-EI-11-✱	5125
630	800	200	355	450	500	~	~	200	250	500	600	1	1	CA6-630-EI-11-✱	8746
860	1000	250	500	560	600	~	~	250	300	600	700	1	1	CA6-860-EI-11-✱	11900

CA6-140-EI contactor

CA6-420-EI contactor

Note: CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

Coil Codes ❷

CA6-95 /110 /140 /180		
AC Coil Code	Voltage Range 50 Hz	60 Hz
24	~	24V
120B	**110V**	**120V**
208	~	208V
240B	220-230V	260V
277	240V	277V
380	380-400V	440V
480	415V	480V
575	500V	575V

CA6-95-EI ...CA6-420-EI ❶	
AC Coil Code	Voltage Range 50 Hz / 60 Hz
24 ❻	**24V**
120 ❼	110-130V
220W	208-277V
460W	380-500V

CA6-630-EI ...CA6-860-EI ❶	
AC Coil Code	Voltage Range 50 Hz / 60 Hz
120	**110-130V** ❼
208W	200-220V
240W	230-250V ❼
277	277V
480	440-480V

CA6 "EI" coils are electronically controlled coils with the following characteristics:

- Ability to connect directly to a low level signal source such as a PLC (13-30 VDC at 15mA max.)
- Very low pull-in and holding current for contactors in this size class
- Threshold voltages for pull-in and drop-out are very precisely defined, eliminating "chattering"
- Supply voltage dips are bridged without extra equipment
- "EI" coils cover a much wider voltage range with only one coil

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page**

❶ "-EI" designates contactor with Electronic Interface coil.
❷ Other voltages available, see page A106-107. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❸ For CSA Elevator duty rating, consult Technical Information on page A91.
❹ Ratings are higher for contactors with electronic coil:

CA6-140-EI-11-✱	CA6-180-EI-11-✱
500V = 90kW	500V = 110kW
690V = 132kW	690V = 160kW

❺ AC3 ratings only. AC4 ratings are lower. See Technical Information.
❻ 24 VAC Coil is not available for CA6-300-EI or CA6-420-EI.
❼ Coil is rated AC/DC.

SSNA9000

Non-Reversing, Three Pole Contactors With DC Coil, Series CA6 (Open type only) ❶❸

I_e [A]		Ratings for Switching AC Motors (AC2 / AC3)										Auxiliary Contacts per Contactor		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number ❶❸	Price
95	160	30	50/55	63	90	7-1/2	15	25	30	60	75	1	1 1	CA6-95-L22-✱ CA6-95-EI-11-✱	750 921
110	160	32	55/63	75	100	10	25	40	40	75	100	1	1 1	CA6-110-L22-✱ CA6-110-EI-11-✱	880 1005
140	250	45	75/80	80 ❹	110 ❹	15	30	40	50	100	125	1	1 1	CA6-140-L22-✱ CA6-140-EI-11-✱	1425 1625
180	250	55	90/100	90 ❹	132 ❹	~	40	50	60	150	150	1	1 1	CA6-180-L22- ✱ CA6-180-EI-11- ✱	2004 2290
210	350	63	110/125	150	200	~	50	60	75	150	200	1	1	CA6-210-EI-11-✱	2385
250	350	80	132/150	160	250	~	~	75	100	200	250	1	1	CA6-250-EI-11-✱	2700
300	450	90	160/160	200	300	~	~	100	125	250	300	1	1	CA6-300-EI-11-✱	2950
420	540	132	220/250	300 ❺	425 ❺	~	~	150	175	350	400	1	1	CA6-420-EI-11-✱	6395
630	800	200	355	450	500	~	~	200	250	500	600	1	1	CA6-630-EI-11-✱	8746
860	1000	250	500	560	600	~	~	250	300	600	700	1	1	CA6-860-EI-11-✱	11900

Note: CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

CA6-140-EI contactor with DC coil

CA6-420-EI contactor with DC coil

Coil Codes ❷

CA6-95 / 110 / 140 / 180	
DC Coil Code	Voltage Range
24D	24V
110D	110V
220D	220V

CA6-95...CA6-420-EI ❶❻	
DC Coil Code	Voltage Range
24D ❻	24V
120D	110-130V
220D	200-255V

CA6-630...CA6-860-EI ❶	
DC Coil Code	Voltage Range
120	110-130V ❼
240W	200-255V ❼

Note: Conventional DC coils have high current pick-up winding and low current "seal-in" winding wired in parallel. The pick-up winding is taken out of the circuit after the armature pulls in. Price includes two winding coil and an L11 block including one NC late break auxiliary contact mounted on the right side. See page A122 for functional schematic and see page C78 for a starter wiring diagram.

CA6 "EI" coils are electronically controlled coils with the following characteristics:

- Ability to connect directly to a low level signal source such as a PLC (13-30 VDC at 15mA max.)
- Very low pull-in and holding current for contactors in this size class
- Threshold voltages for pull-in and drop-out are very precisely defined, eliminating "chattering"
- Supply voltage dips are bridged without extra equipment
- "EI" coils cover a much wider voltage range with only one coil

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page**

❶ "-EI" designates contactor with Electronic Interface coil.
❷ Other voltages available, see page A106-107. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❸ For CSA Elevator duty rating, consult Technical Information on page A111.
❹ Ratings are higher for contactors with electronic coil:

CA6-140-EI-11-✱	CA6-180-EI-11-✱
500V = 90kW	500V = 125kW
690V = 132kW	690V = 160kW

❺ AC3 ratings only. AC4 ratings are lower. See Technical Information.
❻ 24V DC Coil not available for CA6-420-EI. Customers selecting 24V DC Coils should consider the "EI" functionality of the CA6 (see page A121-122).
❼ Coil is rated AC/DC.

Reversing, Three Pole Contactors With AC Coil, Series CA6 (Open type only) ❻

I_e [A]		Ratings for Switching AC Motors (AC2 / AC3)										Auxiliary Contacts per Contactor		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number ❶❸	Price
95	160	30	50/55	63	90	7-1/2	15	25	30	60	75	1	1	CAU6-95-22-✱ CAU6-95-EI-22-✱	1760 1900
110	160	32	55/63	75	100	10	25	40	40	75	100	1	1	CAU6-110-22-✱ CAU6-110-EI-22-✱	1925 2117
140	250	45	75/80	80 ❽	110 ❽	15	30	40	50	100	125	1	1	CAU6-140-22-✱ CAU6-140-EI-22-✱	2838 3008
180	250	55	90/100	90 ❽	132 ❽	~	40	50	60	150	150	1	1	CAU6-180-22-✱ CAU6-180-EI-22-✱	3765 4000
210	350	63	110/125	150	200	~	50	60	75	150	200	1	1	CAU6-210-EI-22-✱	4880
250	350	80	132/150	160	250	~	~	75	100	200	250	1	1	CAU6-250-EI-22-✱	5380
300	450	90	160/160	200	300	~	~	100	125	250	300	1	1	CAU6-300-EI-22-✱	5790
420	540	132	220/250	300 ❼	425 ❼	~	~	150	175	350	400	1	1	CAU6-420-EI-22-✱	11300
630	800	200	355	450	500	~	~	200	250	500	600	1	1	CAU6-630-EI-22-✱	19440
860	1000	250	500	560	600	~	~	250	300	600	700	1	1	CAU6-860-EI-22-✱	25790

CAU6-180 reversing contactor

Includes:

- Mechanical and electrical Interlock ❹
- Reversing power wiring (using Power Wiring Kit Cat.# CA6-…VL[T]) ❶
- Mounting plate
- Control wiring available; see footnote ❷

Note: CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

CA6 "EI" coils are electronically controlled coils with the following characteristics:

- Ability to connect directly to a low level signal source such as a PLC (13-30 VDC at 15mA max.)
- Very low pull-in and holding current for contactors in this size class
- Threshold voltages for pull-in and drop-out are very precisely defined, eliminating "chattering"
- Supply voltage dips are bridged without extra equipment
- "EI" coils cover a much wider voltage range with only one coil

Coil Codes ❷

CA6-95 /110 /140 180		
AC Coil Code	Voltage Range 50 Hz	60 Hz
24	~	24V
120B	**110V**	**120V**
208	~	208V
240B	220-230V	260V
277	240V	277V
380	380-400V	440V
480	415V	480V
575	500V	575V

CA6-95-EI ...CA6-420-EI ❶	
AC Coil Code	Voltage Range 50 Hz / 60 Hz
24 ❾	**24V**
120	110-130V
220W	208-277V
460W	380-500V

CA6-630-EI ...CA6-860-EI ❶	
AC Coil Code	Voltage Range 50 Hz / 60 Hz
120	**110-130V ❿**
208W	200-220V
240W	230-250V ❿
277	277V
480	440-480V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page**

❶ For Reversing Contactors *without* power wiring add suffix "**-LW**" to catalog number and deduct $175 for CA6-95…180 and $360 for CA6-210-EI…860-EI. Example: CAU6-95-22-✱ becomes CAU6-95-22-✱**-LW.** Control wiring is not included.

❷ For control wiring, add suffix **-CW** to catalog number and add $20. Example: CAU6-95-22-✱ becomes CAU6-95-22-✱**-CW.**

❸ "-EI" designates contactor with Electronic Interface coil.

❹ One NC auxiliary contact on each contactor is used for electrical interlocking.

❺ Other voltages available, see page A106-107. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❻ For CSA Elevator duty rating, consult Technical Information on page A111.

❼ AC3 ratings only. AC4 ratings are lower. See Technical Information.

❽ Ratings are higher for contactors with electronic coil:

CA6-140-EI-11-✱	CA6-180-EI-11-✱
500V = 90kW	500V = 125kW
690V = 132kW	690V = 160kW

❾ 24 VAC Coil is not available for CA6-300-EI or CA6-420-EI.

❿ Coil is rated AC/DC.

SSNA9000

Reversing, Three Pole Contactors With DC Coil, Series CA6 (Open type only) ❻

I_e [A]		Ratings for Switching AC Motors (AC2 / AC3)										Auxiliary Contacts per Contactor		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
						1 Ø		3 Ø							
AC-3	AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC❹	Catalog Number ❶❸❺	Price
95	160	30	50/55	63	90	7-1/2	15	25	30	60	75	2 1	1	CAU6-95-L42-✱ CAU6-95-EI-22-✱	1960 2290
110	160	32	55/63	75	100	10	25	40	40	75	100	2 1	1	CAU6-110-L42-✱ CAU6-110-EI-22-✱	2250 2484
140	250	45	75/80	80 ❽	110 ❽	15	30	40	50	100	125	2 1	1	CAU6-140-L42-✱ CAU6-140-EI-22-✱	3400 3800
180	250	55	90/100	90 ❽	132 ❽	~	40	50	60	150	150	1	1	CAU6-180-L42-✱ CAU6-180-EI-22-✱	4715 5129
210	350	63	110/125	150	200	~	50	60	75	150	200	1	1	CAU6-210-EI-22-✱	5816
250	350	80	132/150	160	250	~	~	75	100	200	250	1	1	CAU6-250-EI-22-✱	6440
300	450	90	160/160	200	300	~	~	100	125	250	300	1	1	CAU6-300-EI-22-✱	6951
420	540	132	220/250	300 ❼	425 ❼	~	~	150	175	350	400	1	1	CAU6-420-EI-22-✱	13836
630	800	200	355	450	500	~	~	200	250	500	600	1	1	CAU6-630-EI-22-✱	19440
860	1000	250	500	560	600	~	~	250	300	600	700	1	1	CAU6-860-EI-22-✱	25790

CAU6-180 reversing contactor with DC coil

Includes:

- DC operating mechanism
- Mechanical and electrical Interlock ❹
- Reversing power wiring (using Power Wiring Kit Cat.# CA6-…VL[T]) ❶
- Mounting plate
- Control wiring available; see footnote ❷

Note: CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

CA6 "EI" coils are electronically controlled coils with the following characteristics:

- Ability to connect directly to a low level signal source such as a PLC (13-30 VDC at 15mA max.)
- Very low pull-in and holding current for contactors in this size class
- Threshold voltages for pull-in and drop-out are very precisely defined, eliminating "chattering"
- Supply voltage dips are bridged without extra equipment
- "EI" coils cover a much wider voltage range with only one coil

Coil Codes ❺

CA6-95 / 110 / 140 / 180	
DC Coil Code	Voltage Range
24D	**24V**
110D	110V
220D	220V

CA6-95...CA6-420-EI ❶❻❾	
DC Coil Code	**Voltage Range**
24D ❻	**24V**
120D	110-130V
220D	200-255V

CA6-630...CA6-860-EI ❶❾	
DC Coil Code	**Voltage Range**
120	110-130V ❿
240W	200-255V ❿

Note: Conventional DC coils have high current pick-up winding and low current "seal-in" winding wired in parallel. The pick-up winding is taken out of the circuit after the armature pulls in. Price includes two winding coil and an L11 block including one NC late break auxiliary contact mounted on the right side. See page A122 for functional schematic and see page C78 for a starter wiring diagram.

❶ For Reversing Contactors *without* power wiring add suffix "**-LW**" to catalog number and deduct $175 for CA6-95…180 and $360 for CA6-210-EI…860-EI. Example: CAU6-95-22-✱ becomes CAU6-95-22-✱**-LW.** Control wiring is not included.

❷ For control wiring, add suffix **-CW** to catalog number and add $20. Example: CAU6-95-22-✱ becomes CAU6-95-22-✱**-CW.**

❸ "-EI" designates contactor with Electronic Interface coil.

❹ One NC auxiliary contact on each contactor is used for electrical interlocking.

❺ Other voltages available, see page A106-107. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❻ For CSA Elevator duty rating, consult Technical Information on page A111.

❼ AC3 ratings only. AC4 ratings are lower. See Technical Information.

❽ Ratings are higher for contactors with electronic coil:

CA6-140-EI-11-✱	CA6-180-EI-11-✱
500V = 90kW	500V = 125kW
690V = 132kW	690V = 160kW

❾ 24V DC Coil not available for CA6-420-EI. Customers selecting 24V DC Coils should consider the "EI" functionality of the CA6 (see page A121-122).

❿ Coil is rated AC/DC

Ordering Instructions

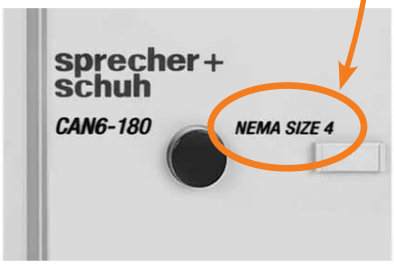
Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page**

SSNA9000

Non-Reversing, Three Pole NEMA Labeled Contactors with AC Coil ❶❸

NEMA Size	Maximum Horsepower						Standard Auxiliary Contacts		Catalog Number	Price
	1Ø		3Ø							
	115V	230V	200V	230V	460V	575V	NO	NC		
00	1/3	1	1-1/2	1-1/2	2	2	1	0	CAN7-12-10-✱	155
0	1	2	3	3	5	5	1	0	CAN7-16-10-✱	174
1	2	3	7-1/2	7-1/2	10	10	1	0	CAN7-37-10-✱	288
2	3	7-1/2	10	15	25	25	1	0	CAN7-43-10-✱	308
3	7-1/2	15	25	30	50	50	1	0	CAN7-85-10-✱	482
4	~	~	40	50	100	100	1	1	CAN6-180-11-✱	1608
									CAN6-180-EI-11-✱	1850
5	~	~	75	100	200	200	1	1	CAN6-300-EI-11-✱	2375

CAN6 NEMA labeled contactor (AC)



Application Notes

- NEMA contactors are UL Listed and rated in accordance with the requirements of NEMA standards publication ICS-2. These contactors are labeled for applications that require compliance with NEMA standards.
- Sizes are based on standard NEMA classifications.
- Easy coil change and contact replacement. See page A61 for CAN7 coils and pages A106-108 for CA(N)6 coils and contacts.
- Snap-on auxiliary contact blocks available in many configurations. See pages A52-53 (CA[N]7) and page A104 (CA[N]6).
- Available as open units or in NEMA 1, 3R, 4, 4X and 12 enclosures. Contact your Sprecher + Schuh representative for enclosed pricing. NEMA sized starters with AC Coils are listed on page C26.

Note: CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

CAN7 AC Coil Codes ❷

CAN7-12...85		
AC Coil Code	Voltage Range	
	50 Hz	60 Hz
24Z	24V	24V
120	110V	**120V**
208	~	208V
220W	~	**208V-240V**
240	220V	240V
277	240V	277V
380	380V-400V	440V
480	440V	**480V**
600	**550V**	**600V**

CAN6 AC Coil Codes Conventional Coils ❷

CAN6-180		
AC Coil Code	Voltage Range	
	50 Hz	60 Hz
24	~	24V
120B	**110V**	**120V**
208	~	208V
240B	220-230V	260V
277	240V	277V
380	380V-400V	440V
480	**415V**	**480V**
575	500V	575V

CAN6 AC Coil Codes "EI" Electronic Coils ❷❸

CAN6-180-EI...300-EI	
AC Coil Code	Voltage Range
	50 Hz / 60 Hz
24 ❹	24V
120	**110-130V**
220W	208-277V
460W	380-500V

Ordering Instructions

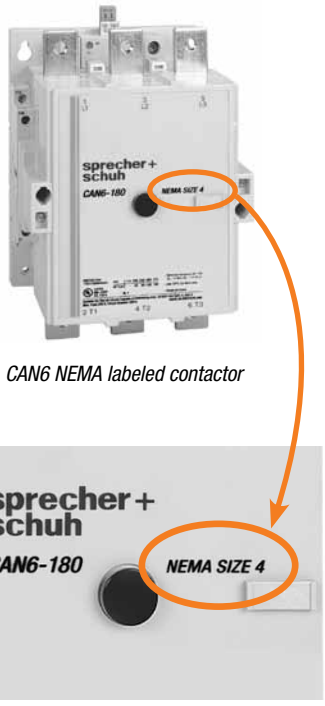
Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ Refer to page A87 for CAN7 dimensional information and page A127 for CA(N)6 dimensions.
❷ Other voltages available, see page A61 for CAN7 and pages A106-107 for CA(N)6. *Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❸ "-EI" designates contactor with Electronic Interface coil.
❹ 24 V AC coil not available for CAN6-300-EI.

SSNA9000

Non-Reversing, Three Pole NEMA Labeled Contactors with DC Coil ❶

NEMA Size	Maximum Horsepower						Standard Auxiliary Contacts		Catalog Number	Price
	1Ø		3Ø							
	115V	230V	200V	230V	460V	575V	NO	NC		
00	1/3	1	1-1/2	1-1/2	2	2	1	0	CAN7-12E-10-24E ❺	242
									CAN7-12C-10-✱	200
0	1	2	3	3	5	5	1	0	CAN7-16E-10-24E ❺	267
									CAN7-16C-10-✱	225
1	2	3	7-1/2	7-1/2	10	10	1	0	CAN7-37E-10-24E ❺	414
									CAN7-37C-10-✱	372
2	3	7-1/2	10	15	25	25	1	0	CAN7-43E-10-24E ❺	475
									CAN7-43C-10-✱	432
3	7-1/2	15	25	30	50	50	2	1	CAN7-85D-10-✱	612
4	~	~	40	50	100	100	1	1	CAN6-180-EI-11-✱ ❸	2290
5	~	~	75	100	200	200	1	1	CAN6-300-EI-11-✱ ❸	2950



CAN6 NEMA labeled contactor

Application Notes

- NEMA contactors are UL Listed and rated in accordance with the requirements of NEMA standards publication ICS-2. These contactors are labeled for applications that require compliance with NEMA standards.
- Sizes are based on standard NEMA classifications.
- Easy coil change and contact replacement. See page A62 for CA(N)7 coils and pages A106-107 for CA(N)6 coils and contacts.
- Snap-on auxiliary contact blocks available in many configurations. See pages A52-53 (CAN7) and page A104 (CA[N]6).
- Available as open units or in NEMA 1, 3R, 4, 4X and 12 enclosures. Contact your Sprecher + Schuh representative for enclosed pricing.

Note: CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

CAN7 DC Coil Codes ❷

CAN7-12C...72C	
DC Coil Code	Voltage Range
24D	24V
110D	110V

CAN7 DC Coil Codes with integrated Diode ❷

CAN7-85D	
DC Coil Code	Voltage Range
24DD	24V
110DD	110V

CAN6 DC Coil Codes "EI" Electronic Coils ❷❹

CAN6-180-EI...300-EI	
DC Coil Code	Voltage Range
24D	24V
120D	110 - 130V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ Refer to page A88 for CAN7 dimensional information and page A127 for CA(N)6 dimensions.
❷ Other voltages available, see page A62 for CAN7 and pages A106-107 for CA(N)6. *Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❸ "-EI" designates contactor with Electronic Interface coil.
❹ Refer to page A120 for CA6-EI Application Notes for 24 volt DC Electronic Coils.
❺ CAN7-12E..43E have an electronic 24VDC coil that is not interchangeable.

Hydraulic Elevator Wye Delta, with AC Coils (Two Contactor Type ❶❷❺)

Maximum Horsepower Three Phase				Auxiliary Contacts per Contactor		Open Type	
200V	230V	460V	575V	NO	NC ❸	Catalog No.	Price
60 / 40	60 / 50	125 / 100	150 / 125	1	1	CA6Y2-110-22-✱-LW	1705
						CA6Y2-110-EI-22-✱-LW	1906
60 / 50	75 / 60	175 / 125	200 / 125	1	1	CA6Y2-140-22-✱-LW	2658
						CA6Y2-140-EI-22-✱-LW	3001
75 / 60	100 / 75	200 / 150	250 / 150	1	1	CA6Y2-180-22-✱-LW	3628
						CA6Y2-180-EI-22-✱-LW	3644

HP Selection

Industrial Application ❺ / CSA Elevator Duty ❻

Larger sizes are possible. Contact your Sprecher + Schuh representative.

CA6Y2-110 Wye-Delta contactor

Includes:

- Mechanical and electrical Interlocks ❸
- Mounting plate

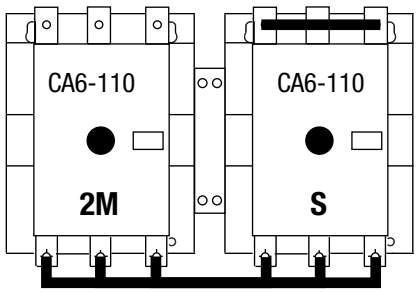
Optional:

- Power wiring available but not included (see page A102) ❶❼

CA6 "EI" coils are electronically controlled coils with the following characteristics:

- Ability to connect directly to a low level signal source such as a PLC (13-30 VDC at 15mA max.)
- Very low pull-in and holding current for contactors in this size class
- Threshold voltages for pull-in and drop-out are very precisely defined, eliminating "chattering"
- Supply voltage dips are bridged without extra equipment
- "EI" coils cover a much wider voltage range with only one coil

CA6-180-VYU



CA6-180-VLHB

Coil Codes ❹

CA6-110…180		
AC Coil Code	Voltage Range 50 Hz	Voltage Range 60 Hz
24	~	24V
120B	110V	120V
208	~	208V
240B	220-230V	260V
277	240V	277V
380	380-400V	440V
480	415V	480V
575	500V	575V

CA6-110-EI …CA6-180-EI ❶	
AC Coil Code	Voltage Range 50 Hz / 60 Hz
24	24V
120	110-130V
220W	208-277V
440W	380-440V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page.**

❶ For Contactors *with* power wiring add suffix "**-PW**" to catalog number and add $273. Example: CA6Y2-110-22-✱-**LW** becomes CA6Y2-110-22-✱-**PW.** Control wiring is not included.
❷ "-EI" designates contactor with Electronic Interface coil.
❸ One NC auxiliary contact on each contactor is used for electrical interlocking.
❹ Other voltages available, see page A106-107. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❺ HP selection based on UL508 for Industrial Applications.
❻ HP selection based on CSA Elevator Duty Ratings.
❼ See typical Wye-Delta Wiring Diagram on page C72.

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Main Lugs and Lug Accessories

Lug or Accessory	Connection	Description	Catalog Number	Price
 *Multiple conductors (flat or round) fit in each terminal on CA6-HB Main Terminal Sets (top view)*	• Accommodation for dual connections to each pole • Accepts flat or round conductors • Touch safe to IP20 according to IEC 60529 • Eliminates need for Terminal Shields Main Terminal Sets (catalog #: CA6-HB…) are specifically designed for connecting line and load to all three poles on CA6 contactors. Each touch safe terminal set contains three built-in terminals capable of carrying two round conductors or multiple flat conductors. Main Terminal Sets add a clean finished appearance to CA6 contactors	**Main Terminal Set, Dual Conductor, Touch Safe** (price as complete set, containing 2 blocks, 6 lugs) For CA6-95 and 110 For CA6-95-EI...110-EI; 140(-EI); 180(-EI) For CA6-210(EI to 420-EI)	 **CA6-HB1** **CA6-HB2** **CA6-HB3**	 **160** **200** **295**
	**Screw Type Lugs -** • Single connections to each pole • Accepts flat or round conductors only • Aluminum construction (set of 3-two sets required to wire line and load sides)	For CA6-95 and 110 For CA6-95-EI...110-EI; CA6-140(-EI); 180(-EI)	**CA6-105-HU** **CA6-170-HU**	**50** **95**
	**Screw Type Lugs -** • Accommodation for dual connections to each pole • Accepts round conductors only • Aluminum construction (set of 3 - two sets required to wire line and load sides)	For CA6-210-EI to CA6-420-EI	**CA6-420-HU**	**250**
	**Screw Type Lugs -** • Single connections to each pole • Accepts round conductors only • Copper construction (set of 3 - two sets required to wire line and load sides)	For CA6-95 to CA6-110 For CA6-95-EI to CA6 -110-EI; CA6-140(-EI) to CA6-180(EI) For CA6-210-EI to CA6-420-EI	**CA6-L110** **CA6-L180** **CA6-L420**	**84** **168** **250**
	**Screw Type Lugs -** • Accommodation for dual connections to each pole • Accepts round conductors only • Copper construction (set of 3 - two sets required to wire line and load sides)	For CA6-630-EI	**CA6-L630**	**328**
	**Screw Type Lugs -** • Accommodation for dual connections to each pole • Accepts round conductors only • Copper construction (set of 3 - two sets required to wire line and load sides)	For CA6-860-EI	**CA6-L860**	**490**
 (Typical)	**Control Wire Terminal -** • Connects to lug indicated	Supplies control voltage from current terminal For CA6-105-HU to 170-HU and CA6-L110 to L180 For CA6-420-HU For CA6-420 For CA6-860	 **CA6-AT1** **TI-12-11** **CA6-AT2** **CA6-AT3**	 **5** **15** **15** **29**

See Page A118 for terminal wire ranges.

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Power Wiring Connection Kits

Connection Kits	Application	Used with contactor...	Use with Lug...	Catalog Number	Price
 *CA6-180-VLHB*	**Reversing Line Side** **Wye-Delta Line Side** Connects L1-L1 L2-L2 L3-L3	CA6-95(-EI) to 180(-EI)	CA6-105-HU CA6-170-HU CA6-L110 CA6-L180	**CA6-180-VLHB**	**118**
		CA6-95(-EI) to 180(-EI)	CA6-HB1 CA6-HB2		
		CA6-210-EI to 420-EI	CA6-HB3	**CA6-420-VLHB**	**288**
			CA6-420-HU CA6-L420		
		CA6-630-EI to 860-EI	CA6-L630 CA6-L860	**CA6-860-VL**	**540**
 *CA6-180-VT*	**Reversing Load Side** Connect T1-T3 T2-T2 T3-T1	CA-95(-EI) to 180(-EI)	CA6-105-HU CA6-170-HU CA6-L110 CA6-L180	**CA6-180-VT**	**156**
		CA6-95(-EI) to 180(-EI)	CA6-HB1 CA6-HB2	**CA6-180-VTHB**	**156**
		CA6-210-EI to 420-EI	CA6-HB3	**CA6-420-VTHB**	**273**
		CA6-210-EI to 420-EI	CA6-420-HU CA6-L420	**CA6-420-VT**	**273**
		CA6-630-EI to 860-EI	CA6-L860	**CA6-860-VT**	**503**
 *CA6-180-VYU*	**Wye-Delta Shorting Bar**	CA-95(-EI) to 180(-EI) CA6-210-EI to 420-EI CA6-630-EI to 860-EI	N/A	**CA6-180-VYU** **CA6-420-VYU** **CA6-860-VYU**	**16** **31** **62**
	Wye-Delta (2M to S jumper)	Connects 2M contactor CA6-210-EI to 420-EI... to S contactor CA6140(-EI) to 180(-EI)	CA6-HB3	**CA6-420-VYHB**	**247**
		Connects 2M contactor CA6-210-EI to 420-EI... to S contactor CA6-210-EI to 420-EI	CA6-420-HU CA6-L420	**CA6-420-VT**	**273**

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Lug Accessories and Backpans

Accessory	Description	For use with contactor...	Catalog Number	Price
	**Main Terminal Cover - ❶** • CA6 touch protection • Line **or** load **(price each)** • IP20; IEC60529 & DIN 40 050 protection	CA6-95(-EI) to 180(-EI) CA6-210-EI to 420-EI CA6-630-EI to 860-EI	**CA6-TC180** **CA6-TC420** **CA6-TC860**	**46** **76** **103**
	**Mounting Plates –** 1 contactor & 1 O/L relay (Across-The-Line)	CA6-95(-EI)...180(-EI) CA6-210-EI...420-EI CA6-630-EI...860-EI	**CA6-MS180** **CA6-MS420** **CA6-MS860**	**46** **102** **255**
	2 contactors & 2 O/L relays (Reversing or Multispeed)	CA6-95(-EI)...180(-EI) CA6-210-EI...420-EI CA6-630-EI...860-EI	**CA6-MU180** **CA6-MU420** **CA6-MU860**	**76** **155** **310**
	3 contactors, 2 O/L relays & 1 relay/timer (Wye-delta)	For CA6-95(-EI) to 180(-EI) For CA6-210-EI to 420-EI CA6-630-EI to 860-EI	**CA6-MY180** **CA6-MY420** **CA6-MY860**	**175** **210** **364**

❶ Terminal Covers not necessary when using Main Terminal Sets (CA6-HB…) which are insulated.
❷ Not for use with CA6-105-HU lugs.

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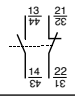
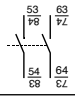
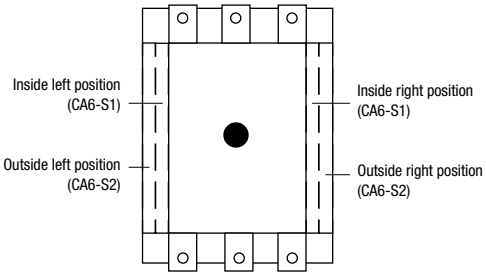
Auxiliary Contact Blocks, 2 Pole

Auxiliary Contact Blocks	NO	NC	Contact Arrangement	Mounting Position	Catalog Number	Price
	1	1		Inside left or right	**CA6-S1-11**	**46**
	1	1		Outside left or right	**CA6-S2-11**	**46**
	1	1 LB		Inside left or right	**CA6-S1-L11**	**48**
	2	0		Inside left or right	**CA6-S1-20**	**46**
	2	0		Outside left or right	**CA6-S2-20**	**46**
	Form C Electronic Compatible			Inside left or right	**CA6-S1-B11** ❶	**76**

NOTE: Up to four auxiliary contact blocks (8 poles) may be mounted on the side of the CA6 contactor. One auxiliary contact block (1 NO + 1 NC) is mounted at the factory. New style CA6-95…140 contactors with conventional DC coils have an "-L11" mounted to right side and an "-11" mounted to left side at the factory.



Miscellaneous Accessories

Accessory	Description	For use with...	Catalog Number	Price
 CM6  CM6-D00	**Mechanical Interlock-** ● No built-in auxiliaries	Interlocks CA6 contactors	**CM6**	**50**
		Interlocks CA6 contactors	**CM6-D00**	**57**
 CM6-D02	**Mechanical / Electrical Interlock -** ● Two built-in N.C. auxiliaries	Interlocks CA6 to CA7-60...85 contactors	**CM6-C02**	**57**
		Interlocks CA6 contactors	**CM6-D02**	**68**

❶ Electronic compatible auxiliary contacts function through the use of an internal micro-switch and have the following ratings:

IEC 947 Data:		
AC-1	250V	0.1A
AC-15/DC-13 min.	3…125V	1…100mA
UL 508, CSA 22.2 Data:	250VAC max.	0.1A
Minimum Switching	17V	5mA

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Miscellaneous Accessories

Accessory	Description	For use with...	Catalog Number	Price
	**Surge Suppressor -** Limits voltage spikes when switching off coil. Attaches to all CA6 contactors. RC Link: 21-48V 50Hz . 24-55V 60Hz 95-110V 50 Hz / 110-127V 60 Hz 190-240V 50Hz / 220-277V 60Hz 380-550V 50Hz / 440-575V 60Hz	Conventional AC Coils	**CRC6-48** **CRC6-110** **CRC6-240** **CRC6-550**	**37**
	Varistor Link: 12-55V 50/60Hz 56-136V 50/60Hz 137-277V 50/60Hz 278-575V 50/60Hz	Conventional AC Coils	**CRV6-55** **CRV6-136** **CRV6-277** **CRV6-575**	**24.50**
	Varistor Link: 24-28V AC/DC 48-72V DC 43-65V 50/60Hz 208-277 50/60 Hz 380-400V 50/60Hz	Electronic (-EI) Coils ❶	**CRV6-40** **CRV6-55** **CRV6-75** **CRV6-550** **CRV6-460**	**24.50**

Marking Systems

Component	Description	Pkg. Qty.	Catalog Number	Price Each
	**Label Sheet -** 1 sheet with 105 self-adhesive paper labels each, 6 x17mm	1	**CA7-FMS**	**See page A58**
	**Marking Tag Sheet -** 1 sheet with 160 perforated paper labels each, 6 x 17mm. To be used with transparent cover	1	**CA7-FMP**	
	Transparent Cover - To be used with Marking Tag Sheets	100 ❷	**CA7-FMC**	
	Tag Carrier - For marking with Clip-on Tags. See Terminals Section for complete listing of Clip-on Tags.	100 ❷	**CA7-FMA2**	

❶ "EI" contactors are supplied with factory installed integrated surge protection (see page A87).
❷ Minimum order quantity is one package of 100. Price each x 100 = total price.

Renewal Coils - A.C., Conventional Coil ❶

AC Control Voltages			AC Coil Codes	For use with contactor...		Optional RC Module ❷	Optional Varistor Module ❷
Conventional Coil				CA6-95 CA6-110	CA6-140 CA6-180 CAN6-180		
50 Hz	60 Hz	50/60 Hz		Catalog No.	Catalog No.	Catalog No.	Catalog No.
24V	~	~	24A	CA6-TG407	CA6-TG407	CRC6-48	CRV6-55
~	24V	~	**24**	**CA6-TG013**	**CA6-TG013**	**CRC6-48**	**CRV6-55**
32V	36V	~	~	CA6-TG481	CA6-TG481	CRC6-48	CRV6-55
42V	48V	~	48	CA6-TG482	CA6-TG482	CRC6-48	CRV6-55
48V	55V	~	48A	CA6-TG414	CA6-TG414	CRC6-48	CRV6-55
110V	120V	~	**120B**	**CA6-TG473**	**CA6-TG473**	**CRC6-110**	**CRV6-136**
~	208V	~	208	CA6-TG049	CA6-TG049	CRC6-240	CRV6-277
220-230V	240V	~	**240B**	**CA6-TG441**	**CA6-TG441**	**CRC6-240**	**CRV6-277**
240V	277V	~	277	CA6-TG480	CA6-TG480	CRC6-240	CRV6-277
380V-400V	440V	~	380	CA6-TG071	CA6-TG071	CRC6-880	CRV6-575
415V	480V	~	**480**	**CA6-TG475**	**CA6-TG475**	**CRC6-550**	**CRV6-575**
440V	508V	~	~	CA6-TG478	CA6-TG478	CRC6-550	CRV6-575
500V	575V	~	575	CA6-TG479	CA6-TG479	CRC6-550	CRV6-575
550V	600V	~	600	CA6-TG476	CA6-TG476	CRC6-550	CRV6-575
Price				**212**		See page A105 for pricing	

CA6 A.C. Coil (typical)

Renewal Coils - D.C., Conventional Coil ❶❸

DC Control Voltages	DC Coil codes	For use with contactor...		Factory Integrated Varistor built into coil
Conventional Coil		CA6-95 CA6-110	CA6-140 CA6-180	
		Catalog No.	Catalog No.	
12V	12D	CA6-TG708	CA6-TG708	Yes
24V	**24D**	**CA6-TG714**	**CA6-TG714**	**Yes**
48V	48D	CA6-TG724	CA6-TG724	Yes
110V	**110D**	**CA6-TG733**	**CA6-TG733**	**Yes**
125V	125D	CA6-TG737	CA6-TG737	Yes
220V	**220D**	**CA6-TG761**	**CA6-TG761**	**Yes**
240V	~	CA6-TG750	CA6-TG750	Yes
250V	250D	CA6-TG751	CA6-TG751	Yes
Price		**300**		

❶ Other coil voltages available. Contact your Sprecher + Schuh representative for information.
❷ Not factory installed, must be ordered separately.
❸ For conventional DC coils, the pickup winding must be connected to a NC late-break auxiliary contact.

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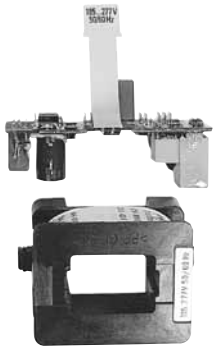
Renewal Coils - A.C., "-EI" Electronic Coil ❶❸❺

AC Control Voltages		AC Coil Codes ❷	For use with contactor...				'EI' Coil Suppressor Info	
			CA6-95-EI CA6-110-EI CA6-140-EI CA6-180-EI CAN6-180-EI CA6-210-EI CA6-250-EI	CA6-300-EI CAN6-300-EI	CA6-420-EI	CA6-630-EI CA6-860-EI	Factory Integrated Suppressor on Coil Circuit Board ❸	Factory Installed External Suppressor Module ❸
EI Coil								
60 Hz	50/60 Hz		Catalog No.	Catalog No.	Catalog No.	Catalog No.		Catalog No.
~	24V	24	CA6-TGE855	~	~	~	No	CRV6-40
~	42-64V	48	CA6-TGE864	CA6-TGE864	~	~	No	CRV6-75
~	110-130V	**120**	**CA6-TGE865**	**CA6-TGE865**	**CA6-THE865**	~	Yes	~
~	208-277V	**220W**	CA6-TGE866	CA6-TGE866	CA6-THE866	~	Yes	❹
~	380-500V	**460W**	CA6-TGE867	CA6-TGE867	CA6-THE867 ❽	~	Yes	RC 100N ❺
~	110-130V	**120**	~	~	~	CA6-TJE865 ❻	Yes	~
~	200-220V	**208W**	~	~	~	CA6-TJE878	Yes	~
~	230-250V	**240W**	~	~	~	CA6-TJE879 ❻	Yes	~
~	277V	277	~	~	~	CA6-TJE880	Yes	~
~	380-415V	380	~	~	~	CA6-TJE867	Yes	~
~	440-480V	**480**	~	~	~	CA6-TJE868	Yes	~
Price			**515**	**515**	**685**	**1030**		



CA6 A.C. "-EI" coil (typical)

Renewal Coils - D.C., "-EI" Electronic Coil ❶❸❹

DC Control Voltage	DC Coil Codes	For use with contactor...				'EI' Coil Suppressor Info	
		CA6-95-EI CA6-110-EI CA6-140-EI CA6-180-EI CAN6-180-EI CA6-210-EI CA6-250-EI	CA6-300-EI CAN6-300-EI	CA6-420-EI	CA6-630-EI CA6-860-EI	Factory Integrated Suppressor on Coil Circuit Board ❸	Factory Installed External Suppressor Module ❸
EI Coil		Catalog No.	Catalog No.	Catalog No.	Catalog No.		Catalog No.
24V ❼	**24D**	**CA6-TGE708**	**CA6-TGE708**	~	~	No	CRV6-40
48-72V	48D	CA6-TGE779	CA6-TGE779	~	~	No	CRV6-55
110-130V	**120D**	CA6-TGE780	CA6-TGE780	CA6-THE780	~	Yes	~
200-255V	220D	CA6-TGE781	CA6-TGE781	CA6-THE781	~	Yes	~
110-130	**120**	~	~	~	CA6-TJE865 ❻	Yes	~
200-255V	**240W**	~	~	~	CA6-TJE879 ❻	Yes	~
Price		**600**	**600**	**772**	**1030**		

❶ Other coil voltages available. Contact your Sprecher + Schuh representative for more information.
❷ Coil Codes in bold letters and shaded indicate coils that are standard stocked items.
❸ Factory external suppressor module provided where shown, included with r eplacement coil.
❹ Factory integrated suppressor is overvoltage category III, for optional category IV, e.g. lightning protection, a CRV6-550 module can be added.
❺ Special capacitor module supplied on CA6-420 only, not shown in catalog.
❻ Coil is rated AC / DC.
❼ Customers selecting a 24V DC Coil should consider the "EI" functionality of the CA6.
❽ Contactor manufactured with 380-500V coils can not be interchanged with any other coils because of the circuit board built into the base of the CA6-420.

Main Contact - 3 Per Set

Main Contacts *(typical)*	For use with...	Catalog Number	Price/ Set
	CA6-95	**CA6-C95**	**290**
	CA6-95-EI	**CA6-CE95**	**343**
	CA6-110	**CA6-C110**	**360**
	CA6-110-EI	**CA6-CE110**	**360**
	CA6-140	**CA6-C140**	**550**
	CA6-140-EI	**CA6-CE140**	**550**
	CA6-180	**CA6-C180**	**685**
	CA6-180-EI	**CA6-CE180**	**685**
	CA6-210-EI	**CA6-CE210**	**895**
	CA6-250-EI	**CA6-CE250**	**1120**
	CA6-300-EI	**CA6-CE300**	**1345**
	CA6-420-EI	**CA6-CE420**	**1945**
	CA6-630-EI	**CA6-CE-630** ❹	**3700**
	CA6-860-EI	**CA6-CE-860** ❹	**4975**

Standard Terminal Hardware (screw & washer) ❶

Terminal Hardware	Fits Contactor...	Screw Type	Catalog Number	Price Each
	CA6-95 & 110	M6	**CA6-HF110**	**34**
	CA6-110-EI, 140(-EI) & 180(-EI)	M8	**CA6-HF180**	**48**
	CA6-210-EI to 420-EI	M10	**CA6-HF420**	**54**

Arc Chutes ❷❸

Arc Chutes *(typical)*	For use with...	Catalog Number	Price/ Set
	CA6-95	**CA6-A95**	**145**
	CA6-95-EI	**CA6-AE95**	**145**
	CA6-110	**CA6-A110**	**196**
	CA6-110-EI	**CA6-AE110**	**196**
	CA6-140	**CA6-A140**	**237**
	CA6-140-EI	**CA6-AE140**	**237**
	CA6-180	**CA6-A180**	**280**
	CA6-180-EI	**CA6-AE180**	**280**
	CA6-210-EI	**CA6-AE210**	**530**
	CA6-250-EI	**CA6-AE250**	**635**
	CA6-300-EI	**CA6-AE300**	**735**
	CA6-420-EI	**CA6-AE420**	**835**
	CA6-630-EI	**CA6-CE-630** ❹	**3700**
	CA6-830-EI	**CA6-CE-860** ❹	**4975**

❶ Set of six (6). Priced per set.
❷ One (1) required per contactor.
❸ CA6-…W Arc Chutes available by special order.
❹ Kit includes Main Contacts and Arc Chute Chamber.

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Replacement Contactors Cross Reference, Series CA1 to Series CA6 (Open Type Only) ❶

I_e [A] ❶		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Series CA1 Obsolete	Series CA6 Equivalent
		kW (50 Hz)				UL/CSA HP (60 Hz)							
						1 Ø		3 Ø					
AC-3	AC-1	230V	400V / 415V	500V	690V	115V	230V	200V	230V	460V	575V	Catalog Number	Catalog Number
95	160	30	50/55	63	80	7-1/2	15	25	30	60	75		CA6-95
						7-1/2	20	30	30	60	75	CA1-55	
110	160	32	55/63	75	100	10	25	40	40	75	100		CA6-110
						10	25	40	40	75	100	CA1-60	
110	160	32	55/63	75	100	10	25	40	40	75	100		CA6-140
						15	30	50	50	100	125	CA1-100	
180	250	55	90/100	90	132	~	40	50	60	150	150		CA6-180
						~	~	60	60	150	150	CA1-150	
210	350	63	110/125	150	200	~	50	60	75	150	200		CA6-210
						~	~	75	100	200	250	CA1-250	
250	350	80	132/150	160	250	~	~	75	100	200	250		CA6-250
300	450	90	160/160	200	300	~	~	100	125	250	300		CA6-300
						~	~	150	150	350	400	CA1-480	
420	500	132	200/250	300	425	~	~	150	175	350	400		CA6-420

CA1-10 Contactor

❶ Available auxiliary contacts may vary. See selection pages for more information.

Technical Information

		CA6-95(-EI)	CA6-110(-EI)	CA6-140(-EI)	CA6-180(-EI)	CA6-210-EI	CA6-250-EI	CA6-300-EI	CA6-420-EI	CA6-630-EI	CA6-860-EI
Rated Insulation Voltage U_i											
IEC, AS, BS, SEV, VDE 0660	[V]						1000V				
UL; CSA	[V]						600V				
Rated Voltage U_{imp}	(kV)						12kV				
Rated Voltage U_e - Main Contacts											
AC 50/60Hz	[V]						230, 240, 400, 415, 500, 690, 1000V				
DC	[V]						24, 48, 110, 220, 440V				
Operating Frequency for AC Loads	[Hz]						50/60Hz				
Switching Motor Loads											
Standard IEC Ratings											
AC-2, AC-3	230V	[A]	95	110	140	180	210	250	300	420	630	860
DOL & Reversing	240V	[A]	95	110	140	180	210	250	300	420	630	860
50Hz	400V	[A]	95	110	140	180	210	250	300	420	630	860
	415V	[A]	95	110(130)❶	140(155)❶	180(189)❸	210(227)❶	250(258)❶	300(315)❶	420	630	860
	500V	[A]	95	110	115/140❷	140(180)❶	210	250	300	420	630	753
	690V	[A]	95	110	115/140❷	140(180)❶	210	250	300	420	492	❸
	1000V	[A]	33	40	55	65	80	95	115	160	❸	❸
	230V	[kW]	30	34	45	57	67	80	97	135	200	250
	240V	[kW]	31	36	47	60	70	83	101	141	200	250
	400V	[kW]	53	61	78	101	118	140	170	238	335	500
	415V	[kW]	45(55)❶	63(75)❶	80(90)❶	105	122(132)❶	148(150)❶	174(185)❶	250	335	500
	500V	[kW]	66	76	80(90)❷	98(126)❶	150	177	213	300	450	560
	600V	[kW]	92	106	110/132❷	135(176)❶	205	250	300	425	500	❸
	1000V	[kW]	45	55	75	90	110	132	160	225	❸	❸
UL/CSA	115V	[A]	80	100	135	~	~	~	~	~		
DOL & Reversing 1∅	230V	[A]	68	110	136	176	216	~	~	~	❸	❸
60Hz	115 V	[HP]	7.5	10	15	~	~	~	~	~		
	230 V	[HP]	15	25	30	40	50	~	~	~		
	200V	[A]	78.2	120	120	150	177	221	285	414	552	692
	230 V	[A]	80	104	130	154	192	248	312	420	602	720
	460 V	[A]	77	96	124	180	180	240	302	414	590	702
3∅	575 V	[A]	77	99	125	144	192	242	289	382	562	651
	200 V	[HP]	25	40	40	50	60	75	100	150	200	250
	230 V	[HP]	30	40	50	60	75	100	125	175	250	300
	460 V	[HP]	60	75	100	150	150	200	250	350	500	600
	575 V	[HP]	75	100	125	150	200	250	300	400	600	700
AC4 (200,000 Op. Cycles)	230V	[A]	43	50	60	67	85	105	140	170		
50Hz	240V	[A]	43	50	60	67	85	105	140	170		
	400/415V	[A]	43	50	60	67	85	105	140	170	❸	❸
	500V	[A]	43	50	60	67	85	105	140	170		
	690V	[A]	43	50	60	67	85	105	140	170		
	1000V	[A]	19	23	37	43	60	72	85	105		
	230V	[kW]	13	15	17	20	25	32	45	55		
	240V	[kW]	13	15	18.5	22	25	32	45	55		
	400/415V	[kW]	22	25	32	37	45 / 50	55	75 /80	90 / 100	❸	❸
	500V	[kW]	25	32	40	45	55	75	100	110		
	690V	[kW]	40	45	55	63	80	100	132	160		
	1000V	[kW]	22	30	50	55	80	100	110	150		
Max. Operating Rate		[ops/hr]	120	120	120	100	120	100	70	70	❸	❸

❶ Values in ( ) represent ratings for AC3 & AC4 and result in reduced lifespan of 25%. Use 400V values for full life span.
❷ Second number is rating for the "-EI" model.
❸ Under test. Contact your Sprecher + Schuh representative.

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Electrical Data

			CA6-95(-EI)	CA6-110(-EI)	CA6-140(-EI)	CA6-180(-EI)	CA6-210-EI	CA6-250-EI	CA6-300-EI	CA6-420-EI	CA6-630-EI	CA6-860-EI
Switching Motor Loads *(continued)*												
Wye-Delta (Star Delta)	230V	[A]	165	191	242	312	364	433	520	727	~	~
50Hz	240V	[A]	165	191	242	312	364	433	520	727	~	~
	400V	[A]	165	191	242	312	364	433	520	727	~	~
	415V	[A]	165	100(132)	242(268)❶	312(332)	364(393)❶	433(447)❶	520(546)❶	727	~	~
	500V	[A]	165	191	199 / 242❷	312	364	433	520	727	~	~
	690V	[A]	165	191	199 / 242❷	312	364	433	520	727	~	~
	1000V	[A]	55	69	95	113	139	165	200	277	~	~
	230V	[kW]	45	55	75	90	110	132	160	220	~	~
	240V	[kW]	50	63	80	100	125	150	160	250	~	~
	400V	[kW]	80	100	132	160	200	250	300	425	~	~
	415V	[kW]	80(90)❶	100(132)❶	132(160)❶	160	220	250	315(335)❶	425(450)❶	~	~
	500V	[kW]	100	132	132 / 160❷	200	250	315	375	530	~	~
	690V	[kW]	132	160	200 / 220❷	300	355	425	530	750	~	~
	1000V	[kW]	75	90	132	160	200	220	280	400	~	~
60 Hz	200V	[HP]	40	60	60	75	100	125	175	250	~	~
	230V	[HP]	50	60	75	100	125	175	200	250	~	~
	460V	[HP]	100	125	175	200	250	350	450	600	~	~
	575V	[HP]	125	150	200	250	300	450	500	650	~	~
CSA Elevator Duty	200V	[HP]	20	25	30	40	50 ❸	~	~	~	~	~
Full voltage	230V	[HP]	25	30	40	50	50 ❸	~	~	~	~	~
	460V	[HP]	50	60	75	100	125 ❸	~	~	~	~	~
	575V	[HP]	60	75	75	100	125 ❸	~	~	~	~	~
Wye-Delta	200V	[HP]	30	40	50	60	75 ❸	~	~	~	~	~
	230V	[HP]	40	50	60	75	75 ❸	~	~	~	~	~
	460V	[HP]	75	100	125	150	200 ❸	~	~	~	~	~
	575V	[HP]	100	125	125	150	200 ❸	~	~	~	~	~
AC-1 Load, 3∅ Switching	I_{th}	[A]	160	160	250	250	350	350	450	540	800	1000
Ambient Temperature 40°C	230V	[kW]	64	64	100	100	139	139	179	215	319	398
	240V	[kW]	67	67	104	104	145	145	187	224	333	416
	400V	[kW]	111	111	173	173	242	242	312	374	554	693
	415V	[kW]	115	115	180	180	252	252	323	388	575	719
	500V	[kW]	139	139	217	217	303	303	390	468	693	866
	690V	[kW]	191	191	299	299	418	418	538	645	956	1195
	1000V	[kW]	277	277	433	433	606	606	779	935		
Ambient Temperature 60°C	I_{th}	[A]	135	135	210	210	300	300	380	425	~	~
	230V	[kW]	54	54	84	84	120	120	151	169	~	~
	240V	[kW]	56	56	87	87	125	125	158	177	~	~
	400V	[kW]	94	94	145	145	208	208	263	294	~	~
	415V	[kW]	97	97	151	151	216	216	273	305	~	~
	500V	[kW]	117	117	182	182	260	260	329	368	~	~
	690V	[kW]	161	161	251	251	359	359	454	508	~	~
	1000V	[kW]	234	234	364	364	520	520	658	736	~	~

❶ Values in ( ) represent ratings for AC3 & AC4 and result in reduced lifespan of 25%. Use 400V values for full life span.
❷ Rating CA6-140 / CA6-140-EI.
❸ CSA Elevator Duty test passed. Documentation pending.

Electrical Data

			CA6-95(-EI)	CA6-110(-EI)	CA6-140(-EI)	CA6-180(-EI)	CA6-210-EI	CA6-250-EI	CA6-300-EI	CA6-420-EI	CA6-630-EI	CA6-860-EI
Continuous Current (UL/CSA)												
General Purpose Rating (40°C)	Open	[A]	178	178	250	250	350	350	420	500	760	1000
	Enclosed	[A]	160	160	220	220	300	300	340	420	630	860
Lighting Loads											❶	❶
Elect.Dischrg.Lamps-AC-5a,	Open	[A]	144	144	225	225	315	315	405	450		
single compensated	Enclosed	[A]	122	122	189	189	270	270	342	383		
Incandescent Lamps - AC-5b		[A]	107	120	140	170	210	250	300	420		
Switching power transformers AC-6a												
Inrush												
Rated transformer current, P_e												
n=30	240VAC	[A]	53	60	70	85	105	125	150	210		
	230 VAC	[kVA]	21	24	28	34	42	50	60	84		
	240 VAC	[kVA]	22	25	29	35	44	52	62	87		
	400 VAC	[kVA]	37	42	48	59	73	87	104	145	❶	❶
	415 VAC	[kVA]	38	43	50	61	75	90	108	151		
	500 VAC	[kVA]	46	52	61	74	91	108	130	182		
	690 VAC	[kVA]	64	72	84	102	125	149	179	251		
	1000 VAC	[kVA]	92	104	121	147	182	217	260	364		
n = 20	690 VAC	[A]	80	90	105	128	158	188	225	315		
n = 15	690 VAC	[A]	107	120	140	170	210	250	300	420		
60Hz Peak inrush/peak rated transformer												
n = 30		[A]	53	60	70	85	105	125	150	210		
	200V	[kVA]	18.4	20.8	24.1	29.4	34.4	43.3	52.0	72.2		
	208V	[kVA]	19.1	26.6	25.2	30.6	37.8	45.6	54.0	75.7		
	240V	[kVA]	22.0	24.9	21.1	38.3	43.6	52.6	62.4	81.3	❶	❶
	480V	[kVA]	44.1	49.9	58.2	79.7	87.3	104	125	175		
	600V	[kVA]	55.1	62.4	72.7	88.3	101	130	156	218		
	660V	[kVA]	60.6	68.6	80.0	97.2	120	143	171	240		
60Hz Peak inrush/peak rated transformer												
n = 20		[A]	80	90	105	128	158	188	225	315		
	200V	[kVA]	27.7	31.2	36.4	44.3	54.7	65.4	77.9	109		
	208V	[kVA]	28.8	32.4	37.8	46.1	56.3	67.7	84.4	113		
	240V	[kVA]	33.3	37.4	63.6	53.2	65.7	78.2	93.3	171	❶	❶
	480V	[kVA]	66.5	74.8	87.3	106	131	156	187	262		
	600V	[kVA]	83.1	93.5	109	133	164	195	234	327		
	660V	[kVA]	91.5	103	120	146	131	215	257	360		
60Hz Peak inrush/peak rated transformer												
n = 15		[A]	107	120	140	170	210	250	300	420		
	200V	[kVA]	39.1	46.6	48.5	58.3	72.7	86.6	104	145		
	208V	[kVA]	38.5	43.2	50.4	61.2	75.7	90.1	108	151		
	240V	[kVA]	44.5	43.9	58.2	70.7	87.3	104	125	175	❶	❶
	480V	[kVA]	82.0	99.8	116	141	175	208	243	349		
	600V	[kVA]	111	125	145	177	218	260	312	436		
	660V	[kVA]	122	137	160	194	240	286	343	480		

❶ Under test. Contact your Sprecher + Schuh representative.

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Electrical Data

			CA6-95(-EI)	CA6-110(-EI)	CA6-140(-EI)	CA6-180(-EI)	CA6-210-EI	CA6-250-EI	CA6-300-EI	CA6-420-EI	CA6-630(EI	CA6-860-EI
DC Ratings												
DC-1 Rating at 60°C												
Non-inductive or slightly	24VDC	[A]	135	135	210	210	300	300	380	425	❶	❶
inductive loads, resistive	48VDC	[A]	135	135	210	210	300	300	380	425		
furnaces	110VDC	[A]	135	135	210	210	300	300	380	425		
	220VDC	[A]	3	3	3.3	3.3	4.9	4.9	4.9	5.2		
1 Pole	440VDC	[A]	0.6	0.6	1	1	1	1	1	1.2		
	24VDC	[A]	135	135	210	210	300	300	380	425		
	48VDC	[A]	135	135	210	210	300	300	380	425		
2 Poles in Series	110VDC	[A]	135	135	210	210	300	300	380	425	❶	❶
	220VDC	[A]	135	135	210	210	300	300	380	425		
	440VDC	[A]	3	3	3.3	3.3	4.9	4.9	4.9	5.2		
	24VDC	[A]	135	135	210	210	300	300	380	425		
	48VDC	[A]	135	135	210	210	300	300	380	425		
3 Poles in Series	110VDC	[A]	135	135	210	210	300	300	380	425	❶	❶
	220VDC	[A]	135	135	210	210	300	300	380	425		
	440VDC	[A]	11	11	11	11	14	14	14	15		
DC-3 Rating at 60°C												
Shunt wound motors -	24VDC	[A]	135	135	210	210	300	300	380	425		
Starting, reverse current	48VDC	[A]	135	135	210	210	300	300	380	425		
breaking, reversing, stepping	110VDC	[A]	135	135	210	210	300	300	380	425	❶	❶
	220VDC	[A]	135	135	210	210	300	300	380	425		
3 Poles in Series	440VDC	[A]	3	3	3.5	3.5	4.1	4.1	4.1	5.8		
DC-5 Rating at 60°C												
Series wound motors -	24VDC	[A]	135	135	210	210	300	300	380	425		
Starting, reverse current	48VDC	[A]	135	135	210	210	300	300	380	425		
breaking, reversing, stepping	110VDC	[A]	135	135	210	210	300	300	380	425	❶	❶
	220VDC	[A]	135	135	210	210	300	300	380	425		
3 Poles in Series	440VDC	[A]	1.2	1.2	2.1	2.1	2.4	2.4	2.4	3.0		

❶ Under test. Contact your Sprecher + Schuh representative.

Electrical Data

			CA6-95(-EI)	CA6-110(-EI)	CA6-140(-EI)	CA6-180(-EI)	CA6-210-EI	CA6-250-EI	CA6-300-EI	CA6-420-EI	CA6-630-EI	CA6-860-EI
Capacitor Ratings												
Capacitor Switching - 50Hz												
Single Capacitor - 40°C	230 V	[kVar]	45	45	70	70	98	98	125	139	❶	❶
	240 V	[kVar]	47	47	73	73	102	102	131	145		
	400 V	[kVar]	78	78	121	121	170	170	218	242		
	415 V	[kVar]	81	81	126	126	176	176	226	252		
	500 V	[kVar]	97	97	152	152	212	212	273	303		
	690V	[kVar]	134	134	209	209	293	293	376	418		
	1000 V	[kVar]	194	194	303	303	424	424	546	606		
Single Capacitor - 60°C	230 V	[kVar]	38	38	59	59	84	84	106	119		
	240 V	[kVar]	39	39	61	61	87	87	111	124		
	400 V	[kVar]	65	65	102	102	145	145	184	206		
	415 V	[kVar]	68	68	106	106	151	151	191	214	❶	❶
	500 V	[kVar]	82	82	127	127	182	182	230	258		
	690V	[kVar]	103	103	176	176	251	251	318	356		
	1000 V	[kVar]	164	164	255	255	364	364	461	515		
Capacitor Bank- 40°C	230 V	[kVar]	42	45	70	70	98	98	125	139		
	240 V	[kVar]	43	47	73	73	102	102	131	145		
	400 V	[kVar]	44	56	78	111	170	170	218	212		
	415 V	[kVar]	44	56	76	112	170	176	226	252	❶	❶
	500 V	[kVar]	44	56	76	113	172	212	273	303		
	690V	[kVar]	45	57	78	114	174	247	356	418		
	1000 V	[kVar]	46	58	79	116	177	251	361	606		
Capacitor Bank- 60°C	230 V	[kVar]	38	38	59	59	84	84	106	119		
	240 V	[kVar]	39	39	61	61	87	87	111	124		
	400 V	[kVar]	44	56	76	102	145	145	184	206		
	415 V	[kVar]	44	56	76	106	151	151	191	214	❶	❶
	500 V	[kVar]	44	56	76	113	172	182	230	258		
	690V	[kVar]	45	57	78	114	174	247	318	356		
	1000 V	[kVar]	46	58	79	116	177	251	361	515		
Capacitor Switching - 60Hz												
Single Capacitor - 40°C	200 V	[kVar]	39	39	61	61	85	85	109	121	❶	❶
	230 V	[kVar]	45	45	70	70	88	88	125	133		
	460 V	[kVar]	83	83	139	139	195	195	251	273		
	600V	[kVar]	116	116	182	182	255	255	327	364		
Capacitor Bank- 40°C	200 V	[kVar]	39	39	61	61	85	85	103	121	❶	❶
	230 V	[kVar]	42	45	70	70	98	98	125	135		
	460 V	[kVar]	44	56	76	112	131	195	254	279		
	600V	[kVar]	45	57	77	114	173	246	327	364		

❶ Under test. Contact your Sprecher + Schuh representative.

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Electrical Data

			CA6-95(-EI)	CA6-110(-EI)	CA6-140(-EI)	CA6-180(-EI)	CA6-210-EI	CA6-250-EI	CA6-300-EI	CA6-420-EI	CA6-630-EI	CA6-860-EI
Short-Circuit Coordination												
Contactors without Motor Protection Relays												
DIn Fuses - gG, gL												
Available Fault Current		[A]	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	~	~
Type "1"		[A]	250(315)	250(315)	250(355)	250(355)	500	500	630	630	❶	❶
Type "2" (380/400/415/690V) ❹		[A]	200(250)	200(250)	200(315)	200(315)	400	400	500	500	|	|
Type "2" (1000V) ❹		[A]	200(250)	200(250)	200(315)	200(315)	400	400	500	500	|	|
cUL Short-Circuit Ratings												
Class K1, RK1, K5, and RK5 Fuses (L Fuses)												
Available Fault Current		[A]	10 KA	10 KA	10 KA	10 KA	10 KA	18 KA	18 KA	18 KA	30 KA	42 KA
cUL Max. Rating (600V) ❸ Type 1		[A]	225	250	350	450	500	L-700	L-700	L-1000	L-2000	L-2500
Class J CSA & HRCI-J Fuses ❷												
Available Fault Current		[A]	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	~	~
cUL Max. Rating (600V) ❸ Type 2		[A]	200	200	250	300	400	400	500	600	~	~
Circuit Breaker, inverse time ❺												
Available Fault Current		[A]	10 KA	10 KA	10 KA	10 KA	10 KA	18 KA	18 KA	18 KA	30 KA	42 KA
cUL Max. Rating (600V) ❸ Type 1		[A]	125	150	200	250	300	350	400	500	1200	1200
Short Time Current Withstand Ratings												
I_{cw} 60° C	1 S	[A]	1800	1800	1800 / 2550 ❷	2550	3405	3870	4725	6376	❶	❶
	4 S	[A]	1500	1500	1800 / 1970 ❷	1970	3150	3870	4100	6376	|	|
	10 S	[A]	1040	1040	1240 / 1360 ❷	1480	2760	2520	2840	4200	|	|
	15 S	[A]	860	860	860 / 1130 ❷	1130	2000	2110	2270	3460	|	|
	60 S	[A]	650	650	650 / 850 ❷	850	1215	1300	1500	1880	|	|
	240 S	[A]	340	340	340 / 600 ❷	600	705	750	840	1280	|	|
	900 S	[A]	240	240	250 / 440 ❷	440	460	500	590	840	|	|
Off Time Between Operations		[Min.]	20	20	20	20	30	30	30	30	|	|
Resistance and Watt Loss I_e AC3												
Resistance per power pole		[mΩ]	0.4	0.4	0.42	0.42	0.22	0.22	0.18	0.15	0.19	0.14
Watt Loss - 3 power poles		[W]	10.8	14.5	24.6	40.8	29.4	41.7	48.6	79.5	78.4	103.2
Coil and 3 power poles	AC	[W]	20.8(16.8)	24.5(20.5)❷	34.6(30.6)❷	50.8(46.8)❷	35.4	47.7	54.6	89.5	105.4	133.2
(@I_{eAC3})	DC	[W]	18.8(16.8)	22.5(20.5)❷	32.6(30.6)❷	48.8(46.8)❷	35.4	47.7	54.6	87.5	105.4	133.2

❶ Under test. Contact your Sprecher + Schuh representative.
❷ Rating CA6-140 / CA6-140-EI.
❸ UL Listed Combination. (UL File E41850) Per UL508A, NEC409 and CSA 22.2 No.14 for contactor and fuses or circuit breaker only.
❹ Per IEC 60947-1 for contactor and fuses only.
❺ When used as a Branch Circuit Protection device, NEC 430-152 defines the maximum rating of an Inverse-time circuit breaker to be sized at 250% of the motor nameplate FLA for most applications.

Short Circuit Ratings

High Fault Short Circuit Ratings per UL508 and CSA 22.2 No.14

CEP7 Second Generation Cat. No.		Contactor Catalog No.	Max. starter FLC (A)	Fuse Ratings			UL Listed Circuit Breaker Ratings ❶		
				Max. available fault current (kA)	Max. voltage (V)	UL Class J and CSA HRCI-J fuse (A)	Short Circuit Rating (kA)	Max. Voltage (V)	Max. CB rating (A)
CEP7	EEVF	CA6-95	90	100	600	200	10	600	125
	EEHF	CA6-95	95			200			
		CA6-110 CAN6-110	110			200	10	600	150
		CA6-140	140			250	10	600	200
	EEJF	CA6-180 CAN6-180	180			300	10	600	250
	EEJG	CA6-210	200	100	600	400	10	600	300
		CA6-250	200			400	18	600	350
		CA6-300 CAN6-300	200			500	18	600	400
	EEKG	CA6-210	210	100	600	400	10	600	300
		CA6-250	250			400	18	600	350
		CA6-300	300			500	18	600	400
	EELG	CA6-300 CAN6-300	300	100	600	500	18	600	400
		CA6-420	420			600	18	600	500

UL508 Tested Combination Assemblies - Motor Circuit Protector (HMCP per UL 489) - Magnetic Only ❷❸

Motor 3 ph [HP]	Eaton MCP Catalog Number (Max)	Magnetic Setting [A]	Contactor Catalog Number	Overload Relay Catalog Number	Rated Short-Circuit Current		IEC Coordination Type
					460 V 60 Hz (480 V line)	575 V 60 Hz (600 V line)	
75	HMCPE100R3C	3 - 10X	CA6-95-11-*	CEP7-EEHF	65kA	30kA	Type 1 ❷
100	HMCPE100R3C	3 - 10X	CA6-110-11-*	CEP7-EEHF	65kA	30kA	Type 1 ❷
125	HMCPJ250L5L	3 - 10X	CA6-140-11-*	CEP7-EEHF	65kA	30kA	Type 1 ❷
150	HMCPJ250L5L	3 - 10X	CA6-180-11-*	CEP7-EEJF	65kA	30kA	Type 1 ❷
200	HMCPJ250W5L	3 - 10X	CA6-210-11-*	CEP7-EEKG	65kA	30kA	Type 2
250	HMCP400X5W	3 - 10X	CA6-250-11-*	CEP7-EEKG	65kA	30kA	Type 1
300	HMCP400X5W	3 - 10X	CA6-300-11-*	CEP7-EEKG	65kA	30kA	Type 1
400	HMCPL600L6W	3 - 10X	CA6-420-11-*	CEP7-EELG	65kA	30kA	Type 1

UL508 Tested Combination Assemblies - Molded Case Circuit Breakers (MCCB per UL 489) - Thermal-Magnetic ❷❸

Motor 3 ph [HP]	Eaton MCCB Catalog Number (Max)	Magnetic Setting [A]	Contactor Catalog Number	Overload Relay Catalog Number	Rated Short-Circuit Current		IEC Coordination Type
					460 V 60 Hz (480 V line)	575 V 60 Hz (600 V line)	
60	EGH3110FFG	1100	CA6-95-11-*	CEP7-EEHF	65kA	30kA	Type 1 ❹
75	EGH3110FFG	1100	CA6-110-11-*	CEP7-EEHF	65kA	30kA	Type 1 ❹
100	JGH3200*	5 - 10X	CA6-140-11-*	CEP7-EEHF	65kA	30kA	Type 1 ❹
125	JGH3200*	5 - 10X	CA6-180-11-*	CEP7-EEJF	65kA	30kA	Type 1 ❹
150	JGH3250*	5 - 10X	CA6-210-11-*	CEP7-EEKG	65kA	30kA	Type 2
200	HKD3400*	5 - 10X	CA6-250-11-*	CEP7-EEKG	65kA	30kA	Type 1
250	HKD3400*	5 - 10X	CA6-300-11-*	CEP7-EEKG	65kA	30kA	Type 1
300	LGH3600*	5 - 10X	CA6-420-11-*	CEP7-EELG	65kA	30kA	Type 1

❶ Various Mfg. of UL Listed Circuit Breakers may be used.
❷ UL File pending approval at the time of this catalog printing. Refer to UL website at http://ul.com/controlequipment/shortcircuit.html.
❸ UL508 Tested combinations may not be substituted, ie: Eaton Breakers with Sprecher+Schuh contactors and overloads are specified.
❹ Type 2 Coordination when contactor is upsized to CA6-210.

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Short Circuit Ratings

IEC Short Circuit Ratings per EN60947-4-1

CEP7 Second Generation Cat. No.		Prospective S.C. current, Ir (kA)	Conditional S.C. current, Iq (kA)	Max. voltage (V)
CEP7	EEHF, EEJF, EEJG, EEKG	1	100	690
	EELG, EEMH	1		
	EENH	3 5		
	EEVF	5		

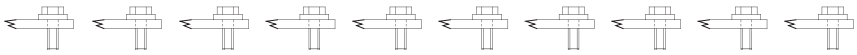
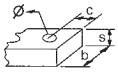
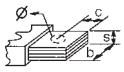
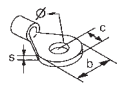
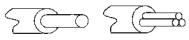
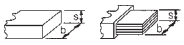
Standard Fault Short Circuit Ratings per UL508 and CSA 22.2 No.14

CEP7 Second Generation Cat. No.		Max. available fault current (kA)	Max. voltage (V)
CEP7	EEVF	10	600
	EEHF	10	
	EEJG, EEKG, EELG	18	
	EEMH, EENH	42	

IEC Type 1 and Type II Fuse Coordination with CA7 Series contactors per EN60947-4-1

CEP7 Second Generation Cat. No.		Contactor Cat. No.	Max. starter FLC (A)	Prospective S.C. current, Ir (kA)	Conditional S.C. current, Iq (kA)	Max. voltage (V)	Type I with Class J fuse (A)	Type II with Class J fuse (A)
CEP7	EEVF	CA6-95	90	5	100	600	200	200
	EEHF	CA6-95	95	10			200	200
		CA6-110	110				200	200
		CA6-140	140				250	250
	EEJF	CA6-180	180				300	300
	EEJG	CA6-210	200				400	400
		CA6-250	200				400	400
		CA6-300	200				500	500
	EEKG	CA6-210	210				400	400
		CA6-250	250				400	400
		CA6-300	300				500	500
	EELG	CA6-300	300	18			500	500
		CA6-420	420				600	600

Mechanical Data

			CA6-95(-EI)	CA6-110(-EI)	CA6-140(-EI)	CA6-180(-EI)	CA6-210-EI	CA6-250-EI	CA6-300-EI	CA6-420-EI	CA6-630-EI	CA6-860-EI
Service Life												
Mechanical	AC	[Mil.]	10	10	10	10	10	10	10	10	2	2
	DC	[Mil.]	10	10	10	10	10	10	10	10	2	2
Electrical	AC-3 (400V)	[Mil.]	1	1	1	1	1	1	1	1	R/F	R/F
Shipping Weights												
AC - CA6		[kg]	3.3 (3.8)	3.3 (3.8)	3.3 (3.8)	3.3 (3.8)	7.5	7.5	7.5	7.5	28.6	28.6
		[Lbs]	7.3 (8.4)	7.3 (8.4)	7.3 (8.4)	7.3 (8.4)	16.5	16.5	16.5	16.5	63	63
AC - CAU6		[kg]	8.9 (10.3)	8.9 (10.3)	10.3	10.3	18.5	18.5	18.5	18.5	R/F	R/F
		[Lbs]	19.9 (23)	19.9 (23)	23	23	41.3	41.3	41.3	41.3	R/F	R/F
DC - A6		[kg]	3.3 (3.8)	3.3 (3.8)	3.3 (3.8)	3.3 (3.8)	7.5	7.5	7.5	7.5	28.6	28.6
		[Lbs]	7.3 (8.4)	7.3 (8.4)	7.3 (8.4)	7.3 (8.4)	16.5	16.5	16.5	16.5	63	63
DC - CAU6		[kg]	8.9 (10.3)	8.9 (10.3)	10.3	10.3	18.5	18.5	18.5	18.5	R/F	R/F
		[Lbs]	19.9(23)	19.9(23)	23	23	41.3	41.3	41.3	41.3	R/F	R/F
Terminations - Power												
Type												
Direct Connection							Hexagonal Bolt					
	b max.	[mm]	20		25		30				52	
	c max.	[mm]	10		12.5		15				22	
	s max.	[mm]	2 x 5		2 x 5		2 x 6				2 x 8	
	Ø min.	[mm]	6.1		8.3		10.5				13	
Recommended Torque		[Nm]	8...10		10...12		16				68	
		[Lb-in]	90		250		250				400	
With Main Terminal Set (CA6-HB...)												
	sm. opening	[mm²]	16...35		16...35		25...240 ❶❷				~	
	lg. opening	[mm²]	16...70		16...95		25...240 ❶❷				~	
	sm. opening	[mm²]	16...50		16...50		25...300				~	
	lg. opening	[mm²]	16...95		16...120		25...300				~	
	b max.	[mm]	16		20		25				~	
	s. sm. opening	[mm]	3...9		3...9		6...20				~	
	s. lg. opening	[mm]	3...12		3...14		6...20				~	
Recommended Torque		[Nm]	8...10		10...12		20...25				~	
Wire Size per UL/CSA	sm. opening	[AWG]	#6...1 / 0		#6...1 / 0		#4...600MCM				~	
	lg. opening	[AWG]	#6...3 / 0		#6...250MCM		#4...600MCM				~	
Recommended Torque		[Lb-in]	106		124		220				~	
With Screw-type Lugs - Aluminum Clad (CA6-HU...)												
Screw-type lugs accept round conductors only												
CA6-105-HU		[AWG]	#6...#2 / 0		~		~				~	
Recommended Torque		[Lb-in]	106		~		~				~	
CA6-170-HU		[AWG]	~		#6...250MCM		~				~	
Recommended Torque		[Lb-in]	~		124		~				~	
CA6-420-HU	sm. opening	[AWG]	~		~		#2...500MCM				~	
	lg. opening	[AWG]	~		~		#2 / 0...600MCM				~	
Recommended Torque		[Lb-in]	~		~		375				~	

❶ Minimum 25mm² (#4 AWG) -95mm² (250mcm) with sleeve per DIN 46228.
❷ CA6-HB3 Main Terminal Set is not suitable for use with CEF1-41, 42 or 52 Electronic Overload Relays or CWE4-630 converter units.

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Mechanical Data *(continued)*

		CA6 95…110	CA6-95-EI	CA6-110-EI	CA6-140(-EI)	CA6-180(-EI)	CA6-210-EI	CA6-250-EI	CA6-300-EI	CA6-420-EI	CA6-630-EI	CA6-860-EI
With Screw-type Lugs - Copper Clad (CA6-L…)												
Screw-type lugs accept round conductors only												
CA6-L110	[AWG]	#8…#2 / 0			~			~			~	~
Recommended Torque	[Lb-in]	80			~			~			~	~
CA6-L180	[AWG]	~			#6…300 MCM			~			~	~
Recommended Torque	[Lb-in]	~			135			~			~	~
CA6-L420	[AWG]	~			~			2x #4…350 MCM			~	~
Recommended Torque	[Lb-in]	~			~			380			~	~
CA6-L630	[AWG]	~			~			~			2 x 2 / 0… 500 MCM	~
Recommended Torque	[Lb-in]	~			~			~			600	~
CA6-L860	[AWG]	~			~			~			~	4 x 2 / 0… 500 MCM
Recommended Torque	[Lb-in]	~			~			~			~	600

Terminations - Control

Description			 Combination Screw Head: Cross, Slotted, Pozidrive
Coils			
Wires	1 or 2	[mm2]	1...4
		[AWG]	16...12
Torque Requirement		[Nm]	1.4...2.3
		[Lb-in]	12...20
Control Modules			
Wires	1	[mm2]	0.08...2.5
		[AWG]	26...14
Degree of Protection - contactor			IP00 per IEC 60529 and DIN 40 050
Type of Protection - with accessories			
Single contactor cover			IP1X per IEC 60529 and DIN 40 050
With main terminal set			IP2LX per IEC 60529 and DIN 40 050
Protection against accidental contact			Finger and back-of-hand proof according to VDE 0106, Part 100

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Coil Data

			CA6-95…180	CA6-95-EI…300-EI	CA6-420-EI	CA6-630-EI…860-EI
Voltage Range			**Conventional Coil**	**"EI" Coil**	**"EI" Coil**	**"EI" Coil**
AC: 50Hz, 60Hz, 50/60 Hz	Pickup	[x U_s]	0.85…1.1	0.85 U_s min…1.1 U_s max	0.85 U_s min…1.1 U_s max	0.80 U_s min…1.1 U_s max
❶	Dropout	[x U_s]	0.3…0.6	0.3 U_s min…0.5 U_s max	0.3 U_s min…0.5 U_s max	0.3 U_s min…0.8 U_s max
DC	Pickup	[x U_s]	0.80…1.1	0.85 U_s min…1.1 U_s max	0.85 U_s min…1.1 U_s max	0.85 U_s min…1.1 U_s max
❷	Dropout	[x U_s]	0.30…0.6	0.3 U_s min…0.5 U_s max	0.3 U_s min…0.5 U_s max	0.3 U_s min…0.8 U_s max
Coil Consumption						
AC: 50Hz, 60Hz, 50/60 Hz	Pickup	[VA/W]	650 / 310	380 / 240	490 / 270	1915 / 1720
	Hold-in	[VA/W]	50 / 10	13 / 6	18 / 7	33 / 30
EI (B1-B2 24VDC Interface)		[VA/W]	~	15 ma	15 ma	15 ma
DC	Pickup	[W]	540 ❸	265 ❸	340 ❸	1980 ❸
	Hold-in	[W]	8	6	7	30
Operating Times						
AC: 50Hz, 60Hz, 50/60 Hz	Pickup	[ms]	20…47	20…45		60…100
	Dropout	[ms]	6…12	25…110		70…145
with RC Suppressor	Dropout	[ms]	9…18	~		~
DC	Pickup	[ms]	27…47	25…50		60…100
with Integ. Suppression	Dropout	[ms]	12…20	35…110		70…145
Insulation Class			Class "B" according to VDE 0660, Table 22			

CA6-EI Application Notes for 24 volt AC/DC Electronic Coils

The CA6-EI 24 VAC or 24 VDC electronic coils are sensitive to voltage drops. These notes are provided to assist customers in control wiring methods and the selection of a power supply.

< 10ms	I_{peak} =	25 amps	Start-up peak
< 100ms	I_{mean} =	11 amps	Pull-in values
> 100ms	I_{hold} =	0.5 amps	Average Hold-in values

Circuit operation

- While the electronic coil is switching on, the power supply must deliver a peak of 25 amps. This period will not exceed 10ms.
- During the contactor closing period, the pull-in current of the coil drops to 11 amps. This period will not exceed 100ms.
- After approximately 80ms the demand of the electronic coil will be reduced to the holding value; which has an average of 0.5 amps.

Power supply selection

- Use peak value (I_{peak}) for the selection of the power supply.
- A regulated power supply is preferred.
- If an unregulated power supply is utilized then the no load value of the power supply must be less than 28 volts. Additional attention must be given to decrease the control wire resistance because unregulated power supplies have a high ripple voltage.

Control Circuit Wiring

To minimize wire resistance see the following:

- The wire gauge (cross-section) must be sufficient to allow a wire resistance of less than 150 milli-ohms for a regulated power supply and 100 milli-ohms for an unregulated power supply. For unregulated power supplies, 16 AWG can be used for runs up to 25 feet (longer for regulated power supply). Consult Sprecher + Schuh for additional information if longer runs are required.
- Stranded wire should be fitted with ferrules.
- Terminations should be tightened within the recommended torque values.
- If multiple CA6-EI contactors are used in the control circuit, the electronic coil terminations should be fed directly from the power supply (home runs). Do NOT parallel (jumper) multiple coil terminations. Switching of the home runs must be accomplished through separate (individual) contacts of a control relay or control device.

A Recommendation

A CA6 contactor used in the "EI" mode removes the burden of the coil from the 24 VDC power supply. The integrated electronic interface allows line voltage, or at least a higher AC voltage (i.e., 120V), to be applied to coil terminals A1 – A2, while the 24 VDC low level milli-ampere signal switches the B1 – B2 interface. The "EI" mode (method) has significant advantages over direct coil switching at 24 VDC. See the description of operation on the next page.

❶ CA6-95...CA6-110: Dual-frequency 50/60 Hz conventional coils will only work properly within the pick-up operating limits of 0.9...1.1x Us, deviating from the IEC-60947-Standards stating pick-up operating limits of 0.85...1.1 x Us.

❷ Dual frequency coils are not recommended for use with CA6-140...180 since voltages less than 1.0 x Us will not operate reliably.

❸ Customers with 24 VDC applications should consider using the "EI" functionality of the CA6 (see pages A121-122).

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CA6 Electronic Coils *(CA6-95-EI…CA6-860-EI)*

CA6-EI contactors are supplied with an electronically controlled mechanism, which has an integrated electronic interface that consists of the following main parts:

- The coil bobbin rated for the control voltage.
- A printed circuit board with components for control and interface functions which is matched to the coil and rated for the control voltage.
- An interconnecting printed circuit board with coil terminals, which is located in the contactor base.
- R/C transient surge suppressors which are installed on the printed circuit board.

The CA6-EI coil bobbin and printed circuit board are a matched set; therefore, both must be changed when replacing the coil or changing out the coil to a different voltage. All replacement coils include both the coil bobbin and printed circuit board.

Commissioning

The CA6-EI contactor is operated in either the "E" mode (normal operation) or the "EI" mode (electronic interface operation) and is programmed by an orange "jumper" located on the bottom side of the contactor (opposite the coil terminals). This orange jumper is directly underneath main terminal T2 and is exposed by removing the small plastic cover that shields the mating space for the CRC/CRV protection element.

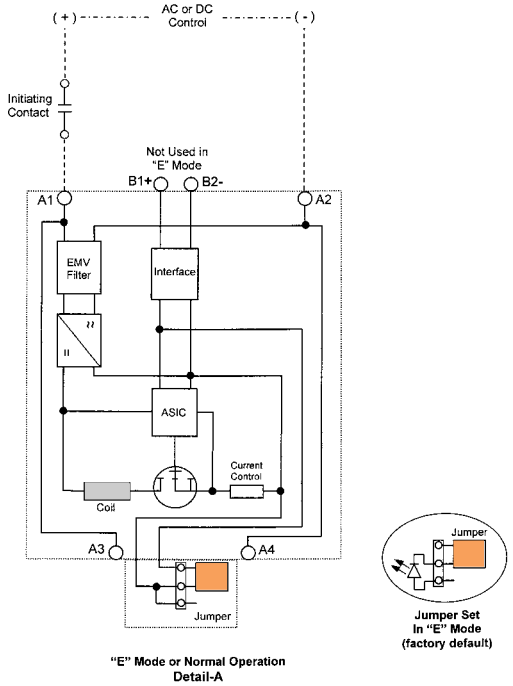
Electronic Operation – "E" Mode

For the "E" mode (factory default setting), the contactor is connected and controlled using terminals A1 & A2 in the same manner as a traditional contactor with an electromechanical coil mechanism. The contactor is programmed from the factory in the "E" mode by means of the orange jumper in the position as shown in Detail A. The "E" mode (or electronic mode) provides electronic control of the coil mechanism, but does not allow coil energizing from a low level signal source such as a PLC.

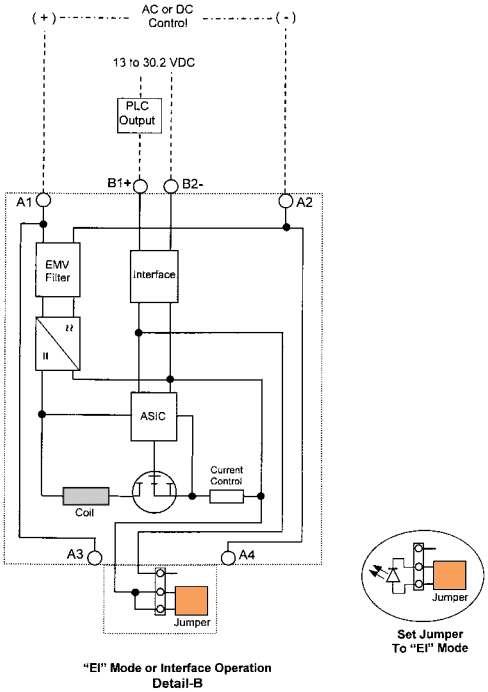
Electronic Interface Operation – "EI" Mode

For the "EI" mode, or optional electronic interface setting, the contactor can be switched from a PLC or other low-level signal source (13…30.2 VDC) without the need for an interposing relay. The contactor is programmed for the "EI" mode by moving the orange jumper to the position as shown in Detail B.

In the "EI" mode, the control voltage (VAC or VDC) must be permanently switched on to terminals A1 & A2 while in operation. The control signal from the PLC or other low-level signal source must be applied to terminals B1 & B2 (orange terminals) of the electronic interface in order to energize the contactor. The current burden of the interface is 15mA maximum.



"E" Mode or Normal Operation
Detail-A

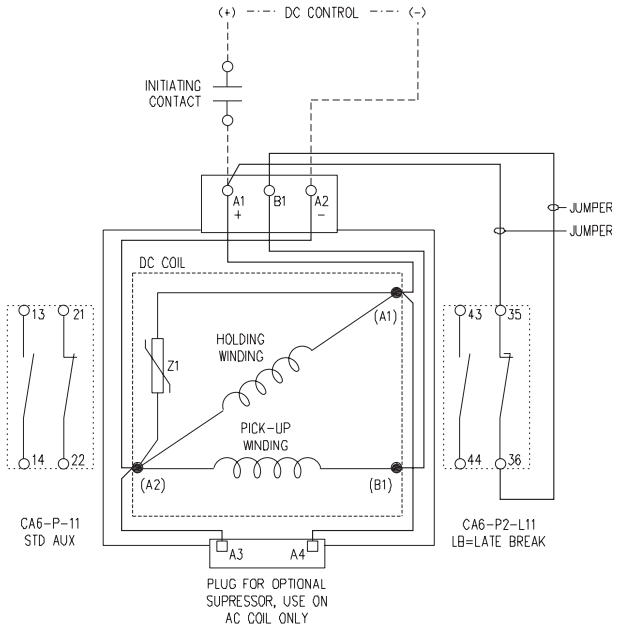


"EI" Mode or Interface Operation
Detail-B

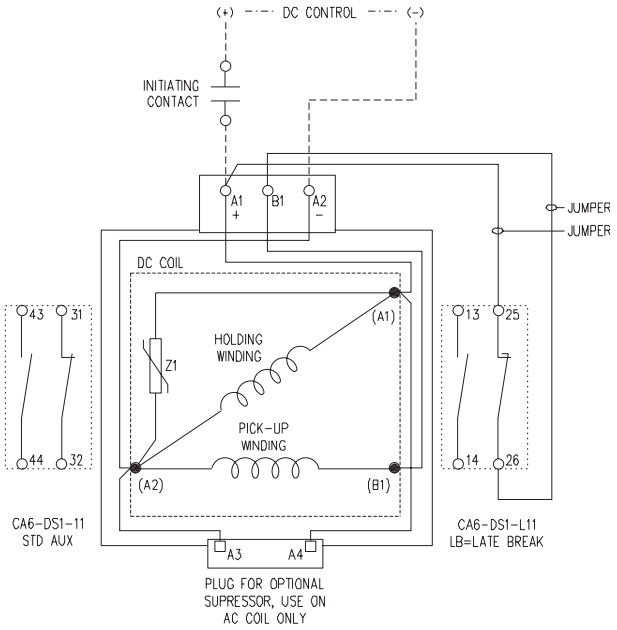
SSNA9000

CA6 Conventional DC Coil *(CA6-95…CA6-180)*

Conventional 3-lead DC Coil (Old Style)



Conventional 3-lead DC Coil (New Style)



Notes

1) The CA6 conventional DC coil has dual windings with three leads brought out. One winding is the “pick-up” winding and the other is the “holding” winding. The coil also has a built-in voltage limiting varistor (Z1).
2) The pick-up winding has low resistance while the holding winding has a higher resistance.
3) When the control circuit is energized, the contactor “pulls-in” through the lower resistance pick-up winding and the NC late break auxiliary contact. After the contactor seals in, the late break contact opens and the contactor is held in through the holding winding.
4) The pick-up winding is not designed for continuous operation and must be disconnected by the “late break” contact immediately after the contactor pulls-in.

Environmental and General Specifications

	CA6-95(-EI)	CA6-110(-EI)	CA6-140(-EI)	CA6-180(-EI)	CA6-210-EI	CA6-250-EI	CA6-300-EI	CA6-420-EI	CA6-630-EI	CA6-860-EI
Ambient Temperature										
Storage	-55...+80˚C (-67...176˚ F)									
Operation at rated current	-25...+60˚C (-67...140˚ F)									
Conditioned 15% current reduction	-70˚ C (158˚ F)									
Altitude at installed site	2000 meters above sea level per IEC 60947-1									
Resistance to Corrosion / Humidity	Damp-alternating climate: cyclic to IEC 68-2, 56 cycles. Dry heat: IEC 68-2, +100˚C (212˚F), relative humidity <50%, 7 days Damp tropical: IEC 68-2, +40˚C (.104˚F), relative humidity <92%, 56 days.									
Shock Resistance	IEC 68-2: Half sinusoidal shock 11 ms, 4g (12g in all three directions)									
Vibration Resistance	IEC 68-2: Static >2g, in normal position									
Operating Position	See Dimensions									
Standards	IEC60947-4, BS 5424, VDE 0660									
Approvals	CE, UL, CSA, Lloyd's Reg. of Shipping, SUVA, Germanischer Lloyd									

Auxiliary Contacts

			Conventional auxiliary contacts	Suitable for electronic circuits
Switching, AC & DC Loads				
AC-1 I_{th}	at 40˚C	[A]	16	0.1A at 250V
	at 60˚C	[A]	12	0.1A at 250V
AC-15 at rated operating voltage of:		[V]	230 / 240 / 400 / 415 / 500 / 690	
		[A]	5.5 / 5 / 3 / 2.5 / 1.6 / 1	1...100mA at 3...125V
DC-13, switching electromagnets at:		[V]	24 / 48 / 110 / 220 / 440	
		[A]	5 / 2 / 0.7 / 0.25 / 0.12	1...100mA at 3...125V
Short Circuit Protection - gG Fuse				
Type 2 Coordination		[A]	16	0.1
Rated Impulse Voltage U_{imp}		[kV]	8	1.5
Load carrying capacity per UL/CSA				
Rated Voltage		[V]	600 max.	250V max.
Continuous Rating		[A]	10 general purpose	
Switching Capacity			Heavy pilot duty (A600)	0.1A
Rated Voltage		[V]	600 max.	
Switching Capacity			Standard pilot duty (P600)	
Minimum Switching Capacity			17V, 10mA	17V, 5mA
Terminals				
Terminal Type				
			1...2.5	1...2.5
Maximum Wire Size per IEC 947-1			1...2.5	1...2.5
 Flexible with Wire-End Ferrule	1 Conductor	[mm²]	1...4	1...4
	2 Conductor	[mm²]		
 Solid/Stranded-Conductor	1 Conductor	[mm²]	1...4	1...4
	2 Conductor	[mm²]		
Recommended Tightening Torque		[Nm]	1.4...2.3	1.4...2.3
Max. Wire Size per UL/CSA		[AWG]	16...12	16...12
Recommended Tightening Torque		[lb-in]	12...20	12...20
Degree of Protection	IP2LX per IEC 529 and DIN 40 050			

Contact Ratings *(Per UL508/NEMA A600 & Q600)*

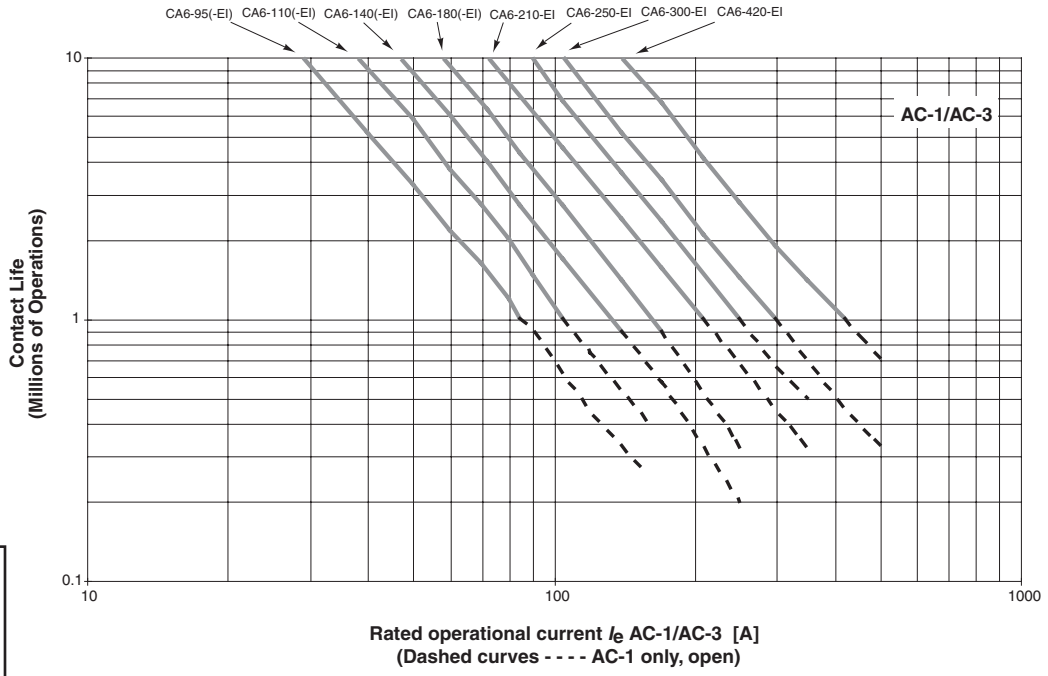
Standard	Circuit Voltage	Make (Amps/VA)	Break (Amps/VA)	Continuous Amps
A600	120AC 240AC 480AC 650AC	60A/7200VA 30A/7200VA 15A/7200VA 12A/7200VA	6A/720VA 3A/720VA 1.5/720VA 1.2/720VA	10
Q600	125DC 250DC 600AC	0.55/69VA 0.27A/69VA 0.1A/69VA	0.55A/69VA 0.27A/69VA 0.1A/69VA	2.5

SSNA9000

Life-Load Curves

AC-1 / AC-3

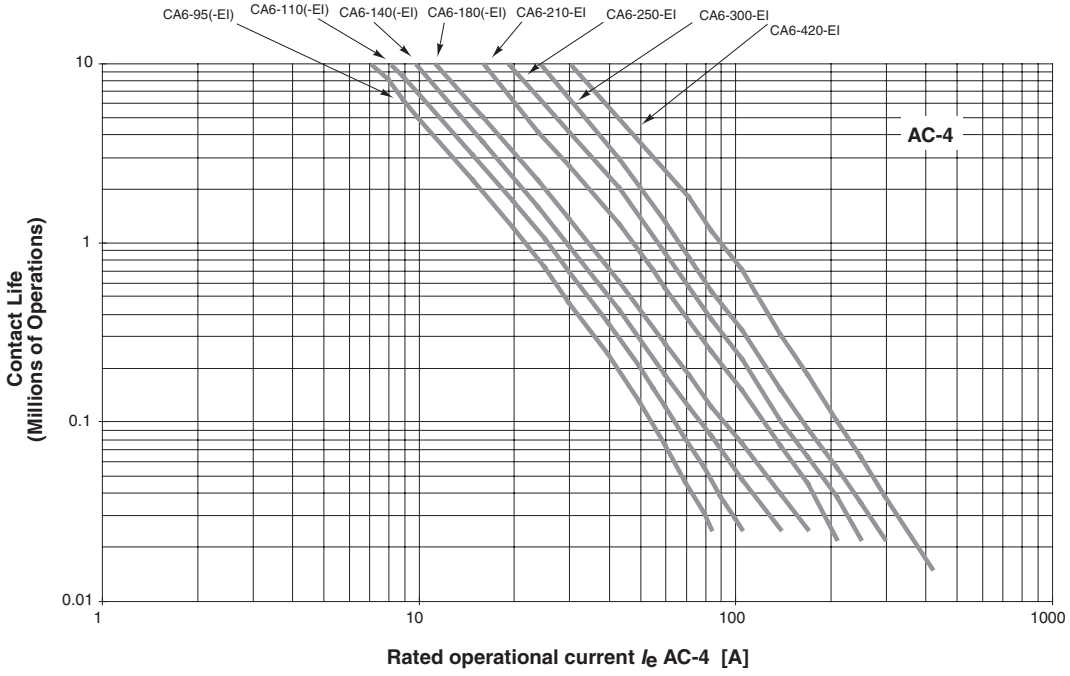
Non or slightly inductive loads, resistive furnaces; U_e=380...460 VAC ❶
Starting and stopping of running motors; U_e = 380...460 VAC



INSTRUCTIONS ON "HOW TO READ" LIFE CURVES CAN BE FOUND ON PAGE A7

AC-4

Starting with inching and plugging; U_e=380...460 VAC ❶



NOTE: The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

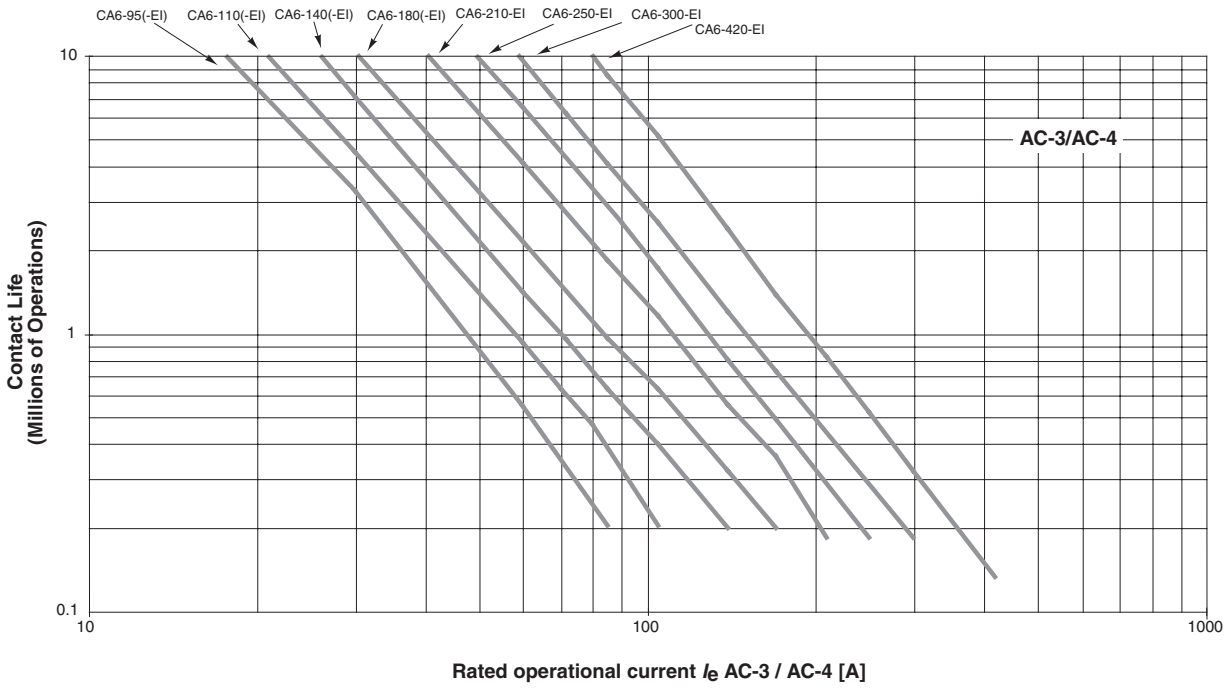
❶ 460V applications use 90% of curve value.

SSNA9000

Life-Load Curves

Mixed operation of squirrel-cage motors; U_e = 380...460 VAC ❶
AC-3 90% Starting and stopping of running motors
AC-4 10% Starting with inching or plugging

AC-3 (90%), AC-4 (10%)



Contact Life for Mixed Utilization Categories AC-3 and AC-4

In many applications, the utilization category cannot be defined as either purely AC-3 or AC-4. In those applications, the electrical life of the contactor can be estimated with the following equation:

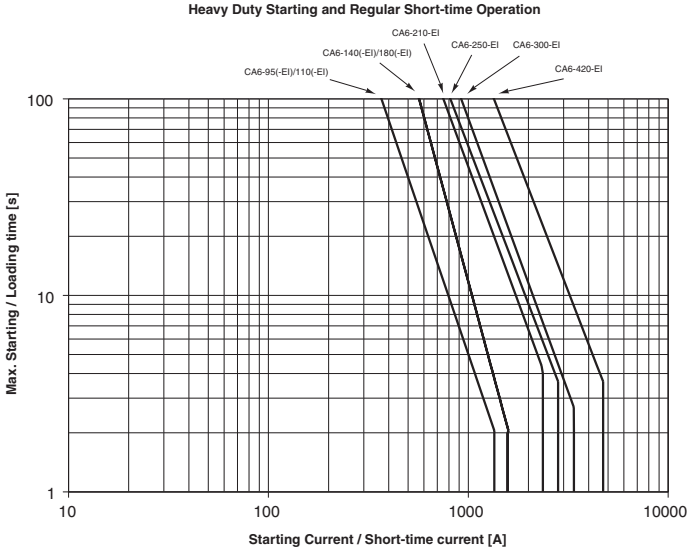
$$L_{mixed} = L_{ac3} / [1+P_{ac4} \times (L_{ac3}/L_{ac4}-1)]$$, where:

L_{mixed} Approximate contact life in operations for a mixed AC-3/AC-4 utilization category application.

L_{ac3} Approximate contact life in operations for a pure AC-3 utilization category (from the AC-3 life-load curve).

L_{ac4} Approximate contact life in operations for a pure AC-4 utilization category (from the AC-4 life-load curve).

P_{ac4} Percentage of AC-4 operations



NOTE: The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

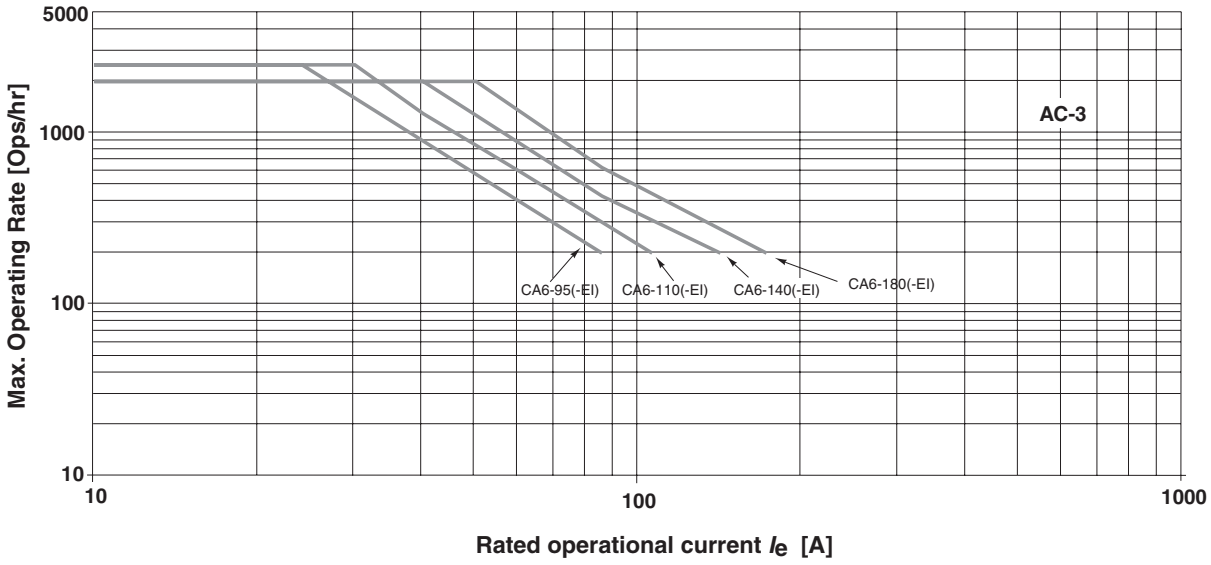
❶ 460V applications use 90% of curve value.

SSNA9000

Maximum Operating Rates

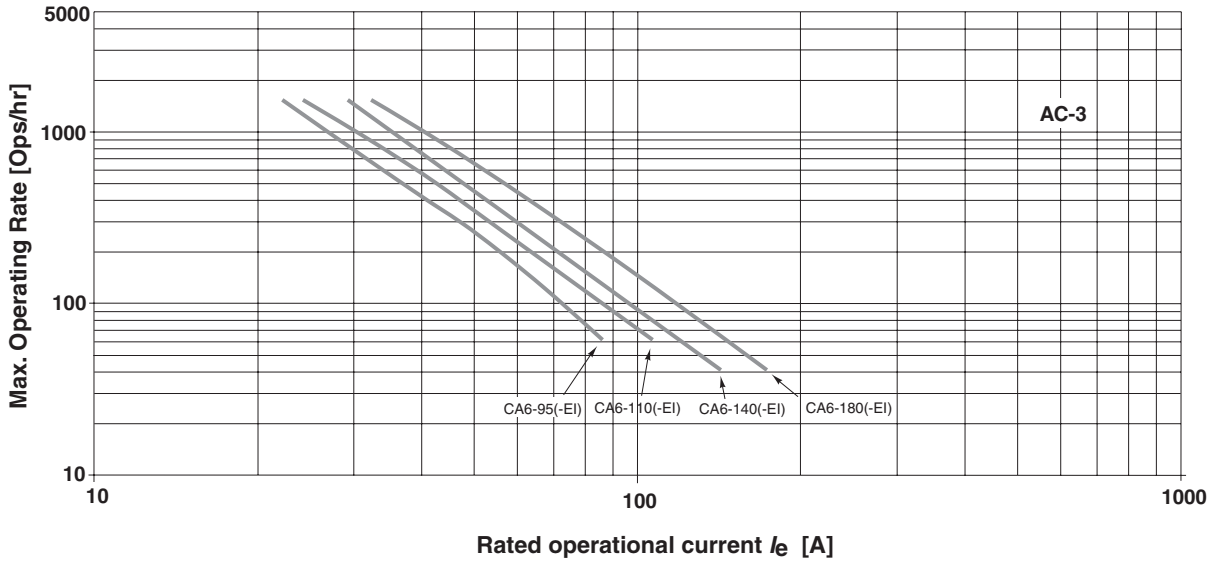
AC-3
250ms start time

Squirrel cage motors; starting, switching off during running; U_e = 380...460 VAC
250ms start time; 40% duty cycle



AC-3
1 sec. start time

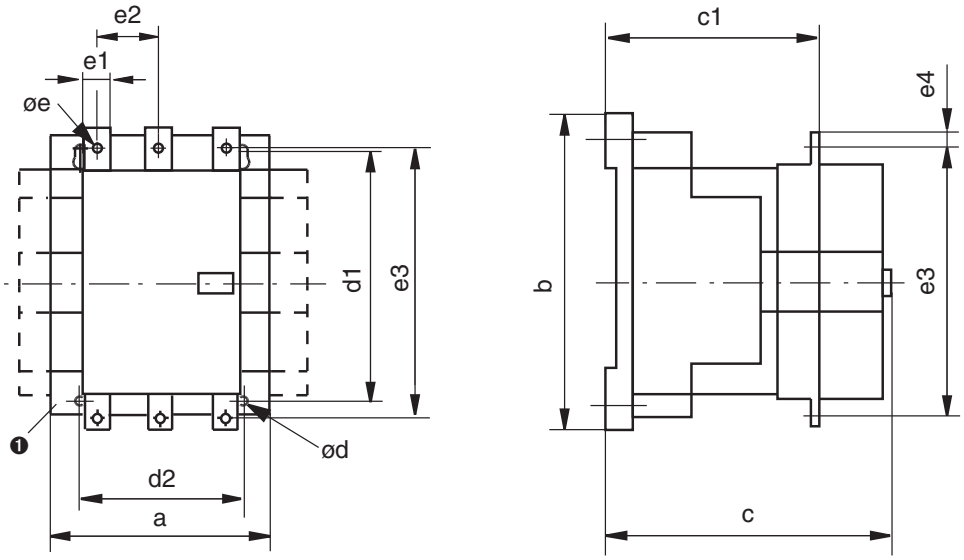
Squirrel cage motors; starting, switching off during running; U_e = 380...460 VAC
1s start time; 40% duty cycle



SSNA9000

Series CA6 & Series CAU6 (Contactors & Reversing Contactors)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

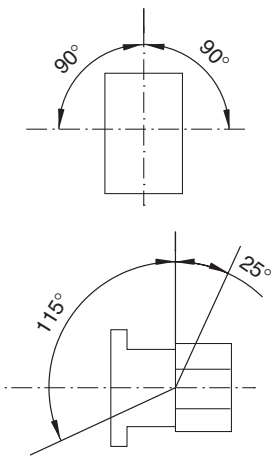


Catalog Number	a	b	c	c1	d	d1	d2	e	e1	e2	e3	e4
CA6-95 & CA(N)6-110	120 (4-3/4)	170 (6-11/16)	156 (6-1/8)	110.4 (4-11/32)	5.2 (15/64)	145 (5-11/16)	100 (3-15/16)	M6	16 (5/8)	38.5 (1-17/32)	147 (5-51/64)	8 (5/16)
CA6-95-EI; CA(N)6-110-EI; CA6-140(-EI); CA(N)6-180(-EI);	120 (4-3/4)	170 (6-11/16)	156 (6-1/8)	110.4 (4-11/32)	5.2 (7/32)	145 (5-11/16)	100 (3-15/16)	M8	20 (13/16)	39 (1-35/64)	160 (6-19//64)	10 (25/64)
CA6-210-EI…CA6-250-EI CA(N)6-300(-EI); CA6-420-EI	155 (6-1/8)	222 (8-23/32)	180 (7-3/32)	110.4 (4-11/32)	6.5 (9/32)	180 (7-3/32)	130 (5-1/8)	M10	25 (1)	48 (1-7/8)	193 (7-19/32)	12.5 (31/64)
CA6-630-EI…CA6-860-EI	255 (10-3/64)	337 (11-1/4)	265 (10-7/16)	110.5 (4-11/32)	10 (25/64)	230 (9-1/16)	225 (8-55/64)	M12	40 (1-37/64)	70 (2-3/4)	291 (11-29/64)	22 (55/64)

Reversing Contactors & Accessories (+...)

Contactor with...	CA6...	Dimension [mm]	Dimension [inches]
- auxiliary contact block ❶	+ P1 and /or P2 (DS1)	a	a
	+ P3 or P4 (DS2)	a + 13.5 mm each	a + 9/32 each
- reversing w/mechanical interlock		a + a	a + a
- main terminal set	HB1	b + 7mm each	b + 19/64 each
	HB2	b + 7mm each	b + 19/64 each
	HB3	b + 8.5mm each	b + 11/32 each
- terminal cover	HA1	b + 20...40mm each	b + 25/32...1-9/16 each
	HA2	b + 15...40mm each	b + 19/32...1-9/16 each
	HA3	b + 11...50mm each	b + 7/16...1-31/32 each
- label holder		c + 5mm	c + 3/16

Mounting Position



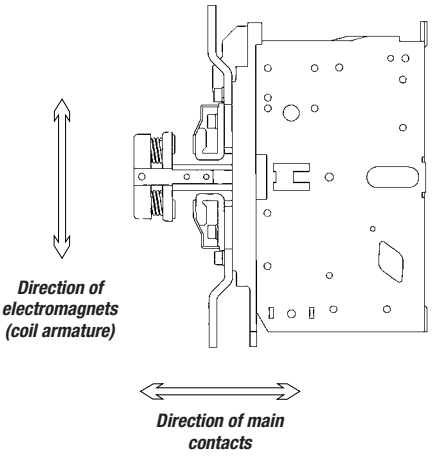
❶ No change of base dimensions with 1 or 2 auxiliary contact blocks (P1, P2 or DS1).
Each dimension increased by 13.5 mm with 3 or 4 auxiliary contact blocks (P3, P4 or DS2).

SSNA9000

Series CA5 Contactors

The complete contactor for heavy industrial applications from 500HP to 900HP

CA5 Series contactors provide large horsepower performance with a design that is up to 40% smaller than traditional contactors of this rating. The entire line is modularly designed for easy inspection, contact replacement and coil change out. All maintenance can be performed from the front so that mounting can be accomplished with no wasted space on the sides.



The contactor for large horsepower applications

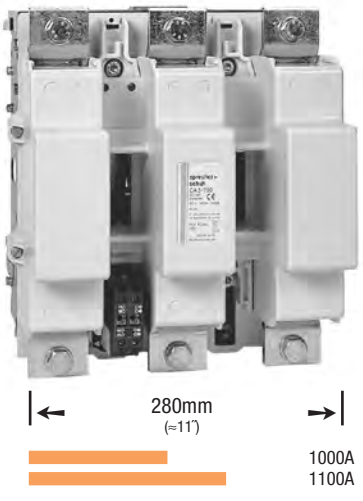
The CA5 series consists of four contactors in two frame sizes covering motors from 500 to 900 HP (at 460V/575V). This line is well suited for heavy industrial applications utilizing large machinery and equipment such as rock quarries and mines, or for any large horsepower application where a rugged and dependable contactor is needed.

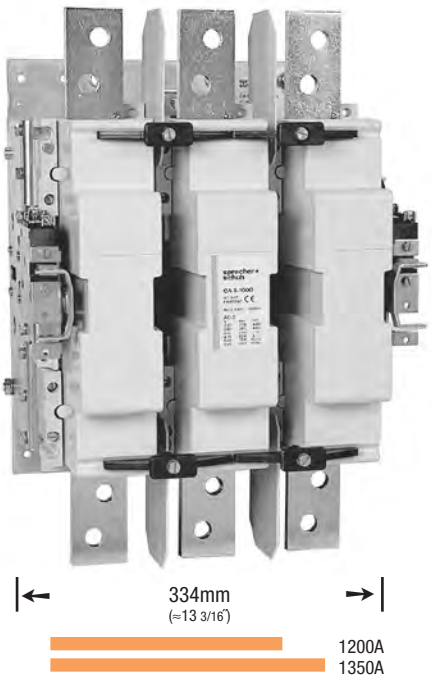
Specially designed shock-free contact system

A characteristic of contactors in this size class is to transmit intense impact forces during operation. This is caused by the heavy magnetic armatures of the core, which can cause contact "bounce." CA5 contactors, however, are designed so that the operating planes of the electromagnets and the contacts are opposed to each other by 90°. This results in a bounce-free contact system, increasing the contactor's mechanical life and raising contact reliability.

Rugged and reliable

A massive steel framework supporting the magnet system ensures high stability in all applications. Low-wear materials for bearings and sliding surfaces, as well as generously dimensioned magnet-pole faces result in above average mechanical life with a minimum of maintenance. Despite their rugged construction, overall contactor weight has been reduced considerably permitting simpler panel construction and easier assembly.





SSNA9000

Unique coil "feeder group" offers many advantages

CA5-700 and 860 contactors are equipped with a special "feeder group" for the coil that accommodates AC control voltages of 50 or 60Hz, and a wide range of DC voltages.

This coil arrangement eliminates noise and provides very low pickup and hold-in current. In addition, the drop-out time of the coil can be adjusted within one of three ranges.

Normal Drop (150 to 200ms): for prompt reaction of contactor to a breaking command (factory setting).

Delayed Drop (0.5 to 1s): where it is necessary for the contactor to be immune to short power supply interruptions or uncertain control devices.

Fast Drop (about 20ms): for safety applications where instant dropout is required.

Adjustable auxiliary contacts

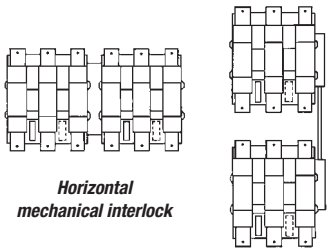
CA5 contactors can be equipped with a maximum of four NO and four NC auxiliary contacts. In addition, the closing time of the auxiliary contacts (on CA5-700 & 860 contactors) can be adjusted to meet individual control requirements.

Add-on fourth pole

In many applications, the neutral also needs to be switched. All CA5 contactors can be fitted with a 4th pole on either the left or right side of the contactor. This switched neutral is available as an accessory that can easily be installed in the field.

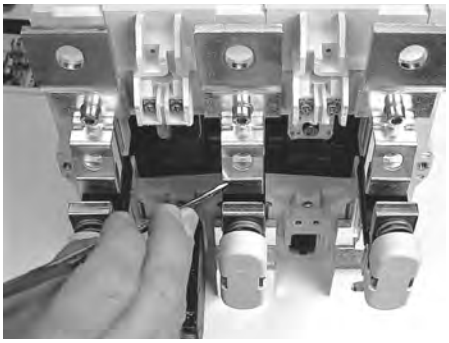
Two choices for interlocking reversing contactors

Unique to the CA5 range is the ability to mechanically interlock reversing contactors in either a horizontal or vertical orientation. This feature allows maximum flexibility when laying out panels.



Horizontal mechanical interlock

Vertical mechanical interlock

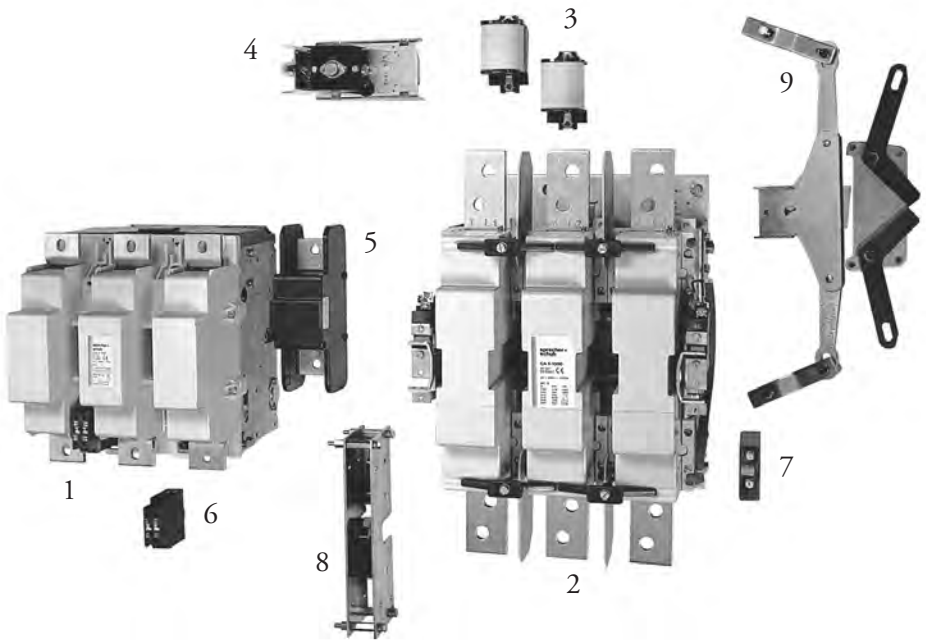


Simple main contact inspection and easy coil change

Modular, convenient design

The CA5 line is modularly designed for easy inspection, coil change and contact replacement. Maintenance can be performed from the front so that mounting requires no additional space. Even with the installation of mechanical interlocks and auxiliary contact blocks, the units can be flush mounted side by side, saving panel space.

1 CA5-700 Contactor
2 CA5-1000 Contactor
3 Coil Pair
4 Feeder Group
5 4th Pole (Neutral Switching)
6 Auxiliary Contact Block
7 Auxiliary Contact Block
8 Mechanical Interlock (horizontal)
9 Mechanical Interlock (vertical)



A full range of CA5 accessories is available, including a unique mechanical interlock that allows vertical mounting of contactors (see explanation above)

SSNA9000

Non-Reversing, Three Pole Contactors With AC or DC Coil, Series CA5 (Open type only) ❶❸❹

I_e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	
		kW (50 Hz)					UL/CSA HP (60 Hz) ❸								
							3 Ø								
AC-3	AC-1	230V	400V 415V	500V	690V	1000V	200V	230V	460V	575V		NO	NC	Catalog Number ❶❸	Price
700	1000	220	400	500	630	500	**200**	**250**	**500**	**500**		2	2	CA5-700-22-✱	**10425**
860	1100	280	500	630	710	550	**250**	**300**	**600**	**600**		2	2	CA5-860-22-✱	**12814**
1000	1200	315	560	750	850	~	**~**	**~**	**~**	**~**		1	2	CA5-1000-12-✱	**14900**
1200	1350	375	710	850	1000	~	**450**	**450**	**900**	**900**		1	2	**CA5-1200-12-✱**	**17960**

CA5-700-22 contactor

CA5-1000-12 contactor

Note: CA5 open-type contactors include terminal bolts.
See page A132 for Lugs.

See Section C for reversing CA5 contactors.

Coil Codes ❶❷

CA5-700 / 860			
AC & DC Coil Code	Voltage Range		
	50 Hz	60 Hz	VDC
120	110-120V	110-120V	100-110VDC
240	220-240V	220-240V	200-220VDC
380	380-415V	380-415V	345-380VDC
480	440-480V	440-480V	400-440VDC

CA5-1000 / 1200		
AC Coil Code	Voltage Range	
	50 Hz	60 Hz
110	110V	110V
220	220V	220V
380	380V	380V
440	440V	440V
480	440-480V	440-480V

❶ CA5-700 and 860 contactors are equipped with coils that operate with both AC and DC control voltages. CA5-1000 and 1200 contactors operate with AC control voltage input that is rectified for DC coil operation. See page A133. Consult factory for DC control voltage input.

❷ Other voltages available, see page A133. ***Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.***

❸ CA5-1000 horsepower ratings per IEC Utilization category AC-3. See CA5 Technical Data section for additional sizing information. Label does not bear a UL/CSA horsepower rating.

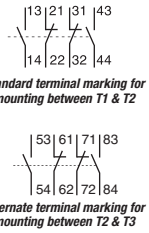
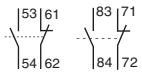
❹ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-700 has been replaced by CA6-630-EI. CA5-860 has been replaced by CA6-800-EI. These contactors are still available by special order if required for their higher AC1 ratings. See ratings in CA5 Technical Section.

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page**

SSNA9000

Auxiliary Contact Blocks (2 & 4 Pole)

Contact Block	Description	NO	NC	Contact Arrangement	For use with...	Catalog Number	Price
 *4-pole*	• For mounting between T1 & T2 or between T2 & T3 • Adjustable; provides normal, delayed or overlapping contacts ❶ • Maximum two blocks per contactor ❷ • Alternate terminal marking tags included	2	2	 *Standard terminal marking for mounting between T1 & T2* *Alternate terminal marking for mounting between T2 & T3*	CA5-700 CA5-860	**CA5-EF22** ❷	**441**
 *2-pole*	• For side mounting on either side of the contactor • Maximum four blocks per contactor ❸ • Alternate terminal marking tags included	1	1	 *Standard terminal marking* 	CA5-1000 CA5-1200	**CA5-EB11** ❸	**698**

Switched Neutral (4th Pole)

4th Pole	4th Pole Amperes	For use with...	Catalog Number	Price
	500	CA5-700 CA5-860	**CA5-NP500/6**	**1055**
	900	CA5-700 CA5-860	**CA5-NP1000/6**	**1390**
		CA5-1000 CA5-1200	**CA5-NP1000/7**	**2094**

❶ Further information on adjustable contacts can be found under "Auxiliary Contacts" in the CA5 Technical Section.
❷ Contactor comes standard with one 4-pole aux contact block.
❸ In addition to one standard two-pole auxiliary contact block (CA5-EB11), CA5-1000 & 1200 contactors are equipped from the factory with a special two pole auxiliary contact block (CA5-EB11DC). One of the poles is used for operation of the Feeder Group/Coil mechanism, the other NC contact is available for use. Two additional aux contact blocks may be added for a total of four.

Main Lugs

Lug or Accessory	Description	Wire Size	Catalog Number	Price
	Screw Type Lugs - (set of 6)			
	For CA5-550 ❷	(2) 2/0- 600MCM	**CA5-550-LU**	**335**
	For CA5-700	(2) 3/0- 750MCM	**CA5-700-LU**	**419**
	For CA5-860	(3) 2- 600MCM	**CA5-860-LU**	**1089**
	For CA5-1000 & CA5-1200 ❶	(4) 1/0- 750MCM	**CA5-1200-LU**	**1256**

Mechanical Interlock Kit

For Horizontal Mounting of Contactors			
Interlock	**For use with...**	**Catalog Number**	**Price**
	CA5-700 CA5-860 CA5-700/CA5-860	**CA5-BM6H**	**754**
	CA5-700/CA5-1000 CA5-700/CA5-1200 CA5-860/CA5-1000 CA5-860/CA5-1200	**CA5-BM67H**	**2286**
	CA5-1000 CA5-1200 CA5-1000/CA5-1200	**CA5-BM7H**	**1424**
For Vertical Mounting of Contactors			
	CA5-700 CA5-860 CA5-700/CA5-860	**CA5-BM6V**	**754**
	CA5-700/CA5-1000 CA5-700/CA5-1200 CA5-860/CA5-1000 CA5-860/CA5-1200	**CA5-BM67V**	**2286**
	CA5-1000 CA5-1200 CA5-1000/CA5-1200	**CA5-BM7V**	**1424**

Mechanical Latch

Latch	For use with...	Catalog Number	Price
	CA5-700 CA5-860	**CA5-AM6-✱**	**1139**

CA5-AM	
AC Coil Code	Voltage Range
	50 Hz / 60 Hz
120	110V - 120V
240	220V - 240V
415	380V - 415V
480	440V - 480V
Replace ✱ with Coil Code	

❶ CA5-1000 is not UL Listed.

❷ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

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All CA5 contactor coils are made up of two parts; the Coil Pair and Feeder Group. When ordering replacement parts, usually assume the Coil Pair must be replaced. If control voltage changes, user must order Coil Pair and matching Feeder Group.

Even though all CA5 coils are designed for AC ***input*** (DC input also available for CA5-550…860 contactors), they are operated by a DC voltage ***supplied*** from a "feeder group". Always order by the Coil Code matched to the **actual control voltage available to the contactor.**

Further information on CA5 coil pairs and feeder groups can be found in CA5 Technical Information.

AC & DC Coil Pairs & Feeder Groups (CA5-550 to CA5-860) ❶❷❸

Voltage Range	COIL CODES	CA5-550 ❶		CA5-700 & CA5-860	
		Coil Pair	Feeder Group	Coil Pair	Feeder Group
110-120V 50/60Hz 100-110VDC	**120**	**22.807.301-10**	**22.807.204-10**	**22.809.301-10**	**22.809.204-10**
220-240V 50/60Hz 200-220VDC	**240**	**22.807.301-13**	**22.807.204-13**	**22.809.301-13**	**22.809.204-13**
380-415V 50/60Hz 345-380VDC	**380**	**22.807.301-16**	**22.807.204-16**	**22.809.301-16**	**22.809.204-16**
440-480V 50/60Hz 400-440VDC	**480**	**22.807.301-18**	**22.807.204-18**	**22.809.301-18**	**22.809.204-18**
Price		**1017**	**1102**	**1256**	**1312**

AC Coil Pairs & Feeder Groups (CA5-1000 & CA5-1200) ❷❸

Voltage Range	AC COIL CODES	CA5-1000 & CA5-1200	
		Coil Pair	Feeder Group
110 Volts 50/60Hz	**110**	**22.811.301-10**	**22.811.204-10**
220 Volts 50/60Hz	**220**	**22.811.301-13**	**22.811.204-13**
230 Volts 50/60Hz	230	**22.811.301-14**	**22.811.204-14**
380 Volts 50/60Hz	**380**	**22.811.301-16**	**22.811.204-16**
400 Volts 50/60Hz	400	**22.811.301-31**	**22.811.204-31**
440 Volts 50/60Hz	**440**	**22.811.301-18**	**22.811.204-18**
440-480 Volts 50/60Hz	480	**22.811.301-19**	**22.811.204-19** NEW
Price		**1982**	**3819**

DC Coil Pairs & Feeder Groups (CA5-1000 & CA5-1200) ❷❸

Voltage Range	DC COIL CODES	CA5-1000 & CA5-1200	
		Coil Pair	Feeder Group
110 Volts DC	**110D**	**Refer to factory**	**Refer to factory**
220 Volts DC	**220D**	**Refer to factory**	**Refer to factory**
440 Volts DC	NEW **480D**	**Refer to factory**	**Refer to factory**
Price		**Refer to factory**	**Refer to factory**

CA5 Coil Pair (typical)

CA5 Feeder Group - front view (typical)

CA5 Feeder Group - rear view (typical)

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

❷ Other voltages available. Please contact factory.

❸ CA5-550, 700 and 860 contactors are equipped with coils that operate with both AC and DC control voltages. For DC coil operation, select AC Coil Code for desired DC voltage. CA5-1000 and 1200 contactors operate with AC control voltage input that is rectified for DC coil operation. See page A139. Consult factory for DC control voltage input.

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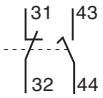
Main Contact - (1 Pole Per Set)

Main Contacts (1pole) *(typical)*	For use with...	Catalog Number	Price per pole
	CA5-550 ❶	22.807.202-01	1089
	CA5-700	**22.808.202-01**	**1424**
	CA5-860	**22.809.202-01**	**2094**
	CA5-1000	**22.810.202-01**	**3224**
	CA5-1200	**22.811.202-01**	**4188**

Arc Chutes

Arc Chutes *(typical)*	For use with...	Catalog Number	Price
 3-pole (1 per contactor)	CA5-550 ❶	22.807.201-01	975
	CA5-700	**22.808.201-01**	**1843**
	CA5-860	**22.809.201-01**	**1843**
 1-pole (3 per contactor)	CA5-1000	**22.810.201-01**	**838**
	CA5-1200	**22.811.201-01**	**838**

Replacement Auxiliary Contact Block (CA5-1000 & CA5-1200)

Contact Block	Description	NO	NC	Contact Arrangement	For use with...	Catalog Number	Price
	● One supplied standard with contactor ● Special two pole design; 1 NO delayed make, 1 NC ● NO delayed make contact used for operation of the Feeder Group/Coil mechanism	1 ***Delayed Make***	1		CA5-1000 CA5-1200	**CA5-EB11DC**	**771**

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

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Technical Information

			CA5-550 ❶	CA5-700 ❸	CA5-860 ❷	CA5-1000	CA5-1200
Rated Insulation Voltage U_i							
to IEC947-1		[V]	1000V	1000V	1000V	690V	690V
UL/CSA		[V]			600V		
Rated Impulse Voltage U_{imp}							
CA5-550 / 700 / 860		[kV]			3.5		
CA5-1000 / 1200		[kV]			2.5		
Rated Voltage Ue-Main Contacts							
AC 50/60Hz		[V]			220/230, 240, 380/400,415,500,660/690 (1000V - CA5-550 to 860)		
DC		[V]			24, 48, 110, 220, 440V		
Operating Frequency for AC Loads	[Hz]	50/60Hz			180/hr. for 0.25s start time - 42/hr. for 1s start time		
Switching Motor Loads							
Standard IEC Ratings							
AC-2, AC-3	230/240V	[A]	550	700	860	1000	1200
DOL & Reversing	400/415V	[A]	550	700	860	1000	1200
50Hz/60° C	500V	[A]	550	700	860	1000	1200
	690V	[A]	500	630	700	860	1000
	230V	[kW]	179	228	280	326	391
	240V	[kW]	187	238	293	340	408
	400V	[kW]	312	414	509	592	710
	415V	[kW]	324	430	528	628	737
	500V	[kW]	407	518	636	756	888
	690V	[kW]	510	657	730	897	1043
UL/CSA	200V	[A]	414	552	692	~	1185
DOL & Reversing	230V	[A]	360	602	722	~	1130
60Hz	460 V	[A]	414	590	708	~	1062
3∅	575 V	[A]	336	472	576	~	864
	200 V	[HP]	150	200	250	~	450
	230 V	[HP]	150	250	300	~	450
	460 V	[HP]	350	500	600	~	900
	575 V	[HP]	350	500	600	~	900
AC4 -200,000 Op. Cycles	230/240V	[A]	140	180	210	260	300
50Hz	400/415V	[A]	140	180	210	260	300
	500V	[A]	125	155	190	240	275
	690V	[A]	110	145	165	180	210
	1000V	[A]	95	120	145	~	~
	230V	[kW]	45	57	67	83	97
	240V	[kW]	47	60	70	87	101
	400V	[kW]	78	101	118	146	170
	415V	[kW]	81	105	122	151	176
	500V	[kW]	86	106	132	170	195
	690V	[kW]	100	135	155	165	190
	1000V	[kW]	130	170	205	~	~
AC4 -200,000 Op. Cycles (25,000)	230/240V	[A]	360	430	520	(630)	(700)
Squirrel-cage motors with reversing	400/415V ❸	[A]	350	420	520	(630)	(700)
and jogging	230V	[kW]	116	139	170	(205)	(228)
	240V	[kW]	120	151	177	(214)	(245)
	400V	[kW]	198	238	295	(357)	(414)
	415V	[kW]	206	247	300	(359)	(424)

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are available by special order if required for their higher AC1 ratings.

❷ The CA5-700 & 860 has been replaced by the CA6-630 & 860 contactor. CA5-700 & 860 contactors are available by special order.

❸ At rated voltage (415V) and rated current: Life span –25%.

Electrical Data

			CA5-550 ❶	CA5-700 ❷	CA5-860 ❷	CA5-1000	CA5-1200
Switching Motor Loads (continued)							
Wye-Delta (Star Delta)	230V	[A]	953	1212	1490	1732	2078
50 Hz	240V	[A]	953	1212	1490	1732	2078
	400V	[A]	953	1212	1490	1732	2078
	415V	[A]	953	1212	1490	1732	2078
	500V	[A]	953	1212	1490	1732	2078
	690V	[A]	831	1091	1195	1490	1732
	230V	[kW]	310	395	485	565	677
	240V	[kW]	324	412	507	589	707
	400V	[kW]	540	717	882	1025	1250
	415V	[kW]	561	745	915	1088	1278
	500V	[kW]	705	897	1102	1309	1538
	690V	[kW]	883	1138	1247	1554	2078
60 Hz	230V	[HP]	250	400	500	650	750
	460V	[HP]	600	800	1000	1300	1500
	575V	[HP]	600	800	1000	1500	1500
AC-1 Load, 3∅ Switching	I_{th}	[A]	760	1000	1100	1200	1350
Ambient Temperature 40° C	230V	[kW]	303	398	438	478	538
	240V	[kW]	316	416	457	499	561
	400V	[kW]	527	693	762	831	935
	415V	[kW]	546	719	791	863	970
	500V	[kW]	658	866	953	1039	1169
	690V	[kW]	908	1195	1315	1434	1613
	1000V	[kW]	1316	1732	1905	~	~
Ambient Temperature 60° C	I_{th}	[A]	605	800	870	960	1085
	230V	[kW]	241	319	347	382	432
	240V	[kW]	251	333	362	399	451
	400V	[kW]	419	554	603	665	752
	415V	[kW]	435	575	625	690	780
	500V	[kW]	524	693	753	831	940
	690V	[kW]	723	956	1040	1147	1297
	1000V	[kW]	1048	1386	1507	~	~
Continuous Current (UL/CSA)							
General Purpose Rating (40° C)		[A]	520	700	810	~	1215
Rated Making Capacity	415V	[A]	5500	7000	8600	10000	12000
AC-3 I_e	500V	[A]	5500	7000	8600	10000	12000
	690V	[A]	5500	7000	8600	10000	12000
Rated Breaking Capacity	240V	[A]	4400	5600	6900	8000	9600
AC-3 I_e	400V	[A]	4400	5600	6900	8000	9600
	415V	[A]	4400	5600	6900	8000	9600
	500V	[A]	4400	5600	6900	8000	9600
	690V	[A]	4000	5100	5600	6900	8000
Short Circuit Protection of Contactors Without Overload Relay							
Fuse gG (aM) Type 1 Coordination	500V	[A]	(630)	800	1000	1000	1250
(per IEC 60947-4-1)	690V	[A]	(630)	800	1000	1000	1000

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

❷ The CA5-700 & 860 has been replaced by the CA6-630 & 860 contactor. CA5-700 & 860 contactors are available by special order.

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Electrical Data

					CA5-550 ❶	CA5-700 ❷	CA5-860 ❷	CA5-1000	CA5-1200
DC Ratings									
DC-1 Rating at 60° C									
Non-inductive or slightly	1 pole	24VDC	[A]		605	800	870	960	1085
inductive loads, resistive furnaces		48VDC	[A]		605	800	870	960	1085
		24VDC	[A]		605	800	870	960	1085
		48VDC	[A]		605	800	870	960	1085
	2 Poles in Series	110VDC	[A]		480	560	630	800	900
		220VDC	[A]		315	400	450	500	600
		24VDC	[A]		605	800	870	960	1085
		48VDC	[A]		605	800	870	960	1085
	3 Poles in Series	110VDC	[A]		480	560	630	800	900
		220VDC	[A]		315	400	450	500	600
DC-3 Rating at 60° C									
Shunt wound motors -	3 Poles in Series	24VDC	[A]		605	800	870	960	1085
Starting, reverse current		48VDC	[A]		605	800	870	960	1085
breaking, reversing, stepping									
DC-5 Rating at 60° C									
Series wound motors -	3 Poles in Series	24VDC	[A]		605	800	870	900	1085
Starting, reverse current		48VDC	[A]		605	800	870	900	1085
breaking, reversing, stepping									
Lighting Loads									
Elec.Dischrg.Lamps-AC-5a,	Open	[A]			450	570	700	850	1000
single compensated	Enclosed	[A]			360	460	550	660	800
Incandescent Lamps - AC AC-5b,									
Electrical endurance ~100,000 operations		[A]			315	440	500	560	630
Switching power transformers AC-6a									
Inrush = n x I_e									
Rated transformer current									
	Inrush	400 VAC	[A]		7410	3450	11700	13500	16200
		400 VAC	[A]		259	330	405	470	570
n=30		400 VAC	[kVA]		179	228	280	325	395
		500 VAC	[kVA]		224	226	350	407	493
		690 VAC	[kVA]		281	355	395	485	563
n=20		400 VAC	[A]		389	495	608	700	850
n=15		400 VAC	[A]		660	660	810	945	1130
Rated making Capacity									
AC-3 I_e		≤415V	[A]		5,500	7,000	8,600	10,000	12,000
		500V	[A]		5,500	7,000	8,600	10,000	12,000
		690V	[A]		5,500	7,000	8,600	10,000	12,000
Rated making Capacity									
AC-3 I_e		≤240V	[A]		5,500	5,600	6,900	8,000	9,600
		400V	[A]		4,500	5,600	6,900	8,000	9,600
		415V	[A]		4,500	5,600	6,900	8,000	9,600
		500V	[A]		4,500	5,600	6,900	8,000	9,600
		690V	[A]		4,500	5,100	5,600	6,900	8,000

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

❷ The CA5-700 & 860 has been replaced by the CA6-630 & 860 contactor. CA5-700 & 860 contactors are available by special order.

Electrical Data

			CA5-550 ❶	CA5-700 ❷	CA5-860 ❷	CA5-1000	CA5-1200
Capacitor Ratings							
Capacitor Switching - 50Hz							
Single Capacitor - 40°C	230 V	[kVar]	180	220	250	290	330
	240 V	[kVar]	200	250	300	325	360
	400 V	[kVar]	320	400	450	500	575
	415 V	[kVar]	350	430	500	550	630
	500 V	[kVar]	450	520	600	660	750
	690 V	[kVar]	580	700	800	875	1000
Single Capacitor - 55°C	230 V	[kVar]	150	180	220	275	325
	240 V	[kVar]	170	200	260	300	350
	400 V	[kVar]	280	330	400	460	550
	415 V	[kVar]	300	360	450	500	600
	500 V	[kVar]	360	420	540	600	720
	690 V	[kVar]	500	580	720	800	950
Capacitor Bank - 40°C	230 V	[kVar]	180	220	250	290	330
	240 V	[kVar]	200	250	300	325	360
	400 V	[kVar]	320	400	450	500	575
	415 V	[kVar]	350	430	500	550	430
	500 V	[kVar]	450	520	600	660	750
	690 V	[kVar]	580	700	800	875	1000
Capacitor Bank - 55°C	230 V	[kVar]	150	180	220	275	325
	240 V	[kVar]	170	200	260	300	350
	400 V	[kVar]	280	330	400	460	550
	415 V	[kVar]	300	360	450	500	600
	500 V	[kVar]	360	420	540	600	720
	690 V	[kVar]	500	580	720	800	950
Short-Circuit Coordination							
Short Time Current Withstand Ratings							
I_{cw} 60°C	1 s	[A]	5500	7000	8000	10000	12000
	4 s	[A]	5500	7000	8000	10000	12000
	10 s	[A]	4400	5600	6900	8000	9600
	15 s	[A]	3800	5000	6000	7400	8500
	60 s	[A]	2300	2800	3400	4000	4800
	240 s	[A]	1300	1800	2000	2300	2700
	900 s	[A]	850	1150	1350	1600	1900
Off Time Between Operations		[Min.]	60	60	60	60	60
Resistance and Watt Loss I_e AC3							
Resistance per power pole		[mΩ]	0.11	0.1	0.08	0.06	0.05
Watt Loss - 3 power poles		[W]	99	147	177	180	216
Coil and 3 power poles	AC	[W]	110	172	202	250	286
(including series resistor)	DC	[W]	109	169	199	240	276

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

❷ The CA5-700 & 860 has been replaced by the CA6-630 & 860 contactor. CA5-700 & 860 contactors are available by special order.

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Electrical Data

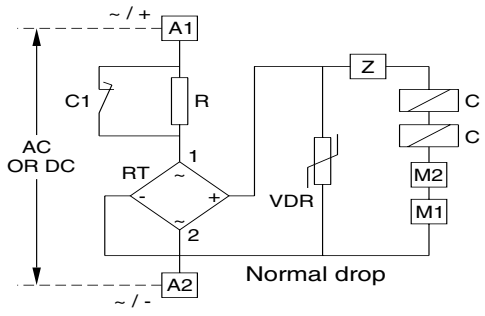
				CA5-550	CA5-700	CA5-860	CA5-1000	CA5-1200
Coil Data								
Voltage Range								
AC: 50Hz, 60Hz, 50/60 Hz		Pickup	[xU_s]	0.85...1.1	0.85...1.1		0.85...1.1	
		Dropout	[xU_s]	0.2...0.5	0.20...0.75		0.1...0.6	
DC		Pickup	[xU_s]	0.85...1.1	0.85...1.1		0.85...1.1	
		Dropout	[xU_s]	0.2...0.5	0.20...0.75		0.1...0.6	
Coil Consumption								
AC: 50Hz, 60Hz, 50/60 Hz		Pickup	[VA]	800...950	1350...1600		2400	
		Hold-in	[VA]	9...11	21...25		70	
DC		Pickup	[VA]	700...850	1350...1600		2400	
		Hold-in	[W]	8...10	21...25		70	
Operating Times								
AC: 50Hz, 60Hz, 50/60 Hz		Pickup	[ms]	50...100	50...100		50...100	
	Normal	Dropout	[ms]	150...200	150...200		25...50	
	Delayed	Dropout	[ms]	500...1000	500...1000		~	
	Accelerated	Dropout	[ms]	20...50	20...50		~	
DC		Pickup	[ms]	50...100	50...100		50...100	
	Normal	Dropout	[ms]	150...200	150...200		25...50	
	Delayed	Dropout	[ms]	500...1000	500...1000		~	
	Accelerated	Dropout	[ms]	20...50	20...50		~	
Insulation Class					Class “B” to VDE 0660 table 22			

Control and Magnet System for CA5-700…CA5-860 Contactors

Even though the ***input*** to the magnet system can either be AC or DC, the low pull-in and holding consumption of the magnet system is achieved by DC operating coils ***supplied*** by a “Feeder Group”. The Feeder Group for these contactors also allows delayed, normal or accelerated dropout times, selectable between 20ms and 1000ms.

Delayed: (500…1000ms)
Normal: (150…200ms)
Accelerated: (20…50ms)

As supplied, the contactors are wired for a normal dropout time. To compensate for wide voltage fluctuations or brief supply voltage interruptions, the dropout time can be delayed by wiring changes made to the Feeder Group at installation.



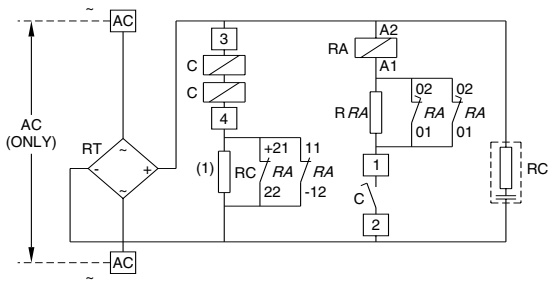
CA5-550 / 700 / 860
For AC or DC Control

Coil Circuit for CA5-550, 700 & 860
AC or DC supply

Control and Magnet System for CA5-1000…CA5-1200 Contactors

Even though the ***input*** to the magnet system is only designed for AC voltages, the low pull-in and holding consumption of the magnet system is achieved by DC operating coils ***supplied*** by a “Feeder Group”. The Feeder Group for these contactors is configured for a dropout time of 25…50ms. Dropout times for these contactors are not selectable.

Further information regarding circuit possibilities can be obtained from assembly instructions supplied with each device.



CA5-1000 / 1200
For AC Control (Only)

Coil Circuit for CA5-1000 & 1200
AC supply (only)

C: Coil pair
RA: DC auxiliary relay coil for economy resistor switching
R, RC, R*RA*: Economy resistor
VDR: Varistor
M1, M2: Terminals for fast-drop connection
Z: Device for dropout operating time variation
(1) For control voltages up to 125V NC contacts 11-12 & 21-22 are connected in parallel; higher voltages are connected in series

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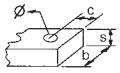
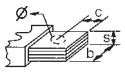
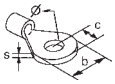
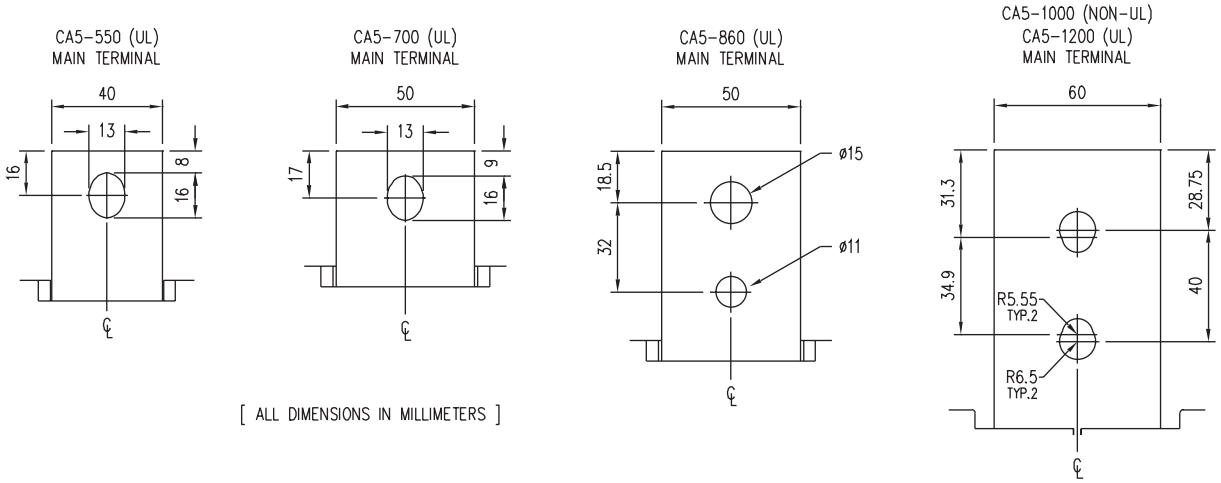
Mechanical Data

			CA5-550 ❶	CA5-700 ❷	CA5-860 ❷	CA5-1000	CA5-1200
Service Life							
Mechanical	AC Control	[Mil.]	5	5	5	1	1
	DC Control	[Mil.]	5	5	5	1	1
Electrical	AC-3 (400V)	[Mil.]	0.6	0.6	0.6	0.6	0.6
Shipping Weights							
AC - CA5	AC Control	[kg]	13.8	26.4	28.4	50.3	53.4
	DC Control	[Lbs]	30.4	58.1	62.5	110.8	117.6
AC - CAU5	AC Control	[kg]	28.5	53.9	57.9	102.3	108.5
	DC Control	[Lbs]	63.6	120.3	129.2	228.3	242.2
Terminations - Power							
Type							
					Hexagonal Bolt		
Direct Connection (customer supplied connections)							
	b max.	[mm]	50	60	60	60	60
	c max.	[mm]	20	20	25	25	25
	s max.	[mm]	2 x 5	2 x 5	2 x 6	2 x 6	2 x 8
	Ø min.	[mm]			Refer to CA5 stab dimensions below		
Recommended Torque		[Nm]	50	60	75	60	60
		[Lb-ft]	37	44	55	44	44

CA5 Stab Dimensions



[ALL DIMENSIONS IN MILLIMETERS]

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

❷ The CA5-700 & 860 has been replaced by the CA6-630 & 860 contactor. CA5-700 & 860 contactors are available by special order.

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Mechanical Data *(continued)*

			CA5-550 ❶	CA5-700 ❷	CA5-860 ❷	CA5-1000	CA5-1200
Terminations - Control							
Description			Combination Screw Head: Cross, Slotted, Pozidrive				
Coils	1 or 2	[mm2]	4				
Wires		[AWG]	25				
Control Modules	1 or 2	[mm2]	4				
Wires		[AWG]	25				
Torque Requirement		[Nm]	1...2.5				
		[Lb-in]	8.9...22				
Degree of Protection - contactor			IP00 (open) per IEC 529 and DIN 40 050				

Environmental and General Specifications

Rated Isolation Voltage U_i				
IEC, AS, BS, SEV, VDE 0660		[V]	1000V	690V
UL/CSA		[V]	600V	600V
Impulse Voltage - U_{imp}				
1 minute per IEC 60947-1		[kV]	3500V	2500V
Ambient Temperature				
Storage			-40...+80˚ C (-13...176˚ F)	
Operation at rated current			-25...+60˚ C (-13...140˚ F)	
Operation at 90% of rated current			-25...+60˚ C (-13...140˚ F)	
Operation at 85% of rated current			-25...+65˚C (-13...149˚F)	
Altitude at installed site			2000 meters above sea level per IEC 60947-1	
Operating Frequency for AC Loads				
50/60 Hz			180/Hr. for 0.25, start time 42/ HR for 1s start time	
Resistance to Corrosion / Humidity			Damp-alternating climate: cyclic per DIN 50 016 and 40 046 Part 38 IEC 68 Dry heat: IEC 68-2, + 100˚C (212˚ F), relative humidity ,50%, 7 days Damp tropical: IEC 68-2, +40˚C (104˚F), relative humidity 95%, 56 days ❸	
Operating Position			See dimensions page	
Standards			UL (CA5-700, 860, 1200); IEC 60947-4; VDE 0660; NEMA; ICS BS 5424; UTE NF C 63-110	
Approvals			Lloyd's registry of shipping, CE, UL, cUL	

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.
❷ The CA5-700 & 860 has been replaced by the CA6-630 & 860 contactor. CA5-700 & 860 contactors are available by special order.
❸ Per DIN 50 016 and 40 046, part 38.

Auxiliary Contacts

			Auxiliary Contact Block							Auxiliary Contact Blocks						
Switching, AC & DC Loads			CA5-EF22							CA5-EB11, CA5-EB11DC						
AC-I_{th}	at 40°C	[A]	16							16						
	at 60°C	[A]	12							12						
AC-15, switching electromagnetic loads at:		[V]	120	230	240	400	415	500	690	120	230	240	400	415	500	690
		[A]	6	3	3	2	2	1.5	1	6	3	3	2	2	1.5	1
DC-13, switching DC electromagnets at:		[V]		24	48		110	220			24	48		110	220	
		[A]		6	3		1	0.5			6	3		1	0.5	
Short-Circuit Protection - gGFuse																
Type 2 Coordination		[A]	10							16						
Terminals																
Terminal Type																
Maximum Wire Size per IEC 947-1			2 x A4							2 x A4						
	Flexible with Wire-End Fernule	1 Conductor	[mm²]	1...4						0.5...2.5						
		2 Conductor	[mm²]	1...4						0.75...2.5						
	Solid/Stranded-Conductor	1 Conductor	[mm²]	1.5...6						0.5...2.5						
		2 Conductor	[mm²]	1.5...6						0.75...2.5						
Recommended Tightening Torque			[Nm]	1...25						1...1.5						
Max. Wire Size per UL/CSA			[AWG]	16...10						18...14						
Recommended Tightening Torque			[lb-in]	8.9...22						8.9...13.3						
Degree of Protection			IP2LX per IEC 529 and DIN 40 050													

Mechanical Latch

			CA5-AM5	CA5-AM6	CA5-AM7
Service Life					
Mechanical		[Mil ops.]	0.5	0.5	0.5
Dropout Delay					
Contactor Latch		[ms]	50...70	50...70	50...70
Trip Coil					
Consumption	AC	[VA]	950	1600	3500
	DC	[W]	500	800	3200
OFF-command (min. impulse duration)		[ms]	200	200	200
Operation Voltage					
Minimum			0.5 U_n	0.5 U_n	0.5 U_n
Maximum			1.1 U_n	1.1 U_n	1.1 U_n

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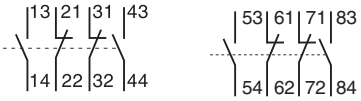
Auxiliary Contacts

For CA5-700 & CA5-860 contactors

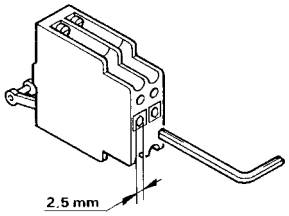
Up to two auxiliary contact blocks can be mounted on each contactor. One four-pole auxiliary contact block (CA5-EF22) is supplied standard and is installed on the contactor between T1 and T2. One additional auxiliary contact block can be installed between T2 and T3.

Each CA5-EF22 contains 2 NO and 2 NC adjustable auxiliary contacts. Standard terminal markings are shown below on the left. If an additional contact block is required, different terminal markings (right) are supplied and may be applied by the user.

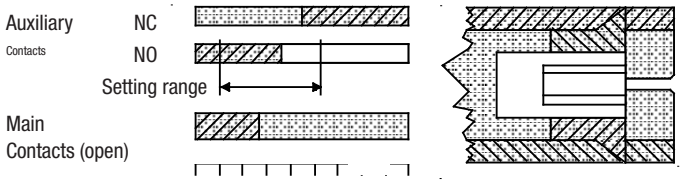


Adjustable Auxiliary Contacts

The instant at which the NO contact closes, in relation to the main contacts, can be adjusted from the front of the CA5-EF22 auxiliary contact block by means of an Allen wrench. The following diagrams show the adjustments for Normal, Delayed and Overlapping auxiliary contacts.

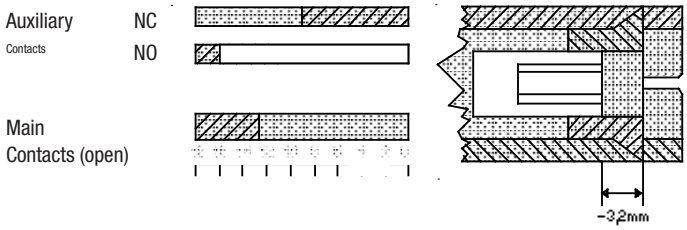


Normal Setting (from factory)



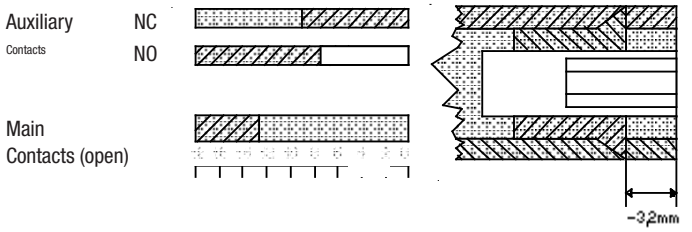
Delayed NO Contact

Adjusting screw after four turns to the right



Overlapping NO and NC Contacts

Adjusting screw after four turns to the left



For CA5-1000 and CA5-1200 contactors

Up to four nonadjustable auxiliary contact blocks can be mounted on each contactor. One CA5-EB11 two pole aux contact and one CA5-EB11DC two pole aux contact come standard. The CA5-EB11DC has 1 NC contact (available) and 1 NO Delayed Make (unavailable) which is used for the operation of the coil feeder group.

CA5-EB11 – 1 NO/1NC
CA5-EB11DC – 1 NO Delayed Make/1 NC

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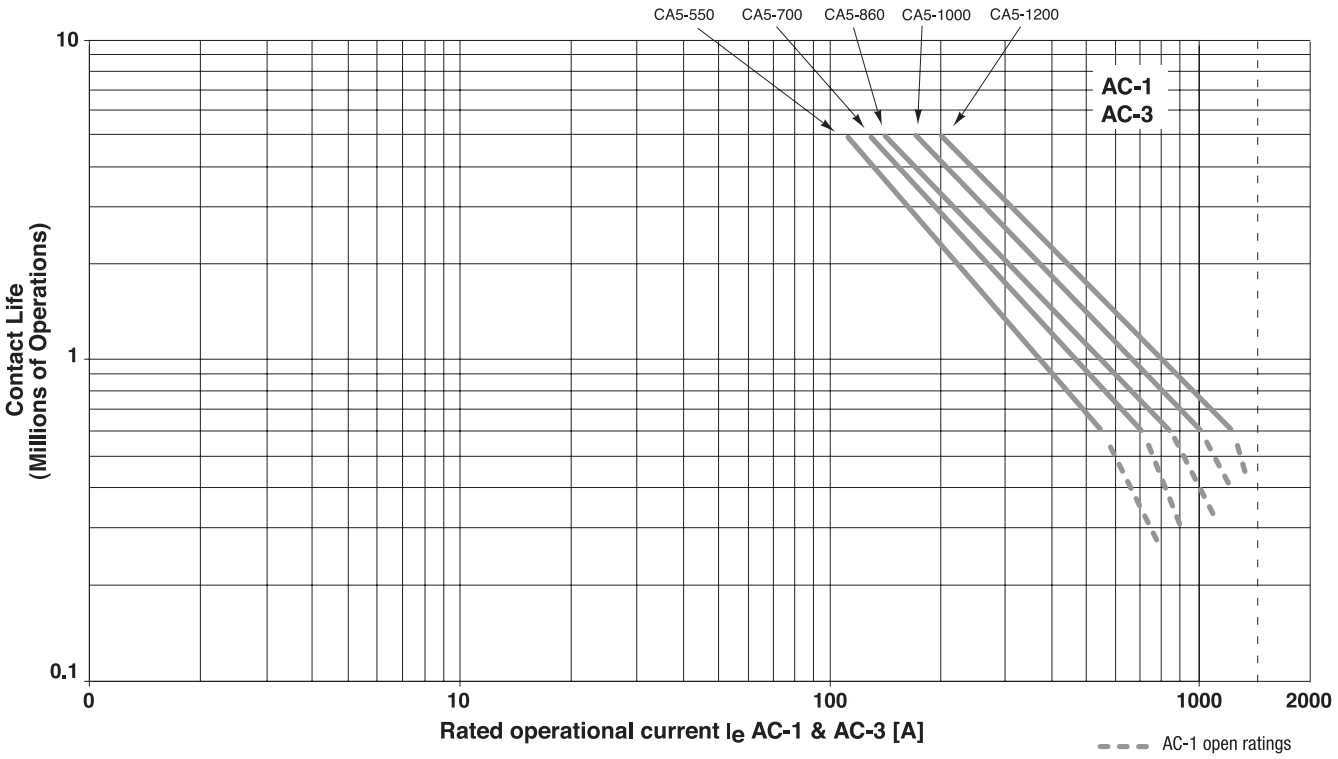
Life-Load Curves

AC-1
AC-3



AC-1 - Non or slightly inductive loads, resistive furnaces; U_e=380...460 VAC
AC-3 - Switching squirrel-cage induction motors during starting; U_e=380...460 VAC

INSTRUCTIONS ON "HOW TO READ" LIFE CURVES CAN BE FOUND ON PAGE A7

NOTE: The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

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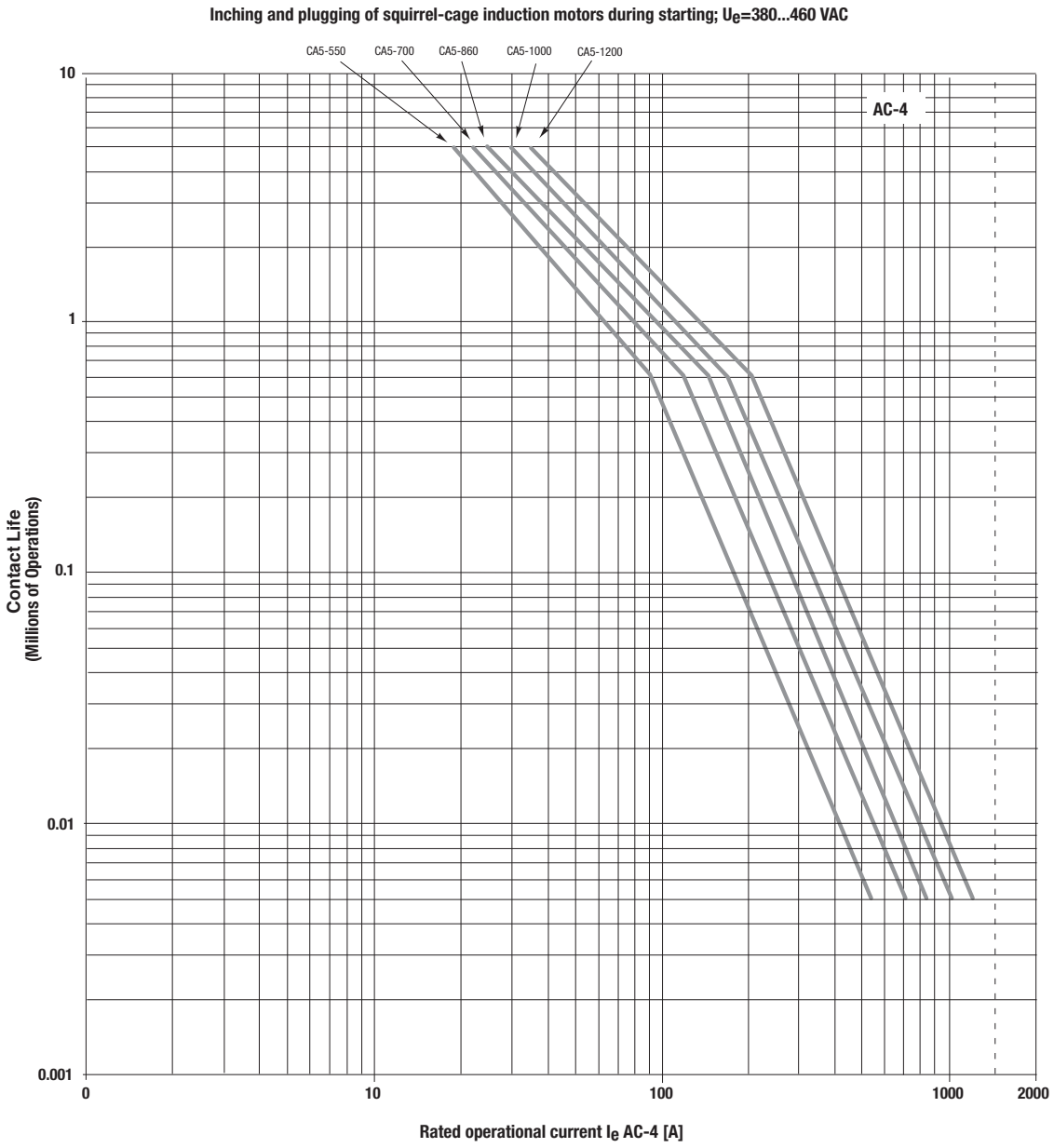
Life-Load Curves

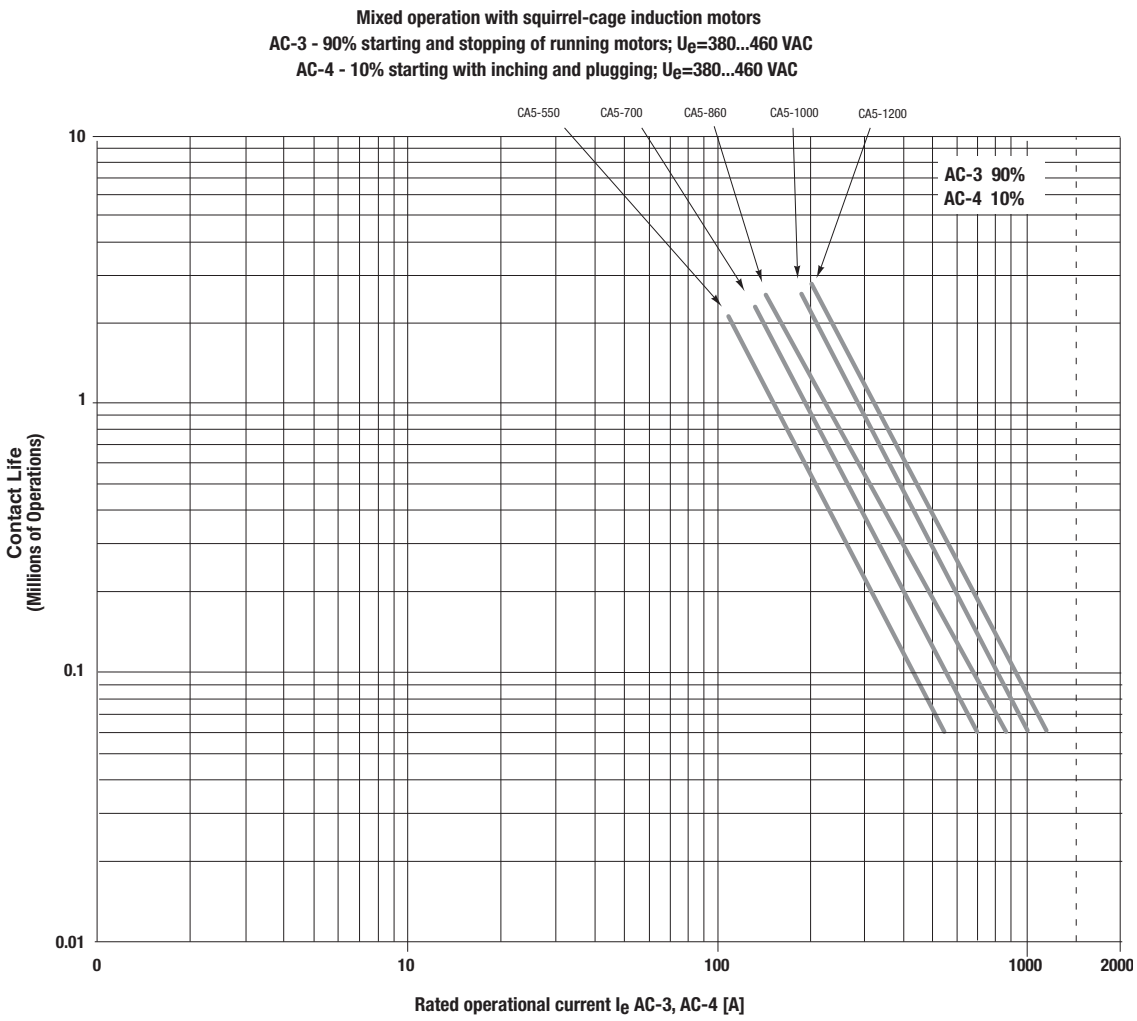
AC-4



NOTE: The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

Life-Load Curves

AC-3 (90%), AC-4 (10%)



Contact Life for Mixed Utilization Categories AC-3 and AC-4

In many applications, the utilization category cannot be defined as either purely AC-3 or AC-4. In those applications, the electrical life of the contactor can be estimated with the following equation:

$$L_{mixed} = L_{ac3} / [1+P_{ac4} \times (L_{ac3}/L_{ac4}-1)]$$, where:

L_{mixed} Approximate contact life in operations for a mixed AC-3/AC-4 utilization category application.

L_{ac3} Approximate contact life in operations for a pure AC-3 utilization category (from the AC-3 life-load curve).

L_{ac4} Approximate contact life in operations for a pure AC-4 utilization category (from the AC-4 life-load curve).

P_{ac4} Percentage of AC-4 operations

NOTE: The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

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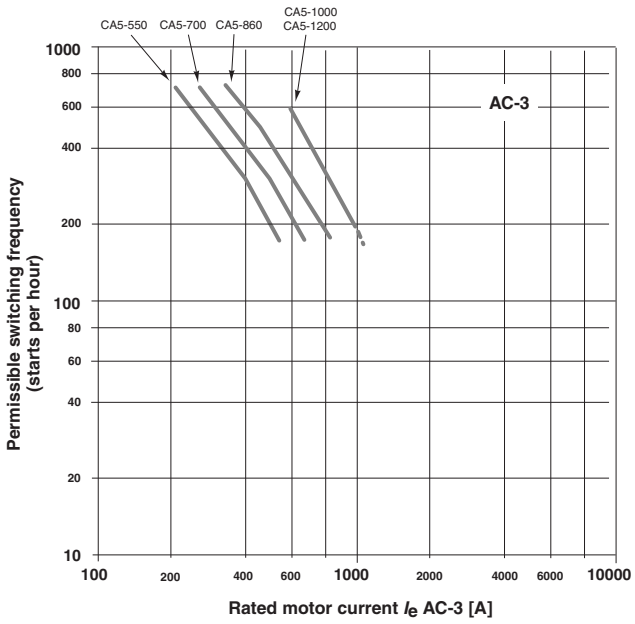
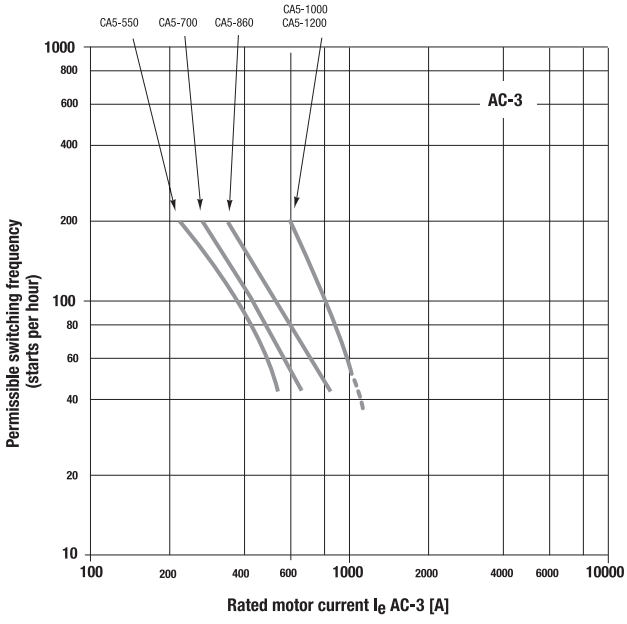
Operating Rate Curves

AC-3

Starting and stopping of running motors
Starting time t_A = 0.25 s
Relative time energized 40%

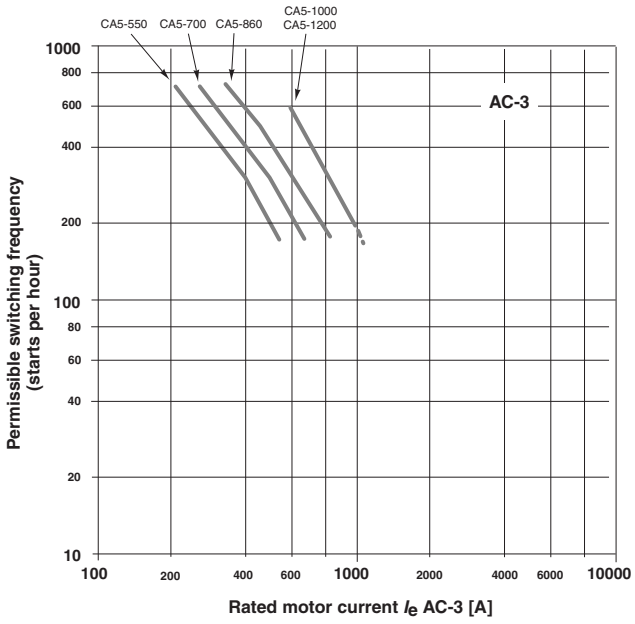


Starting time t_A = 1 s

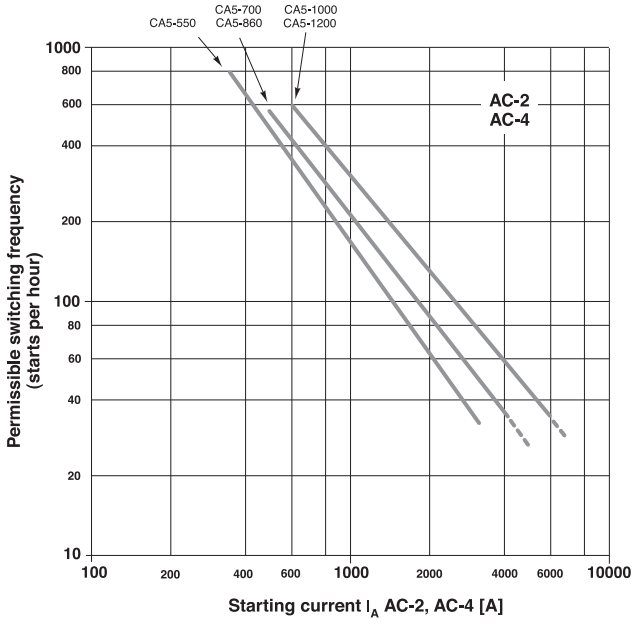


AC-2/AC-4

Starting and stopping of running motors
Starting time t_A = 0.25 s
Relative time energized 40%

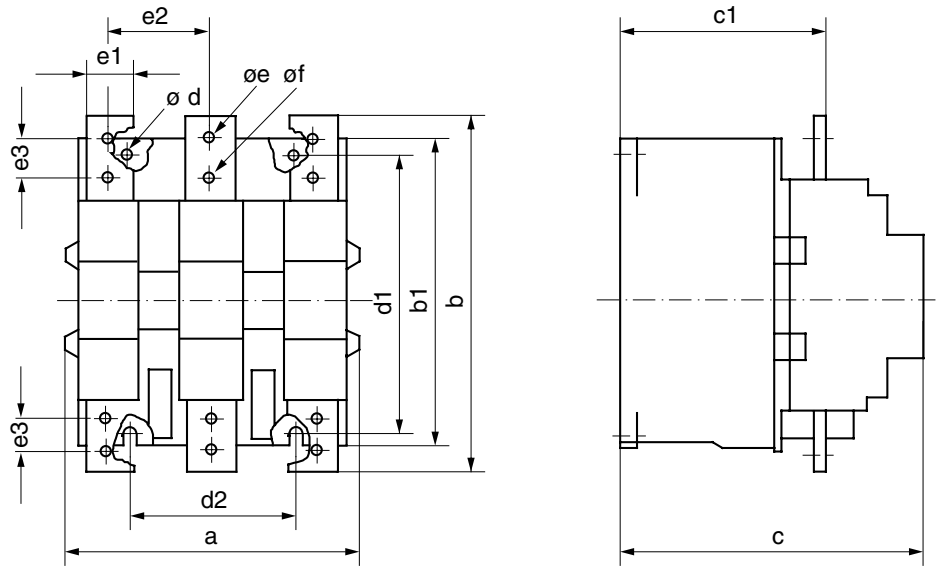


Switching motors during running (AC2, AC4)
Time energized t_{ED} = 0.25 s (<t_A)



Series CA5 & Series CAU5 (Contactors & Reversing Contactors)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

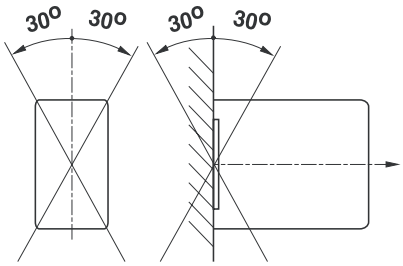


Type	a	b	b1	c	c1	ød	d1	d2	øe	øf	e1	e2	e3
CA5-550	220 (8-21/32)	258 (10-5/32)	228 (8-31/32)	225 (8-7/8)	164 (6-7/16)	9 (3/8)	220 (8-21/32)	110 (4-5/8)	13 (17/32)	-	40 (1-19/32)	79 (3-1/8)	-
CA5-700	280 (11-1/32)	307 (12-3/32)	277 (10-29/32)	291 (11-15/32)	203 (8)	11 (7/16)	280 (11-1/32)	175 (6-7/8)	13 (17/32)	-	50 (1-31/32)	101 (4)	-
CA5-860	280 (11-1/32)	361 (14-7/32)	325 (12-25/32)	291 (11-15/32)	203 (8)	11 (7/16)	280 (11-1/32)	175 (6-7/8)	15 (19/32)	11 (7/16)	50 (1-31/32)	101 (4)	32 (1-17/64)
CA5-1000	334 (13-5/32)	490 (19-9/32)	434 (17-1/16)	345 (13-9/16)	231 (9/32)	13 (25/64)	380 (14-31/32)	120 (4-23/32)	13 (25/64)	13 (25/64)	60 (2-3/8)	100 (3-31/32)	40 (1-9//16)
CA5-1200	334 (13-5/32)	490 (19-9/32)	434 (17-1/16)	345 (13-9/16)	231 (9/32)	13 (25/64)	380 (14-31/32)	120 (4-23/32)	13 (25/64)	13 (25/64)	60 (2-3/8)	100 (3-31/32)	40 (1-9//16)

Reversing Contactors & Accessories

Contactor with...		Dimension [mm]	Dimension [inches]
- auxiliary contact block		a	a
- reversing contactors with mechanical interlock			
next to each other	CA 5-550-/CA 5-550	a+42+a	a+1-23/32+a
	CA 5-700, -860/ CA 5-700, -860	a+32+a	a+1-1/4+a
	CA 5-1000, -1200/ CA 5-1000, -1200	a+46+a	a+1-13/16+a
	CA 5-550/CA, 5-700, -860	a+37+a	a+1-15/32+a
	CA 5-700, -860/ CA 5-1000, -1200	a+73+a	a+2-7/8+a
above each other	CA 5-550-/CA 5-550	b+56+b	b+2-3/16+b
	CA 5-700, -860/ CA 5-700, -860	b+100...200+b	b+3-15/16...7-7/8+b
	CA 5-1000, -1200/ CA 5-1000, -1200	b+230...280+b	b+9-1/16...11-1/32+b
	CA 5-550/CA, 5-700, -860	b+100...200+b	b+3-15/16...7-7/8+b
	CA 5-700, -860/ CA 5-1000, -1200	b+230...280+b	b+9-1/16...11-1/32+b
four main contacts	CA 5-550-/CA 5-700, -860	a+68	a+2-11/16
	CA 5-1000, -1200	a+76	a+3
latch	CA 5-550	b+47	b+1-7/8
	CA 5-700	b+64	b+2-17/32
	CA 5-860	b+37	b+1-15/32
	CA 5-1000, -1200	a+30	a+1-3/16

Mounting Position



SSNA9000

Notes

Series CDP2 Definite Purpose Contactors

High performance economical contactors for commercial applications up to 90A

Sprecher + Schuh's Definite Purpose contactors are ideal for commercial applications including air conditioning, refrigeration, resistive heating and many other installations where a low cost, high performance contactor is needed. These devices offer flexibility and are designed to meet or exceed electrical and mechanical requirements as defined by definite purpose contactor standards.

Popular sizes for most applications

The CDP2 series consists of one, two, three and four pole contactors rated to 600V AC. Three pole devices range up to 90A, while the one and two pole models are rated to 40A. Four pole contactors are also available ranging from 25A to 40A.

Flexibility and convenience make installation easy

CDP2 contactors are compact in size and offer three convenient methods of wire connection: quick connect terminals, screws or box lugs. Box lugs are standard on 40A and larger contactors. Other models come standard with combination quick connect terminals and screws that accept hex, slotted or phillips screwdrivers.

Standard Features

- Universal mounting plate
- 25A & 30A have screw power terminals that will accept ring-tongue terminals
- 40A and larger have box power terminals
- Dual quick-connect power terminals on all sizes
- Dual quick-connect coil terminals on all sizes
- Double break power contact design with feed-thru wiring
- Class B (130°C) coil insulation
- Double E magnet assembly

Optional Features

- SPDT auxiliary contacts optional on 3- and 4-pole contactors (max of two)
- Optional covers for 1- and 2-pole contactors
- Mechanical interlock for 3-pole contactors

One Pole

30A
40A

Two Pole

30A

Two Pole

40A

Three Pole

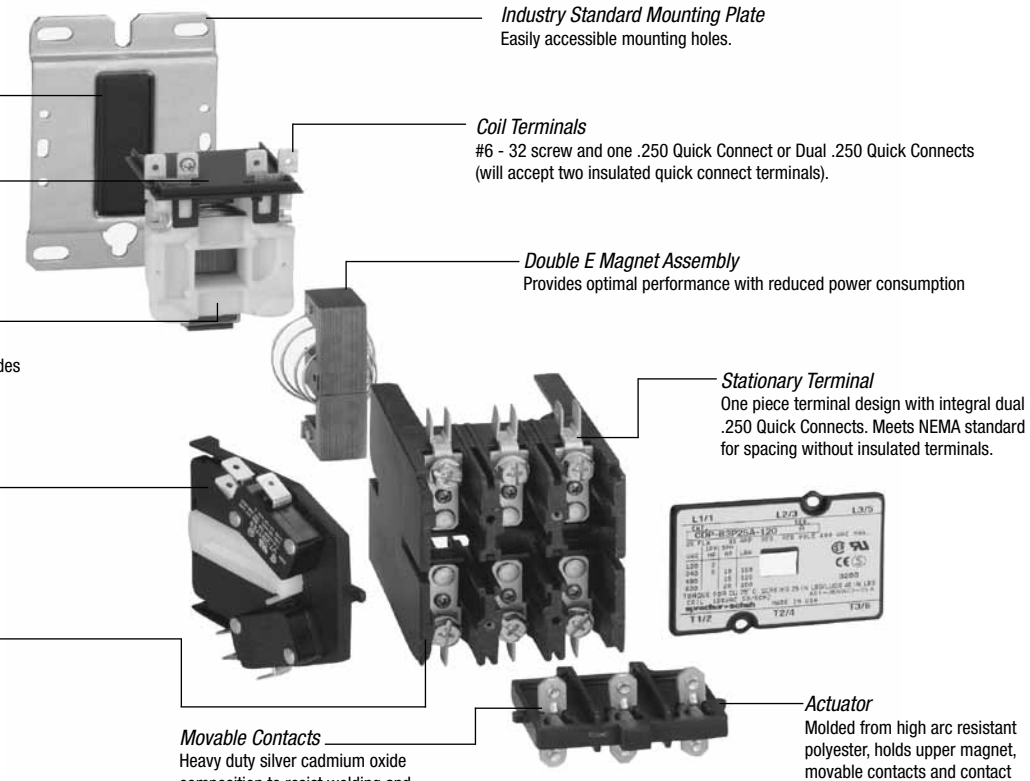
30A
40A
50A
60A
75A
90A

Four Pole

30A
40A

SSNA9000

Compare These Features



Industry Standard Mounting Plate
Easily accessible mounting holes.

Built-in Shock Absorber
Reduces contact bounce for longer life.

Coil Terminals
#6 - 32 screw and one .250 Quick Connect or Dual .250 Quick Connects (will accept two insulated quick connect terminals).

Coil Dust Cover
Keeps dust and dirt away from magnet and coil area.

Double E Magnet Assembly
Provides optimal performance with reduced power consumption

Coil
Class B (1300 C Insulation System with wide range of voltages and 50/60 Hz ratings. Includes shading coil that reduces contact chatter.

Stationary Terminal
One piece terminal design with integral dual .250 Quick Connects. Meets NEMA standard for spacing without insulated terminals.

Snap-on Auxiliary Contact
(optional on 3 and 4 pole contactors)
One or two SPDT (shown) available. Also 1NO and 1NC with 600V AC rating.

Base Assembly
High arc resistant polyester holds stationary terminals, positions actuator and magnet/coil assembly.

Movable Contacts
Heavy duty silver cadmium oxide composition to resist welding and contact erosion for greater reliability

Actuator
Molded from high arc resistant polyester, holds upper magnet, movable contacts and contact springs position.

Quick Selection Guide

One and Two Pole Definite Purpose Contactors with AC Coil - See page A154

CDP2 ❶	A	1P	30A	24	R	M
Type	**Frame Size**	**Poles**	**Amp Rating**	**Coil Voltage**	**Terminal Type**	**Packaging**
Definite Purpose	**A** = 30 & 40A	**1P** = 1 pole **2P** = 2 pole	30A = 30 amps 40A = 40 amps	**24** = 24 volts **120** = 120 volts **220W** = 208-240 volts	R=Ring terminals (40A option) B=Box Lugs on 25 or 35 OPTIONAL	M=Bulk packaging

Three Pole Definite Purpose Contactors with AC Coil- See page A155

CDP2	B	3P	30A	24	R	M
Type	**Frame Size**	**Poles**	**Amp Rating**	**Coil Voltage**	**Terminal Type**	**Packaging**
Definite Purpose	**B** = 30 & 40A **C** = 50 & 60A **D** = 75 & 90A	**3P** = 3 poles	**30A** = 30 amps **40A** = 40 amps **50A** = 50 amps **60A** = 60 amps **75A** = 75 amps **90A** = 90 amps	**24** = 24 volts **120** = 120 volts **220W** = 208-240 volts **480** = 480 volts	R=Ring terminals (40A option) B=Box Lugs on 25 or 30 OPTIONAL	M=Bulk packaging

Four Pole Definite Purpose Contactors with AC Coil - See page A156

CDP2	E	4P	25B	24	R	M
Type	**Frame Size**	**Poles**	**Amp Rating**	**Coil Voltage**	**Terminal Type**	**Packaging**
Definite Purpose	**E** = 25...40A	**4P** = 4 poles	**25B** = 25 amps **30B** = 30 amps **40B** = 40 amps	**24** = 24 volts **120** = 120 volts **220W** = 208-240 volts **480** = 480 volts	R=Ring terminals (40A and larger) B=Box Lugs on 25 or 30 OPTIONAL	M=Bulk packaging

❶ CDP prefix denotes First Generation products. CDP2 prefix denotes Second Generation products.

One and Two Pole Definite Purpose Contactors with AC Coil (Open type only) ❺

Full Load Amps	Poles	Locked Rotor Amps			Resistive Amps ❷	Maximum H.P. 1Ø		Catalog Number	Price Each	Std. Pkg.
		240V ❷	480V	600V		120V	240V ❷			
30 ❶	1 ❼	150	75	50	40	1	2	**CDP2-A1P30A-✱** ❻	**68**	50
30 ❶	2	150	125	100	40	2	3	**CDP2-A2P30A-✱** ❻	**84**	50
40	1 ❼	200	150	120	50	2	3	**CDP2-A1P40A-✱** ❸	**84**	50
40	2	200	150	120	50	2	3	**CDP2-A2P40A-✱** ❸	**99**	50

Series CDP2 1-pole contactor

Series CDP2 2-pole contactor (with optional cover)

Accessories

Accessory	Description	For use with...	Catalog Number	Price
	**Contactor Cover**- Prevents foreign particles from entering contactor. Covers current carrying parts.	CDP2-A1P30A... CDP2-A2P30A...	**CDP2-A1P-C** ❽ **CDP2-A2P-C**	**8** **10**

AC Coil Codes ❹

AC Coil Code	Voltage Range 60 Hz
24	24V
120	120V
220W	208V / 240V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page**

❶ 25A contactors only available by special order. Contact your Sprecher +Schuh representative.
❷ 240V rating also applies to 277V applications.
❸ Box Power Lugs are supplied as standard. Screw terminals are available on the power connections by special order only in quantity.
❹ 277V coils available by special order. Contact your Sprecher +Schuh representative.
❺ 1 and 2 Pole, 25 and 30A contactors supplied without cover. See Accessories for cover options.
❻ Screw Power Terminals are supplied standard on 25 and 30A contactors. Box Lugs available by special order only in quantity.
❼ 1-Pole (1-pole plus) contactors include a shunt for termination and feed-thru of neutral.
❽ 40 Amp contactors are supplied with cover as standard.

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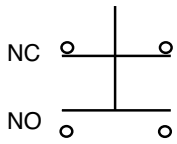
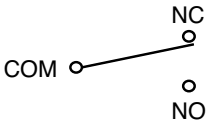
Three Pole Definite Purpose Contactors with AC Coil (Open Type only)

Full Load Amps	Locked Rotor Amps			Resistive Amps ❷	Maximum Horsepower ❷							Catalog Number	Price Each	Std. Pkg.
					1Ø			3Ø						
	240V ❷	480V	600V		120V	200	240V	200V	240V	480V	600V			
30 ❶	180	150	120	40	2	~	5	10	10	15	20	**CDP2-B3P30A-✱** ❺	**107**	25
40	240	200	160	50	3	~	7-1/2	10	10	20	25	**CDP2-B3P40A-✱** ❸	**131**	25
50	300	250	200	65	3	7-1/2	10	15	15	25	25	**CDP2-C3P50A-✱**	**239**	15
60	360	300	240	75	5	7-1/2	10	25	25	30	30	**CDP2-C3P60A-✱**	**277**	15
75	450	375	300	93	5	10	15	20	25	40	40	**CDP2-D3P75A-✱**	**362**	1
90	540	450	360	120	7-1/2	15	20	25	30	50	50	**CDP2-D3P90A-✱**	**499**	1

Series CDP2 3-pole contactor

Auxiliary Contacts for 3 Pole Contactors

Auxiliary	Description	Circuit Diagram	Catalog Number	Price
	**Two pole Auxiliary Contact Block (1-NO / 1-NC)** - Side mount with quick connect stabs for 25...40A, 3 pole contactors for 50...90A, 3 pole contactors		**CDP2-BE-11** **CDP2-CD-11**	**41**
	**One pole Auxiliary Contact Block (SPDT)** - Side mount with quick connect stabs for 25...40A, 3 or 4 pole contactors		**CDP2-BE-1SPDT** ❻	**35**

AC Coil Codes ❹

AC Coil Code	Voltage Range 60 Hz
24	24V
120	120V
220W	208V / 240V
480	480V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page**

❶ 25A contactors available by special order. Contact your Sprecher + Schuh representative.
❷ 240V rating also applies to 277V applications.
❸ Box lugs are supplied as standard. Screw terminals are available on the power connections by special order only in quantity.
❹ 277V coils available by special order in quantity. Contact your Sprecher +Schuh representative.
❺ Screw power terminals are supplied standard on 25 and 30A contactors. Box Lugs available by special order only in quantity.
❻ Meets NEMA Standard A300.

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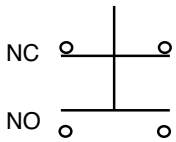
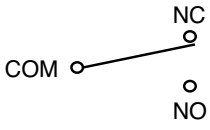
Four Pole Definite Purpose Contactors With AC Coil (Open Type only)

Full Load Amps	Locked Rotor Amps			Resistive Amps ❶	Maximum Horsepower ❶					Catalog Number	Price Each	Std. Pkg.
					1Ø		3Ø					
	240V ❶	480V	600V		120V	240V	200V	240V	480V			
30	180	150	120	40	2	5	10	10	15	**CDP2-E4P30A-✱** ❹	**142**	20
40	240	200	160	50	3	7-1/2	10	10	20	**CDP2-E4P40A-✱** ❷	**164**	20

Series CDP2 4-pole contactor

Auxiliary Contacts for 4 Pole Contactors

Auxiliary	Description	Circuit Diagram	Catalog Number	Price
	**Two pole Auxiliary Contact Block (1-NO / 1-NC)** - Side mount with quick connect stabs for all 4 pole contactors		**CDP2-BE-11**	**41**
	One pole Auxiliary Contact Block (SPDT) - Side mount with quick connect stabs for all 4 pole contactors		**CDP2-BE-1SPDT**	**35**

A.C. Coil Codes ❸

AC Coil Code	Voltage Range 60 Hz
24	24V
120	120V
220W	208V / 240V
480	480V

Ordering Instructions

Specify Catalog Number	
Replace (✱) with Coil Code	**See Coil Codes on this page**

❶ 240V rating also apples to 277V applications.
❷ Box Power Lugs are supplied as standard. Screw terminals are available on the power connections by special order only in quantity.
❸ 277V coils available by special order only in quantity. Contact your Sprecher + Schuh representative.
❹ Screw per terminals are supplied standard on 25 and 30A contactors. Box Lugs available by special order only in quantity.

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Accessories

Auxiliary	Description	For use with...	Catalog Number	Price
	**DIN-rail Adaptor** - Attaches to the universal mounting plate of 1-, 2-, 3- and 4-pole contactors 25...40 Amps.	CDP2-A1P…B3P CDP2-E4P	**CDP2-DRA**	**13**
	**Mechanical Interlock** - Can be combined with electrical interlocks on 3-pole and 4-pole contactors as required.	CDP2-B3P CDP2-E4P	**CDP2-MK1**	**19**

Technical Data

Short-Circuit Coordination

		25-30A 1+2-Pole	40A 1+2-Pole	25-30A 3-Pole	40A 3-Pole	50-90A 3-Pole	25-30A 4-Pole	40A 4-Pole
Standard Short Circuit Rating	[kA]	5	5	5	5	5	5	5
High Current Short Circuit Rating								
Class J-fuses								
Available fault current	[kA]	100	100	100	100	❶	100	100
cUL Max. fuse (600V)	[A]	60	100	60	100	❶	50	100
Enclosure Minimum	[in³]	96	96	144	144	❶	144	144
Molded Case Circuit Breaker								
Available fault current	[kA]	100	100	100	100	❶	100	100
cUL Max. breaker (480V)	[A]	80	80	80	100	❶	80	100
Enclosure Minimum	[in³]	144	144	144	144	❶	144	144

Service Life

Mechanical (operations)	1,000,000	1,000,000	1,000,000	500,000	1,000,000	1,000,000
Electrical (operations)	250,000	250,000	250,000	250,000	250,000	250,000

Data for Surge Suppression Selection

120 VAC Coils	Resistor	Capacitor
1 Pole	680 ohms	0.47 n*f*
2 Pole	330 ohms	0.47 n*f*
3P 30/40 Amp	220 ohms	0.47 n*f*
4P 30 Amp	220 ohms	0.47 n*f*
3P 50/60 Amp	150 ohms	0.47 n*f*
3P 75/90 Amp	68 ohms	0.47 u*f*

Snubber ❷
RCS1M-6
RCS1K-6
RCS1A-6
RCS1A-6
RCS1H-6
RCS1E-6

❶ UL testing not complete at the time of printing of this catalog.
❷ Recommended snubbers from RK Electric

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General Specifications

		CDP2 25...40A, 1 & 2 pole	CDP2 25...40A, 3 pole	CDP2 50...60A, 3 pole	CDP2 75...90A, 3 pole	CDP2 25...40A, 4 pole
Approvals						
UL		UL508, Guide No. NLDX2-File No. E193035				
CSA		C22.2 No. 14, Class; 321104-File No. 210566 (75A, 3 pole / C22.2 No. 14, Class: 122201 - File No. 210566)				
CE / SEMKO		Certified EN60947-4-1: 2000 and A1: 1995 (Except 75A & 90A, 3 pole)				
IEC		IEC 947-4-1 (Except 50A…90A, 3 pole)				
CCC		Registration # 2005010304145109 (Except 50…90A, 3 pole)				
Line and Load Terminals		#10 - 32 screw or box lug	#10 - 32 screw or box lug	Box lug	Box lug	#10 - 32 screw or box lug
Wire Size (min/max)						
#10 - 32 screw (all 25A & 30A)	[AWG]	16 - 8 ❶	16 - 8 ❶	~	~	16 - 8 ❶
Box Lug (≥40A)	[AWG]	14 - 4 Cu/Al	14 - 4 Cu/Al	14 - 2 Cu/Al	14 - 1/0 Cu/Al	14 - 4 Cu/Al
Recommended Tightening Torque						
#10 - 32 screw (all 25A & 30A devices)		22 lbs-in	22 lbs-in	~	~	22 lbs-in
Box Lug (40A devices only)		40 lbs-in	40 lbs-in	50 lbs-in	50 lbs-in	40 lbs-in
Quick Connects						
Coil Terminals		Dual .250 QC (2)	Quad. .250 QC (2)	#6-32 screw 7 .250 QC (2)	#6-32 screw 7 .250 QC (2)	Dual .250 QC (2)
Power Terminals		1 pole: Quad .250 QC 2 pole: Quad .250 QC	Dual .250 QC (2)	Dual .250 QC (2)	Dual .250 QC (2)	Dual .250 QC (2)
Arc Cover		Optional	Standard	Standard	Standard	Standard
Insulation System				130°C Class B		
Temperature Range	[°C]			-40°C to +65°C		
	[°F]			-40°F to +150°F		
Weight		1 pole 0.5 lb 2 pole: 0.6 lb	1 lb	2 lbs	4 lbs	1.5 lbs.

UL/CSA Ratings for 25A special order contactors			**1 Pole**	**2 Pole**	**3 Pole**
Locked Rotor Amps	240/277 V	[A]	150	150	150
	480V	[A]	125	125	125
	600V	[A]	100	100	100
Resistive Amps		[A]	35	35	35
Max. HP 1∅	120 V	[HP]	2	2	2
	240 V	[HP]	3	3	3
Max. HP 3∅	200 V	[HP]	~	~	7.5
	230 V	[HP]	~	~	7.5
	460 V	[HP]	~	~	10
	575 V	[HP]	~	~	10

Coil Data

		24V Coils	**120V Coils**	**220W Coils**	**277V Coils**	**480V Coils**
1 Pole Contactors						
Normal Coil Voltage	[V]	24	120	208 / 240	277	~
Pickup voltage (Max.)	[V]	18	88	177	221	~
Drop-out/Voltage Range	[V]	6...15	20...70	40...140	50...165	~
Nominal Inrush						~
50 Hz	[VA]	22.5	22.5	22.5	22.5	~
60Hz	[VA]	20	20	20	20	~
Nominal Seal-in						~
50 Hz	[VA]	7	7	7	7	~
60 Hz	[VA]	5.25	5.25	5.25	5.25	~
Nominal DC Resistance		16.5	420	1850	2650	~
2 Pole Contactors						~
Normal Coil Voltage	[V]	24	120	208 / 240	277	~
Pickup voltage (Max.)	[V]	18	88	177	221	~
Drop-out Voltage Range	[V]	6...15	20...70	40...140	50...165	~
Nominal Inrush						~
50 Hz	[VA]	37	37	37	37	~
60Hz	[VA]	35	35	35	35	~
Nominal Seal-in						~
50 Hz	[VA]	8	8	8	8	~
60 Hz	[VA]	7	7	7	7	~
Nominal DC Resistance		11	250	1000	1600	~

❶ Stranding must be split for #8 wire.

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Coil Data *(continued)*

		50/60 Hz 24V Coils	110 - 50 Hz 120 - 60 Hz 120V Coils	220 - 50 Hz 208/240 - 60 Hz 220W Coils	277 - 60 Hz 277V Coils	440 - 50 Hz 480 - 60 Hz 480V Coils
3 Pole Contactors (25...40A)						
Nominal Coil Voltage	[V]	24	120	208 / 240	277	480
Pickup Voltage (Max.)	[V]	18	88	177	220	384
Drop-out Voltage Range	[V]	6...15	20...70	40...140	60...185	150...270
Nominal Inrush						
50 Hz	[VA]	60	60	60	60	65
60Hz	[VA]	53	53	53	53	53
Nominal Seal-in						
50 Hz	[VA]	7.5	7.5	7.5	7.5	7.5
60 Hz	[VA]	6	6	6	6	6
Nominal DC Resistance	[Ω]	7	180	720	950	3100
3 Pole Contactors (50...60A)						
Nominal Coil Voltage	[V]	24	120	208 / 240	277	480
Pickup Voltage (Max.)	[V]	18	93	177	235	374
Drop-out Voltage Range	[V]	6...15	20...70	40...135	50...180	120...286
Nominal Inrush						
50 Hz	[VA]	104	102	114	~	98
60Hz	[VA]	96	112	125	108	108
Nominal Seal-in						
50 Hz	[VA]	12	10	12	~	10
60 Hz	[VA]	10	10	12	10	10
Nominal DC Resistance	[Ω]	4	52	282	453	1390
3 Pole Contactors (75...90A)						
Nominal Coil Voltage	[V]	24	120	208 / 240	277	480
Pickup Voltage (Max.)	[V]	18	88	177	220	384
Drop-out Voltage Range	[V]	6...15	20...70	40...110	65...185	150...270
Nominal Inrush	[Ω]					
50 Hz	[VA]	220	206	260	~	206
60Hz	[VA]	190	210	260	202	208
Nominal Seal-in						
50 Hz	[VA]	21	16	25	~	17
60 Hz	[VA]	16	16	25	17	17
Nominal DC Resistance	[Ω]	.66	15.8	50	93	258
4 Pole Contactors (25...40A)						
Nominal Coil Voltage	[V]	24	120	208 / 240	277	480
Pickup voltage (Max.)	[V]	19.2	93	177	220	384
Drop-out Voltage Range	[V]	6...15	20...70	40...140	50...185	15...270
Nominal Inrush						
50 Hz	[VA]	62	62	62	62	67
60 Hz	[VA]	59	59	59	59	60
Nominal Seal-in						
50 Hz	[VA]	9	9	9	9	9
60 Hz	[VA]	7	7	7	7	7
Nominal DC Resistance	[Ω]	6	150	600	750	2400

Auxiliary Contacts

2 Pole (NO/NC) - Single Circuit Contact Rating

Voltage Rating		120	240	480	600
Amperes	Break	3.0	1.5	0.75	0.6
	Make	30	15	7.5	6
	Continuous	10	10	10	10

SPDT

10A, 1/3 HP, 125 or 250V AC;
1/2A, 125 V DC;
1/4A, 250V DC;
4A, 120V AC on Lamp Load

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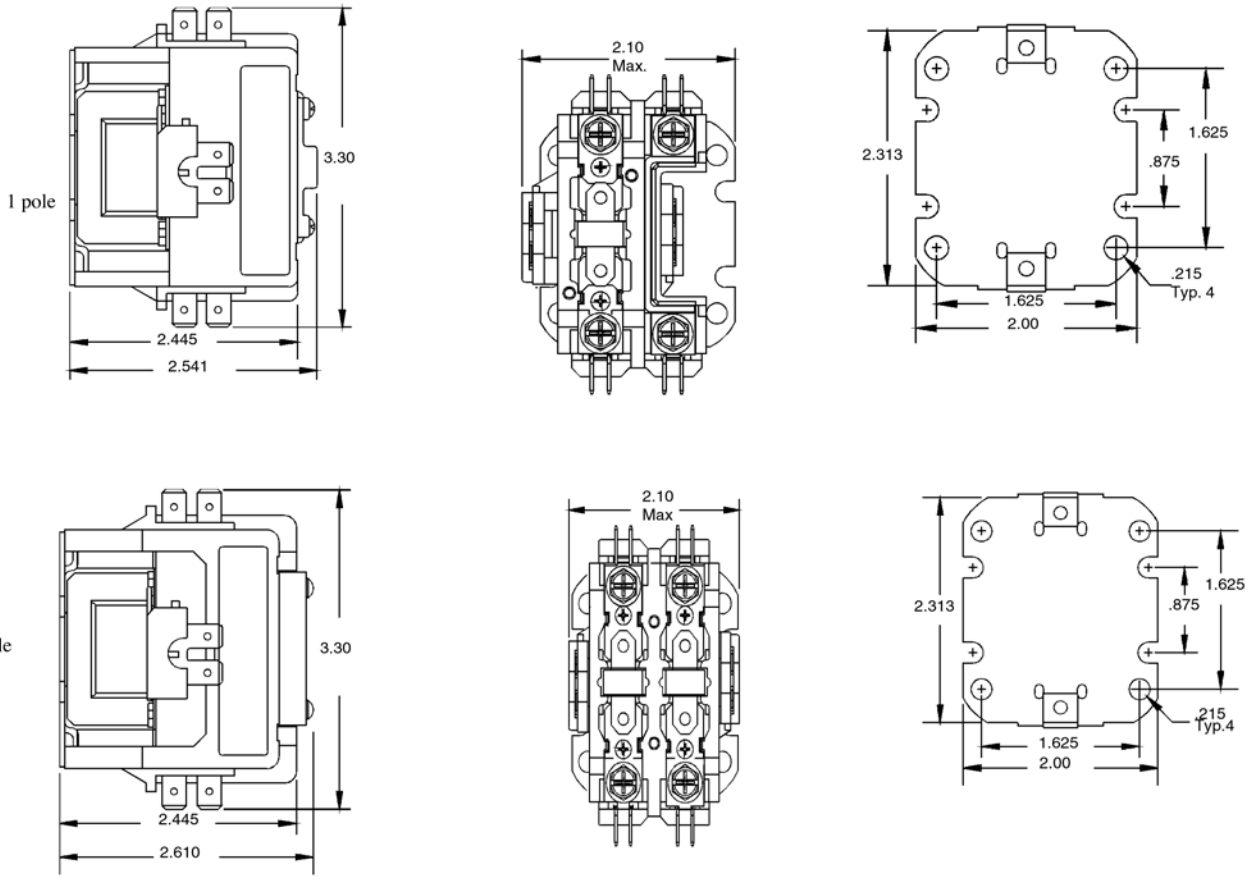
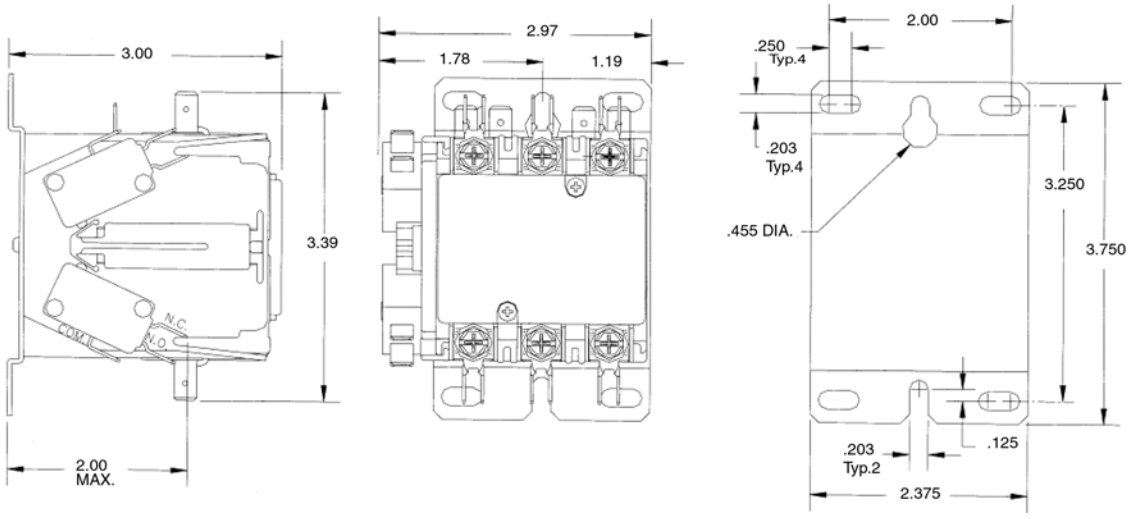
CDP2 25...40A, 1 & 2 Pole

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.



CDP2 25...40A, 3 Pole



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CDP2 50...60A, 3 Pole

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

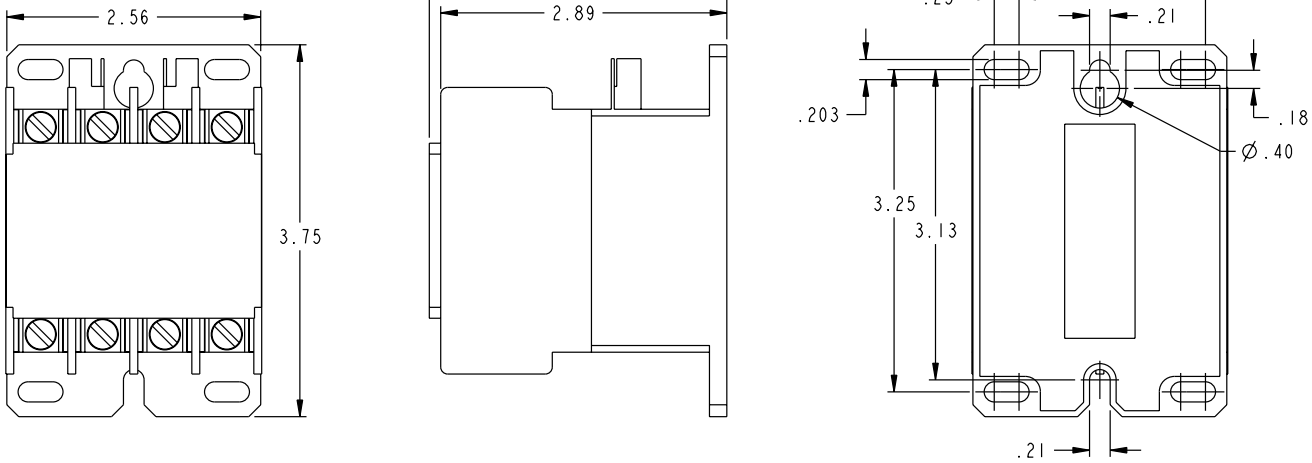
NEW DRAWINGS
TO BE POSTED

CDP2 75...90A, 3 Pole

NEW DRAWINGS
TO BE POSTED

CDP2 25...40A, 4 Pole

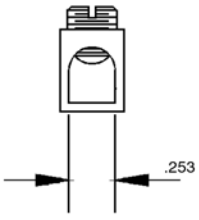
Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.



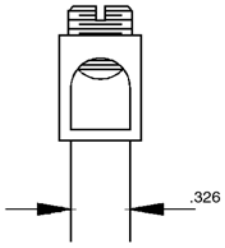
Terminations

Std. on
25 and 30 FLA

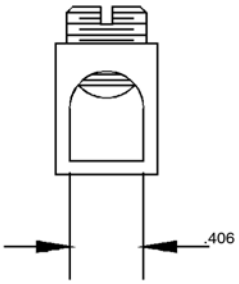
#10 – 32 Combination Phillips, Slotted & 5/16 Hex Head #12 washer



40 FLA Lug 14 – 4 Cu/Al AWG



50 & 60 FLA Lug 14 – 2 Cu/Al AWG



75 FLA Lug 14 – 1/0 Cu/Al AWG

NEW DRAWINGS
TO BE POSTED

SSNA9000