

Series CA7 Contactors

Contactors

CA7

Rugged, space saving
and modular...
Sprecher + Schuh's
newest contactor for
applications up to 60HP

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 60HP @ 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.

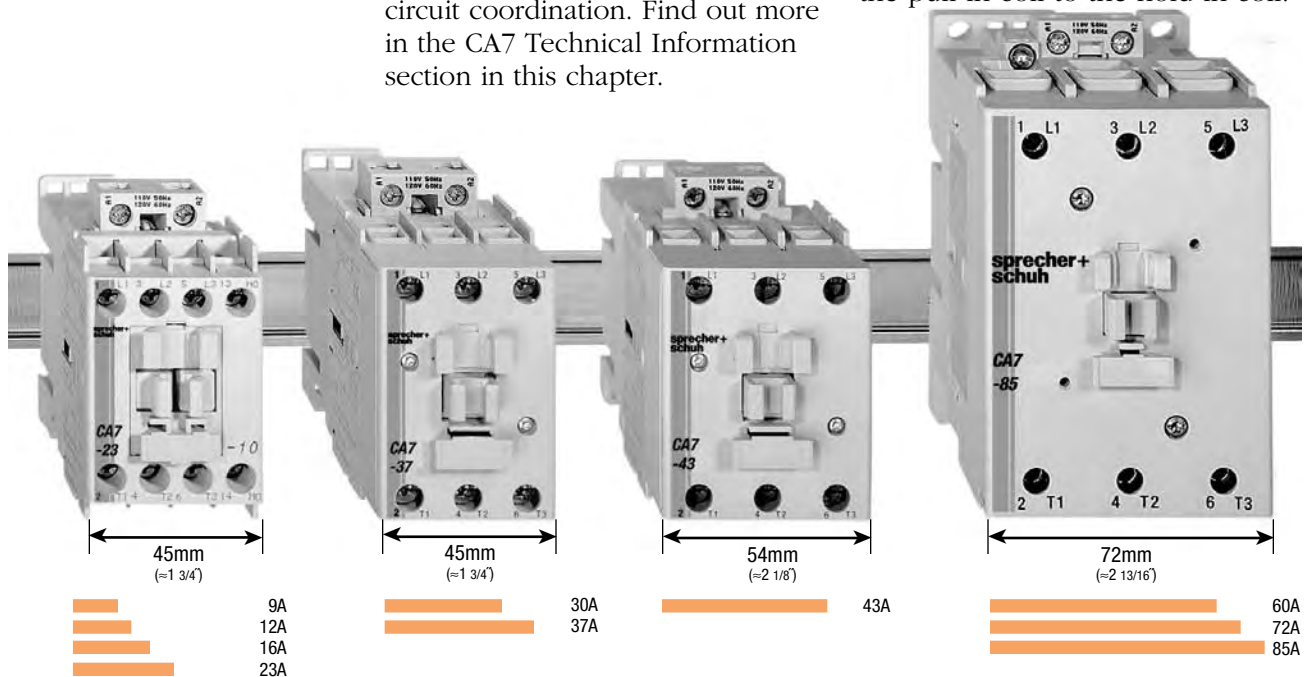
Advanced safety and reliability features

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 ($\geq 0.3\text{mm}$) 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.

Two types of DC coils available

CA7-9C through 43C contactors are available with true 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.



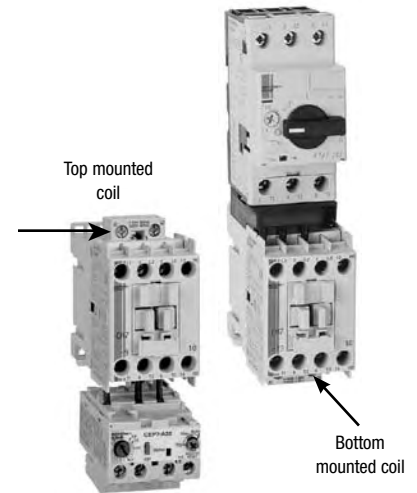
Modular accessories are common to all devices

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

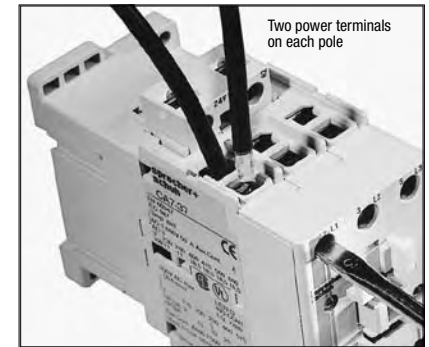
When shipped, both coil connections are normally located at the top of the contactor in preparation for mounting an overload relay at the bottom. For multi-starter panels, however, the coil can be reversed, which provides space to close-couple a KT7 Motor Circuit Controller on the top of the contactor.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



Reversible coils are standard on all CA7 contactors

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.



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.

CAL7 Lighting Contactor



CAQ7 Capacitor Switching Contactor

CNX Special Purpose Contactor

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.

Capacitor contactors

Sprecher + Schuh's expanded CA7 line includes contactors designed and labeled for specific industrial 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	Price
		kW (50 Hz)				UL/CSA HP (60 Hz)									
		AC-3	AC-1	230V	400V / 415V	500V	690V	1 Ø		3 Ø				NO	
115V	230V							200V	230V	460V	575V				
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	0	CA7-30-00- *	222
												1	0	CA7-30-10- *	244
												0	1	CA7-30-01- *	244
37	65	11	18.5/ 20	20	18.5	3	5	10	10	25	30	0	0	CA7-37-00- *	266
												1	0	CA7-37-10- *	288
												0	1	CA7-37-01- *	288
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0	0	CA7-43-00- *	286
												1	0	CA7-43-10- *	308
												0	1	CA7-43-01- *	308
60	100	18.5	37	37	32	5	10	15	20	40	50	0	0	CA7-60-00- *	350
												1	0	CA7-60-10- *	372
												0	1	CA7-60-01- *	372
72	100	22	40	45	40	5	15	20	25	50	60	0	0	CA7-72-00- *	403
												1	0	CA7-72-10- *	425
												0	1	CA7-72-01- *	425
85	100	25	45	55	45	7-1/2	15	25	30	60	60	0	0	CA7-85-00- *	460
												1	0	CA7-85-10- *	482
												0	1	CA7-85-01- *	482



CA7-9-10-120 contactor



CA7-43-00-120 contactor



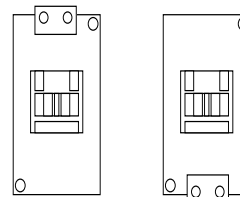
CA7-85-00-120 contactor

Coil Codes ❷

A.C. 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 Code table on this page for codes.

- 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 A37. Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.

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		Price
		kW (50 Hz)				UL/CSA HP (60 Hz)										
		AC-3	AC-1	230V	400V 415V	500V	690V	1 Ø		3 Ø				NO	NC	
115V	230V							200V	230V	460V	575V					
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	11	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

A.C. 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 Code table on this page for codes.

❶ Other voltages available, see page A37. Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.

Non-Reversing, Three Pole Contactors With True DC Coil, Series CA7 (Open type only) ①④

I _e [A] ①		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type	Price
		kW (50 Hz)				UL/CSA HP (60 Hz)									
AC-3	AC-1	230V	400V/ 415V	500V	690V	1 Ø	3 Ø					NO	NC	Catalog Number	
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:

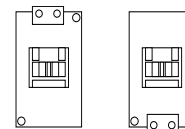
True DC coils have very low inrush which allows the use of smaller power supplies. See page A48 for more information. DC and AC coils are not interchangeable. CA7-9C...43C contactors have increased dimensions to accommodate true DC coils.

Coil Codes ②

D.C Coil Codes	Voltage
12D	12V
24D ③	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 Code table on this page for codes.

- ① 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.
- ② Other voltages available, see page A38. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
- ③ 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: CA7-9C-10-24DD becomes CA7-9D-10-24DD. Check with customer service representative to determine stock availability.
- ④ See pages A29-A30 for limitations on adding auxiliaries to true DC contacts.

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)									
		230V	400V 415V	500V	690V	1 Ø		3 Ø							
115V	230V					200V	230V	460V	575V						
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:

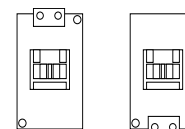
True DC coils have very low inrush which allows the use of smaller power supplies. See page A48 for more information. DC and AC coils are not interchangeable. CA7-9C...40C contactors have increased dimensions to accommodate true DC coils.

Coil Codes ❶

D.C 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 Code table on this page for codes.

❶ Other voltages available, see page A38. 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: CA7-9C-M40-24DD becomes CA7-9D-M40-24DD.

Non-Reversing, Three Pole Contactors With Electronic 24VDC Coil, Series CA7 (Open type only) ①②③

I _e [A] ①		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type		Price
		kW (50 Hz)				UL/CSA HP (60 Hz)										
		AC-3	AC-1	230V	400V/ 415V	500V	690V	1 Ø		3 Ø				NO	NC	
115V	230V							200V	230V	460V	575V					
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...37E has internal surge suppression. See page A48 for more information.

This new design results in:

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

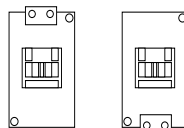
Applications

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.

① 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.

② DC and AC coils are not interchangeable. CA7-9E...43E are only available in 24VDC.

③ See pages A29-A30 for limitations on adding auxiliaries to Electronic DC Coil contacts.

Non-Reversing, Four Pole Contactors With Electronic 24VDC Coil, Series CA7 (Open type only) ①②

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)									
			400V			1 Ø		3 Ø							
AC-3	AC-1	230V	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	CA7-9E-M40-24E	198
												3	1	CA7-9E-M31-24E	210
												2	2	CA7-9E-M22-24E	210
12	32	1	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	4	0	CA7-12E-M40-24E	240
												3	1	CA7-12E-M31-24E	252
												2	2	CA7-12E-M22-24E	252
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	4	0	CA7-16E-M40-24E	264
												3	1	CA7-16E-M31-24E	277
												2	2	CA7-16E-M22-24E	277
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	4	0	CA7-23E-M40-24E	290
												3	1	CA7-23E-M31-24E	302
												2	2	CA7-23E-M22-24E	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

Contactors

CA7

Description

Low Consumption Electronic DC coils have extremely low inrush which allows the use of smaller power supplies. CA7-9E...37E has internal surge suppression. See page A48 for more information.

This new design results in:

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

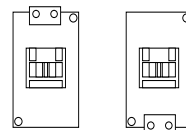
Applications

Direct control from PLC:

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Coil Terminal Position

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All CA7 contactors come with reversible coils.

① DC and AC coils are not interchangeable. CA7-9E...43E are only available in 24VDC.

② See pages A29-A30 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) ①②③

I _e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor ①②③		Open Type	
		kW (50 Hz)				UL/CSA HP (60 Hz)									
		230V	400V/ 415V	500V	690V	1 Ø		3 Ø							
115V	230V					200V	230V	460V	575V						
AC-3	AC-1	230V	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 2	1 2 0	CA7-9Y-D11- CA7-9Y-D02- CA7-9Y-D20-*	211
12	32	4	5.5	5.5	5.5	1/2	2	3	3	7-1/2	10	1 0 2	1 2 0	CA7-12Y-D11- CA7-12Y-D02- CA7-12Y-D20-*	254
16	32	5.5	7.5	7.5	7.5	1	3	5	5	10	15	1 0 2	1 2 0	CA7-16Y-D11- CA7-16Y-D02- CA7-16Y-D20-*	278
23	32	7.5	11	13	10	2	3	5	7-1/2	15	15	1 0 2	1 2 0	CA7-23Y-D11- CA7-23Y-D02- CA7-23Y-D20-*	305
30	65	10	15	15	15	2	5	7-1/2	10	20	25	1 0	0 1	CA7-30Y-E10- CA7-30Y-E01-*	345
37	65	11	18.5/ 20	20	18.5	3	5	10	10	25	30	1 0	0 1	CA7-37Y-E10- CA7-37Y-E01-*	404
43	85	13	22	25	22	3	7-1/2	10	15	30	30	1 0	0 1	CA7-43Y-E10- CA7-43Y-E01-*	461
60	100	18.5	32	37	32	5	10	15	20	40	50	0 1 0	0 0 1	CA7-60D-00- CA7-60D-10- CA7-60D-01-*	475 497 497
72	100	22	40	45	40	5	15	20	25	50	60	0 1 0	0 0 1	CA7-72D-00- CA7-72D-10- CA7-72D-01-*	530 552 552
85	100	25	45	55	45	7-1/2	15	25	30	60	60	0 1 0	0 0 1	CA7-85D-00- CA7-85D-10- CA7-85D-01-*	590 612 612

NOTE: Items in gray are special order.



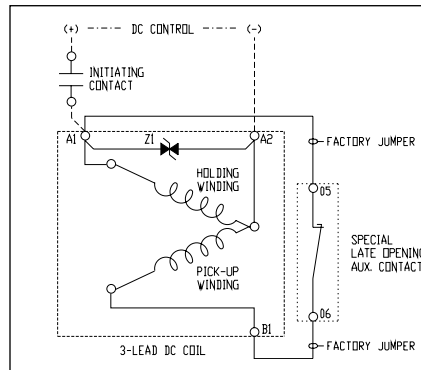
CA7-16Y contactor (typical)

Description:

Contactors with two winding DC coils have very low hold-in values and share the same dimensions with AC contactors. See page A48 for more information. See page A58 for dimensional information.

Coil Codes ④⑤⑥

D.C. Coil Code	Voltage
24DD	24V
110DD	110V



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 bi-directional 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.

- ① 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.
- ② 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.
- ③ CA7-60D...CA7-85D have an internal auxiliary contact to transition from the start winding to the run winding.
- ④ Coils include an integrated diode surge suppressor.
- ⑤ Other coil voltages are available, see page A38. 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.*
- ⑥ 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.

Ordering Instructions

Specify Catalog Number	
Replace (*) with Coil Code	See Coil Code table on this page for codes.

Non-Reversing, Four Pole Contactors With Two Winding DC Coil, Series CA7 (Open type only) ①②

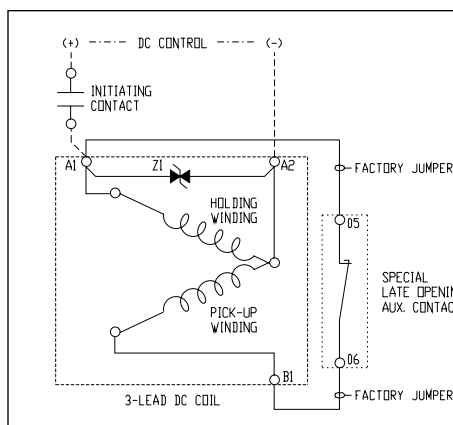
Description:
See opposite page.

I _e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Contact Configuration Main Pole		Auxiliary Contacts Per Contactor ❶		Open Type	Price
		kW (50 Hz)				UL/CSA HP (60 Hz)											
		230V	415V 400V	500V	690V	1 Ø		3 Ø									
115V	230V					200V	230V	460V	575V								
AC-3	AC-1	230V	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

NOTE: Items in gray are special order.

Coil Codes ③④

D.C. Coil Code	Voltage
24DD	24V
110DD	110V



CA7-9Y...23Y 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 bi-directional 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.

Ordering Instructions

Specify Catalog Number	
Replace (*) with Coil Code	See Coil Code table on this page for codes.

- ① 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.
- ② CA7-90D...contactors have an internal auxiliary contact to transition from the start winding to the run winding.
- ③ Coils include an integrated diode surge suppressor.
- ④ Other coil voltages are available, see page A38. 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)									
AC-3	AC-1	230V	400V 415V	500V	690V	1 Ø	3 Ø				NO	NC ⑤	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 ④	1 1	CAU7-30-02-*	553
														CAU7-30-22-*	597
37	65	11	18.5/ 20	20	8.5	3	5	10	10	25	30	0 1 ④	1 1	CAU7-37-02-*	640
														CAU7-37-22-*	684
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0 1 ④	1 1	CAU7-43-02-*	710
														CAU7-43-22-*	754
60	100	18.5	32	37	32	5	10	15	20	40	50	0 1 ④	1 1	CAU7-60-02-*	895
														CAU7-60-22-*	939
72	100	22	40	45	40	5	15	20	25	50	60	0 1 ④	1 1	CAU7-72-02-*	1010
														CAU7-72-22-*	1054
85	100	25	45	55	45	7-1/2	15	25	30	60	60	0 1 ④	1 1	CAU7-85-02-*	1125
														CAU7-85-22-*	1169



CAU7-9-22-120 reversing contactor



CAU7-43-22-120 reversing contactor

Includes:

- Line side coil terminations
- Mechanical and electrical Interlock ⑤
- Reversing power wiring ① (using Power Wiring Kit Cat.# CAUT7-PW...)
- Control wiring available; see footnote ②

Coil Codes ⑥

A.C. 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 Code table on this page for codes.

- ① 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...85 without power wiring not available
Ex: CAU7-9-22-* becomes CAU7-9-22-***-LW**.
- ② For control wiring, add suffix **-CW** to catalog number and add \$20.
Example: CAU7-9-22-* becomes CAU7-9-22-***-CW**.
- ③ The NC auxiliary contacts are supplied as part of the mechanical interlock (Cat.# CM7-02) and are used to electrically interlock the contactors.
- ④ The NO auxiliary contacts supplied are side mounted. Top mount NO auxiliary contacts must be special ordered. Contact your Sprecher+Schuh representative.
- ⑤ Other voltages available, see page A37. *Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.*

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 Catalog Number		Price
		kW (50 Hz)				UL/CSA HP (60 Hz)										
		AC-3	AC-1	230V	400V 415V	500V	690V	1 Ø		3 Ø				NO	NC ④	
115V	230V				200V			230V	460V	575V						
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 ④	1 1	CAU7-30C-02-*	692	
														CAU7-30C-22-*	736	
37	65	11	18.5/ 20	20	8.5	3	5	10	10	25	30	0 1 ④	1 1	CAU7-37C-02-*	890	
														CAU7-37C-22-*	934	
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0 1 ④	1 1	CAU7-43C-02-*	938	
														CAU7-43C-22-*	982	
60	100	18.5	32	37	32	5	10	15	20	40	50	0 1 ④	1 1	CAU7-60D-02-*	1115	
														CAU7-60D-22-*	1159	
72	100	22	40	45	40	5	15	20	25	50	60	0 1 ④	1 1	CAU7-72D-02-*	1240	
														CAU7-72D-22-*	1284	
85	100	25	45	55	45	7-1/2	15	25	30	60	60	0 1 ④	1 1	CAU7-85D-02-*	1360	
														CAU7-85D-22-*	1410	

NOTE: DC and AC coils are not interchangeable. CA7-9C...43C contactors have increased dimensions to accommodate true DC coils. CA7-60D...85D contactors have a two winding, 3-lead coil with built-in late break auxiliary contact and coil suppression. Refer to page A64-A65 for dimensions.



CAU7-9C-22 reversing contactor



CAU7-43C-02 reversing contactor

Includes:

- DC operating mechanism
- Line side coil terminations
- Mechanical and electrical Interlock ⑤
- Reversing power wiring ① (using Power Wiring Kit Cat.# CAUT7-PW...)
- Control wiring available; see footnote ②

Coil Codes ⑤⑥

CAU7-9C...43C	CAU7-60D...85D	Voltage
D.C. Coil Code	D.C. Coil Code	
12D	12DD	12V
24D ⑦	24DD	24V
48D	48DD	48V
110D	110DD	110V
220D	220DD	220V

- ① 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...85D without power wiring not available

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

- ② For control wiring, add suffix **-CW** to catalog number and add \$20.

Example: CAU7-9-22-* becomes CAU7-9-22-***-CW**.

- ③ The NC auxiliary contacts are supplied as part of the mechanical interlock (Cat.# CM7-02) and are used to electrically interlock the contactors.

- ④ The NO auxiliary contacts supplied are side mounted. Top mount NO auxiliary contacts must be special ordered. Contact your Sprecher+Schuh representative.

- ⑤ Other voltages available, see page A38. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

- ⑥ Coils for CAU7-60D...85D reversing contactors include an integrated diode surge suppressor.

- ⑦ Surge suppressor coil with integrated diode available. Order coil code **24DD** and add \$84 to list price (\$25 x two contactors). To order, change "C" in catalog number to "D". Ex: CAU7-9C-22-24D becomes CAU7-9D-22-24DD.

Ordering Instructions

Specify Catalog Number	
Replace (*) with Coil Code	See Coil Code table on this page for codes.

Reversing, Three Pole Contactors With Electronic 24VDC Coil, Series CAU7 (Open type only) ⑤⑥

I _e [A]		Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type		Price
		kW (50 Hz)				UL/CSA HP (60 Hz)										
		230V	400V 415V	500V	690V	1 Ø		3 Ø								
AC-3	AC-1		115V			230V	200V	230V	460V	575V	NO	NC ③	Catalog Number			
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 ④	1 1	CAU7-30E-02-24E CAU7-30E-22-24E	780 820	
37	65	11	18.5/ 20	20	8.5	3	5	10	10	25	30	0 1 ④	1 1	CAU7-37E-02-24E CAU7-37E-22-24E	971 1018	
43	85	13	22	25	22	3	7-1/2	10	15	30	30	0 1 ④	1 1	CAU7-43E-02-24E CAU7-43E-22-24E	1050 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...37E has internal surge suppression. See page A48 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 ③
- Reversing power wiring ① (using Power Wiring Kit Cat.# CAUT7-PW...)
- Control wiring available; see footnote ②
- CAU7-9E...37E has internal surge suppression.

① 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.

② For control wiring, add suffix -CW to catalog number and add \$20.

Example: CAU7-9E-22-24E becomes CAU7-9E-22-24E-CW.

③ The NC auxiliary contacts are supplied as part of the mechanical interlock (Cat.# CM7-02) and are used to electrically interlock the contactors.

④ The NO auxiliary contacts supplied are side mounted. Top mount NO auxiliary contacts must be special ordered. Contact your Sprecher+Schuh representative.

⑤ DC and AC coils are not interchangeable. CA7-9E...43E are only available in 24VDC.

⑥ See pages A29-A30 for limitations on adding auxiliaries to Electronic DC Coil contacts.

Series CA7 Special Use Contactors

Contactors designed
and labeled for specific
industrial applications



Special Use Contactors

Capacitor switching contactors

HVAC rated contactors

NEMA labeled contactors

Lighting contactors

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. 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 CT7 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.

CAN7 and CAN6 NEMA size labeled contactors

CAN7 & CAN6 contactors are UL Listed in accordance with the requirements of NEMA standards publication ICS-2. Standard CA7, as well as CA6 contactors bear a UL maximum horsepower rating as well as an IEC KW rating on the label. 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 & CA6 NEMA sized contactors may be combined with all Sprecher + Schuh overload relays to make a NEMA sized starters.



Contactors

CA7

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		Price
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		
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	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	
7	12.5	13	16	22	12.5	21.5	22.5	27	37.5	1	1	CAQ7-37-11-*	327	
										2	0	CAQ7-37-20-*	327	

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.

Coil Codes ①

A.C. 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 Code table on this page for codes.

① Other voltages available, see page A37. Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.

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

Contactors

CAQ7

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

IEC Ratings for Switching Capacitor Bank										Auxiliary Contacts per Contactor		Open Type	Price
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	
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	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
7	12.5	13	16	22	12.5	21.5	22.5	27	37.5	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.

Coil Codes ❶

D.C. 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 Code table on this page for codes.

❶ Other voltages available, see page A38. 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.

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.

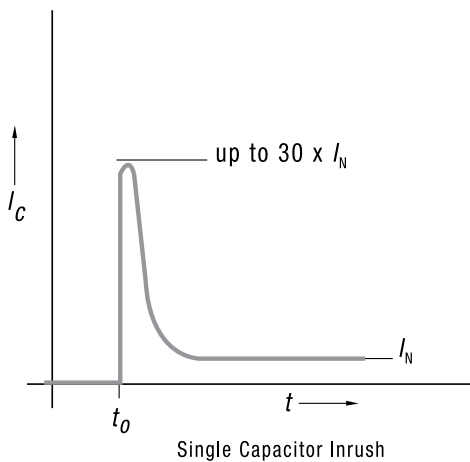


Figure 1

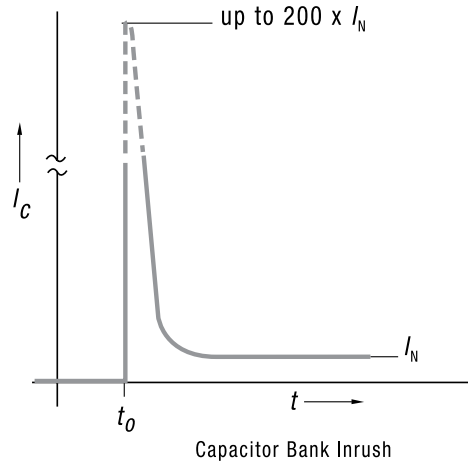
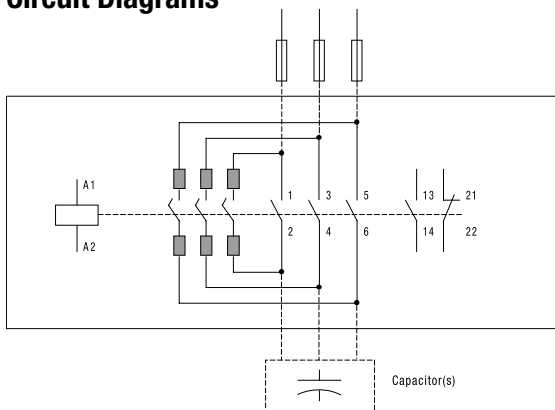


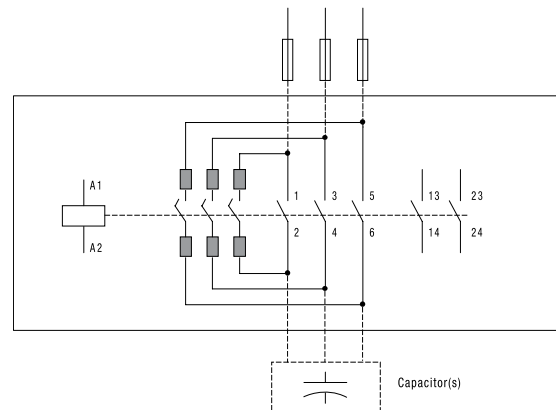
Figure 2

Circuit Diagrams



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

Figure 3



CAQ7-16-* and CAQ7-37-*
(2 NO auxiliary contacts)

Figure 4

Non-Reversing, Three Pole Special Purpose Contactors With AC Coil (Open type only) ①②

Full Load Amps	Locked Rotor Amps - 3Ø			Resistive Amps ④	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	1	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. ②

Coil Codes ③

A.C. 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 Code table on this page for codes.

- ① Special order contactors. Contact your Sprecher + Schuh representative for availability.
- ② All CNX contactors listed here are ARI (Air Conditioning and Refrigeration Institute) approved.
- ③ Other voltages available, see page A37. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
- ④ Reference page A56 for Operation Life Data.

Non-Reversing, Three Pole Special Purpose Contactors With DC Coil (Open type only) ①②

Full Load Amps	Locked Rotor Amps - 3Ø			Resistive Amps ④	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. ②

Coil Codes ③

CNX-205C...212C	CNX-218D	Voltage
D.C. Coil Code	D.C. Coil Code	
24D ⑤	24DD ⑥	24V
110D ⑤	110DD ⑥	110V

Ordering Instructions

Specify Catalog Number	
Replace (*) with Coil Code	See Coil Code table on this page for codes.

① Special order contactors. Contact your Sprecher + Schuh representative for availability.

② All CNX contactors listed here are ARI (Air Conditioning and Refrigeration Institute) approved.

③ Other voltages available, see page A38. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

④ Reference page A56 for Operation Life Data.

⑤ DC coils for CNX-205C...212C are True DC Coils.

⑥ DC coils for CNX-218D contactors are two winding DC Coil Series and include integrated diode surge suppressor.

Non-Reversing, Three Pole NEMA Labeled Contactors with AC Coil ①③

NEMA Size	Maximum Horsepower						Standard Auxiliary Contacts		Catalog Number	Price
	10		30							
	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	CAN7-30-10-*	265
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	CAN7-72-10-*	425
3	7-1/2	15	25	30	50	50	1	1	CAN6-110-11-*	750
									CAN6-110-EI-11-*	880
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

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 A37 for CAN7 coils and pages A81-82 for CA(N)6 coils and contacts.
- Snap-on auxiliary contact blocks available in many configurations. See pages A29-30 (CA[N]7) and page A79 (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 C33.

Note: CA6 open-type contactors include terminal bolts. If lugs are required, see page A76 for ordering information.



CAN7 NEMA labeled contactor (AC)



CAN7 AC Coil Codes ②

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 ②

CAN6-110...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	380V-400V	440V
480	415V	480V
575	500V	575V

CAN6 AC Coil Codes

"EI" Electronic Coils ②③

CAN6-110-EI...300-EI	
AC Coil Code	Voltage Range
	50 Hz / 60 Hz
24 ④	24V
120	110-130V
220W	208-277V
460W	380-500V

Ordering Instructions

Specify Catalog Number	
Replace (*) with Coil Code	See Coil Code table on this page for codes.

- Refer to page A64 for CAN7 dimensional information and page A102 for CA(N)6 dimensions.
- Other voltages available, see page A37 for CAN7 and pages A81-82 for CA(N)6. Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.
- "EI" designates contactor with Electronic Interface coil.
- 24 V AC coil not available for CAN6-300-EI.

Non-Reversing, Three Pole NEMA Labeled Contactors with DC Coil ①③

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	CAN7-12C-10-*	200
0	1	2	3	3	5	5	1	0	CAN7-30C-10-*	312
1	2	3	7-1/2	7-1/2	10	10	1	0	CAN7-37C-10-*	372
2	3	7-1/2	10	15	25	25	1	0	CAN7-72D-10-*	552
3	7-1/2	15	25	30	50	50	2	1	CAN6-110-L22-*	880
									CAN6-110-EI-11-* [®]	1005
4	~	~	40	50	100	100	1	1	CAN6-180-EI-11-*	2290
5	~	~	75	100	200	200	1	1	CAN6-300-EI-11-*	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 A38 for CA(N)7 coils and pages A81-82 for CA(N)6 coils and contacts.
- Snap-on auxiliary contact blocks available in many configurations. See pages A29-30 (CAN7) and page A79 (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 A76 for ordering information.



CAN7 D.C. Coil Codes ②④

CAN7-12C...37C	CAN7-72D	Voltage
DC Coil Code	DC Coil Code	
24D	24DD	24V
110D	110DD	110V

CAN6 D.C. Coil Codes Conventional Coils ②

CAN6-110 + 180	
DC Coil Code	Voltage
24D	24V
110D	110V

CAN6 D.C. Coil Codes "EI" Electronic Coils ②⑥

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

Ordering Instructions

Specify Catalog Number	
Replace (*) with Coil Code	See Coil Code table on this page for codes.

- ① Refer to page A64 for CAN7 dimensional information and page A102 for CA(N)6 dimensions.
- ② Other voltages available, see page A38 for CAN7 and pages A81-A82 for CA(N)6. Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.
- ③ "-EI" designates contactor with Electronic Interface coil.
- ④ Coils for CAN7-72D contactor includes a built-in diode surge suppressor.
- ⑤ CAN6-110 includes two winding coil and an L11 block including one NC late break auxiliary contact mounted to the right side. See page A94 for functional schematic. See page C73 for a starter wiring diagram.
- ⑥ Refer to page A93-A95 for CA6-EI Application Notes for 24 volt DC Electronic Coils.

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 avail-



able 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.

Lighting Contactors with AC Coil

Continuous Ampere Rating ①	Number of Poles	Standard Auxiliary Contacts		Electrically Held		Mechanically Held ①	
		NO	NC	Open Type	Price	Open Type	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	
100	3	1	1	CA6-95-11-*	600	~	~
150	3	1	1	CA6-180-11-*	1608	~	~
200	3	1	1	CA6-210-EI-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.

CAL7 Coil Codes ②

A.C. 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 ②

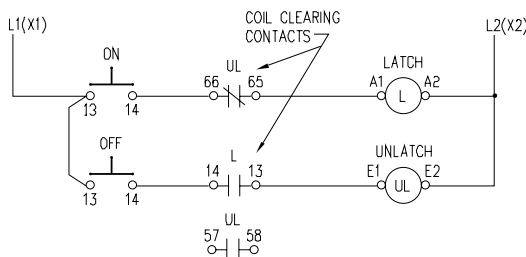
CA6-95 / 180		
AC Coil Code	Voltage Range	
	50 Hz	60 Hz
24	~	24V
120B	110V	120V
208	~	208V
240B	220-230V	260V
277	240V	277V
380	380-400V	440V
480	415V	480V
575	500V	575V

CA6 EI-Coil Codes ③②

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.

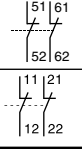
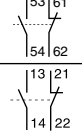
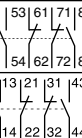


Ordering Instructions

Specify Catalog Number	
Replace (*) with Coil Code	See Coil Code table on this page for codes.

- ① The N.O. auxiliary is used to mechanical latch the control circuit and is not available for use by customer for other uses.
- ② Other voltages available, see page A37. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
- ③ "EI" designates contactor with Electronic Interface coil.
- ④ Engineering practice permits $2.5 \times I_L$ 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.

Top (Front) Mount Auxiliary Contact Blocks ❶

Contact Block	Description	NO	NC	Contact Arrangement	For use with...	Standard Contacts Catalog Number	Price	Bifurcated Contacts Catalog Number ❷	Price
 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 with 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.	0	2		CA7 all	CS7-PV-02	27	CS7-PVB-02	42
					CA7-30...85-✱-00	CA7-PV-02	27	CA7-PVB-02	42
		1	1		CA7 all	CS7-PV-11	27	CS7-PVB-11	42
					CA7-30...85-✱-00	CA7-PV-11	27	CA7-PVB-11	42
					CA7-9...23-✱-10	CA7-PV-S11	27	CA7-PVB-S11	42
					CA7-9...23-✱-01				
		2	0		CA7 all	CS7-PV-20	27	CS7-PVB-20	42
					CA7-30...85-✱-00	CA7-PV-20	27	CA7-PVB-20	42
		1EM	1LB		CA7-30...85-✱-00	CA7-PV-L11	37	NOT AVAILABLE	~
		1	3		CA7-30...85-✱-00	NOT AVAILABLE	~	CA7-PVB-13	79
		2	2		CA7 all	CS7-PV-22	53	CS7-PVB-22	79
					CA7-30...85-✱-00	CA7-PV-22	53	CA7-PVB-22	79
					CA7-9...23-✱-10	CA7-PV-S22	53	CA7-PVB-S22	79
					CA7-9...23-✱-01				
		3	1		CA7 all	CS7-PV-31	53	CS7-PVB-31	79
					CA7-9...23-✱-01	CA7-PV-S31	53	CA7-PVB-S31	79
		1	3		CA7 all	CS7-PV-13	53	CS7-PVB-13	79
		4	0		CA7 all	CS7-PV-40	53	CS7-PVB-40	79
		0	4		CA7 all	CS7-PV-04	53	CS7-PVB-04	79
		1+1EM	1+1LB		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 A53.

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

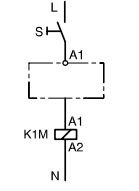
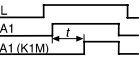
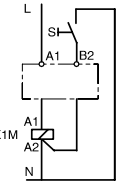
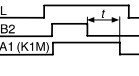
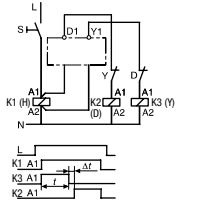
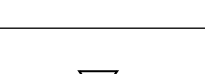
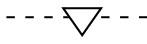
❶ Max. number of auxiliary contacts that may be mounted:

- 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.

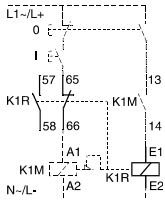
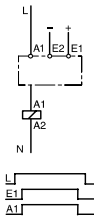
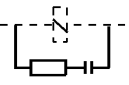
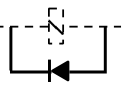
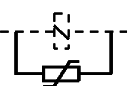
❸ Detailed ratings can be found on page A53.

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 CA7-40 and CA7-90 (4-pole) contactors must be bolted down when used with interlocks.

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 all (except true DC coils)			CV7-11-* <i>Replace * with coil code below (See Application Note below)</i>	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 ④	CA7 all (with AC control)		<table><tr><th>Input</th><th>Output</th></tr><tr><td>24V DC ① 12V DC 48V DC</td><td>110... 240V AC</td></tr></table>	Input	Output	24V DC ① 12V DC 48V DC	110... 240V AC	CRI7E-24 CRI7E-12 CRI7E-48 <i>Indicates special order</i>	72
Input	Output									
24V DC ① 12V DC 48V DC	110... 240V AC									
	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 ②③⑥

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 ⑤	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.

① Control voltage 18...30V DC (10...15mA)

② Other voltages available. Contact your Sprecher + Schuh representative.

③ CV7 must be wired for momentary operation only.

④ 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.

⑤ Use 600V AC when 575 V is required.

⑥ 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

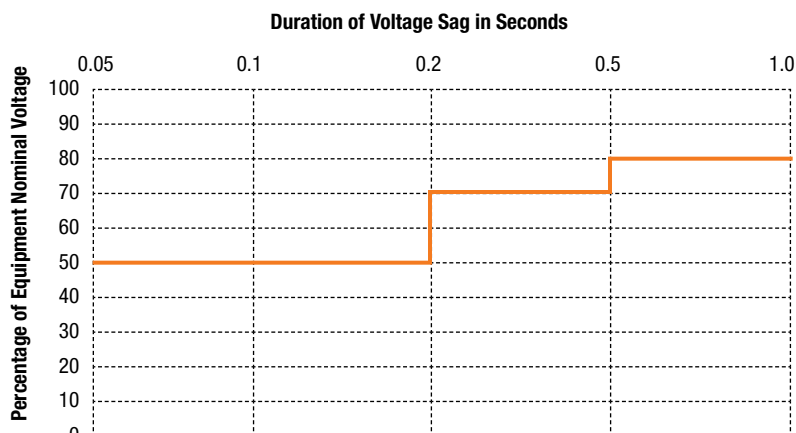
Sprecher + Schuh's CA7-SF47 module meets the Semi-F47 AC voltage sag immunity requirements to 50% voltage sag for 200 ms. Voltage sags can affect the readiness and operation of contactors and starters, resulting in shut downs, lost production, and diminished revenue. It is essential for process equipment 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

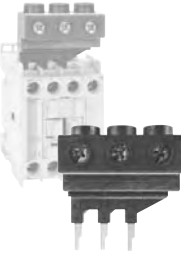
- Direct mounting to the coil terminals of the CA7 contactors and CS7 control relays. Only 24 mm is added to the component height.
- Direct electrical connection to the contactor or control relay. Customer coil power connections are made at the terminals of the CA7-SF47 module
- The CA7-SF47A30 module 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.

Terminal Lug Kits ❶

Component	Description	For use with . . .	Maximum Resistive Current Ratings (A) ❷			Pkg. Qty.	Catalog Number ❶	Price Each
			IEC (40°C)	IEC (60°C)	UL/CSA (40°C)			
	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 . . .85	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			Pkg. Qty.	Catalog Number ❶	Price Each
			IEC (40°C)	IEC (60°C)	UL/CSA (40°C)			
	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

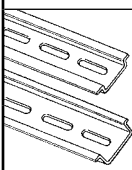
❶ cULus Approved (File E33916).

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 $2.5 \times I_L$ to be applied to a contactor when 3 poles are connected in parallel for single phase discharge lamp (ballast lighting) applications.

Assembly 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	1	CAUT7-PW23	17
		CA7-16...23			
		CA7-30...37	1	CAUT7-PW37	20
		CA7-43	1	CAUT7-PW43	37
		CA7-60...85	1	CAUT7-PW85	94
	Connecting Module - ❶ Provides a solid “wireless” connection between a CA7 contactor and a Motor Circuit Controller.	KT4 or KTA3-25 with CA7-9...23	1	KT3-NW23	20
	Stab Connectors - Dual stab (0.250 inch)	CA7-9...85 coil term.	20	CA7-SC2	1.75
		CA7-9...23 power term.	100	CA7-SC10	
		CA7 accessories	100	CA4-SC11	
	Protective Covers - Protects against unintended manual operation of contactors, front mounted auxiliary contacts, pneumatic timers and latches.	CA7-9...85	10	CA7-SCC	3.35
		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	3F 3AF	29
			10		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 ②	CA7-FMC	.17
	Tag Carrier - For marking with Clip-on Tags. See Terminals Section N for complete listing of Clip-on Tags.	100 ②	CA7-FMA2	.17

❶ cULus Approved (File E33916).

② Minimum order quantity is one package of 100. Price each x 100 = total price.

Wye-Delta Starter Kits ①

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:

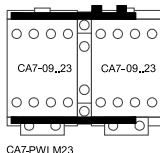
- Contactors and overload relay
- Mechanical / Electrical Interlock (Cat.No: CM7-02)
- Electronic Wye-delta Timer (Cat. No: CRZY7-30-110/240)
- Dovetail Connector to couple 1M and 2M contactor (Cat. No: CA7-S9); optional



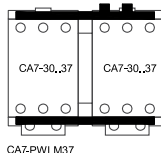
3-Phase Rating											Catalog Number	Price
kW (50Hz)				HP (60Hz)				Use with catalog number . . .				
230V	380V 415V	500V	690V	200V	230V	460V	575V	Delta		Wye		
	1M							2M	1S			
5.5	8	8	8	5	5	10	10	CA7-9	CA7-9	CA7-9	CAYT7-PW23	22
7.5	11	11	11	5	7.5	15	15	CA7-12	CA7-12	CA7-9		
10	14	15	14	7.5	10	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

Reversing Starter Connection Kits ②

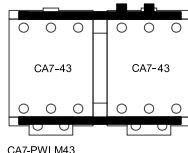
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CA7-PWLM23



Kit = CAUT7-PW37
CA7-PWLM37



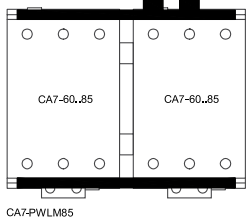
Kit = CAUT7-PW43
CA7-PWLM43



Reversing- and WYE-Delta Starter Kits

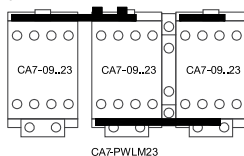
Only the kits are catalog items. Single components are available by special order in bulk packages of 20 pcs

Kit = CAUT7-PW85
CA7-PWLM85

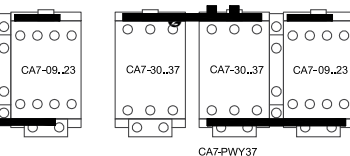


WYE-Delta Starter Connection Kits

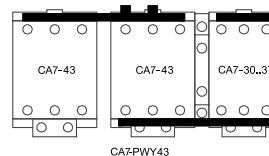
Kit = CAYT7-PW23
CA7-PWLM23



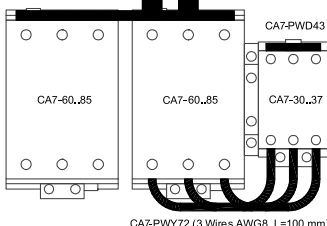
Kit = CAYT7-PW37
CA7-PWLM37



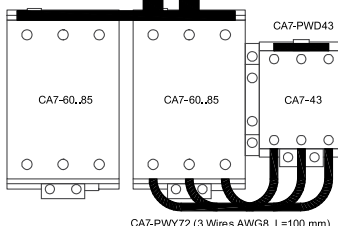
Kit = CAYT7-PW43
CA7-PWLM43



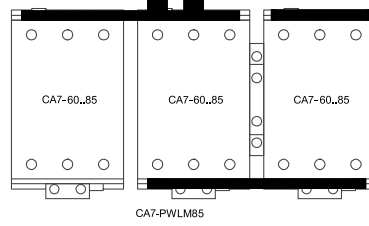
Kit = CAYT7-PW72
CA7-PWLM72



Kit = CAYT7-PW85
CA7-PWLM85



Kit = CAYT7-PW85
CA7-PWLM85



① cULus Approved (File E33916).

② Individual parts of kits are available for unique applications by special order. Contact your Sprecher + Schuh Representative.

M1 General Purpose Enclosures ❶

Enclosure	Description	For use With. . .	Catalog Number	Price
	Sheet metal enclosure ("A" box) - ❶ - Includes installed Reset Kit CEP7-ERA adapter is required for all CEP7-ED, EE overloads in "A" boxes. CEP7-ERA must be ordered separately from page B7.1.	CA7-9...43 contactor CA7-9...23 starter (using CEP7 second generation) CA(T)7-9...37 (using CEP7 first generation)	M1-100645/3 ❶	50
	Sheet metal enclosure ("B" box) - ❶ - Includes Reset Kit - Includes special offset attachment for resetting CEP7 solid state overload relays (only necessary with CA7-60...85 starters) ❷ CEP7-ERA adapter is required for all CEP7-ED, EE overloads in "B" boxes. CEP7-ERA must be ordered separately from page B7.1.	Backpan not required CA(T)7-60...85 Backpan required CA7-30...43 (using second generation CEP7) CAU(T)7-9...43 CA(T)7-9...43 w/ CPT CA(T)7-43 (with first generation CEP7)	M1-130706-7 ❶❷	104
	"B box" enclosure backpan <i>Required when mounting all contactor/ starter configurations noted here.</i>	Backpan required CA7-30...43 (using second generation CEP7) CAU(T)7-9...43 CA(T)7-9...43 w/ CPT CA(T)7-43 (with first generation CEP7)	TI-2.11.1	17

M1 General Purpose Enclosure Pilot Device Kits

Enclosure	Description	For use With M1 Enclosure . . .	Catalog Number	Price
	START-STOP pushbutton assembly - includes mounting bracket and	M1-100645/3 M1-130706-7	SS3-NA ❸ SS3-NB ❹	67
	HAND-OFF-AUTO selector switch assembly- includes mounting bracket and wiring	M1-100645/3 M1-130706-7	SS2-NA ❸ SS2-NB ❹	67
	ON-OFF selector switch assembly - with mounting bracket and wiring	M1-100645/3 M1-130706-7	SS4-NA ❸ SS4-NB ❹	67
	Pilot light (neon type) assembly - includes mounting bracket, wiring and resistors for all standard voltages between 115V and 575V	M1-100645/3 M1-130706-7	PL-NA ❸ PL-NB ❹	126

❶ Not designed for use with CT7 or CT7K thermal overload relays or CA7-9C...CA7-43C contactors (with DC coils).

❷ Special offset attachment (Cat.# TI-12-18) may be purchased separately.
List price \$4.

❸ Pilot device kit also for use with all enclosed contactors or starters listed in this catalog with enclosure dimension "A".

❹ Pilot device kit also for use with all enclosed contactors or starters listed in this catalog with enclosure dimension "B".

Renewal Coils - A.C. ①②③

AC Control Voltages			AC Coil Codes ②	For use with contactor . . .				
				CA7-9...16	CA7-23...37	CA7-43	CA7-60...85	~
50 Hz	60 Hz	50/60 Hz		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	CAN7-30...37	CA7-40-M...	CAN7-72	~
				~	CAL(V)7-20-M40	CAL(V)7-30-M40	~	CAL(V)7-60-M40
				Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
12V	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		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
	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 A.C. coil (typical)

① Other coil voltages available. Contact your Sprecher + Schuh representative for information.

② A.C. Codes in large, bold letters indicate coils that are standard stocked items.

③ AC and DC coils on CNX-xxx contactors are not interchangeable.

Renewal Coils - D.C. ①②⑦

AC Control Voltages	DC Coil Codes ②	True DC Replacement Coils ⑦			Two Winding DC Replacement Coils ⑥				
		For use with contactor...			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 ⑤	~
		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	CAN7-37C	~	~	~	~	CAN7-72D	~
		Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
9V ③	9D	TA766	TC766	TD766	~	~	~	~	~
9V Diode ③	9DD	~	~	~	TA766Y	TC766Y	TD766Y	TE766M	TF766M
12V	12D	TA708	TC708	TD708	~	~	~	~	~
12V Diode ③	12DD	~	~	~	TA708Y	TC708Y	TD708Y	TE708M	TF708M
24V ④	24D	TA714	TC714	TD714	~	~	~	~	~
24V Diode ④③	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 bi-directional diode. Drop out time of this design is significantly improved when compared to an external diode. See ratings on page A48.



True DC coil (typical)



Two Winding DC coil (typical) ⑥

- ① Other coil voltages available. Contact your Sprecher + Schuh representative for information.
- ② DC Codes in large, bold letters indicate coils that are standard stocked items.
- ③ Voltage operating range: $0.65 \dots 1.3 \times U_s$.
- ④ Voltage operating range: $0.7 \dots 1.25 \times U_s$.
- ⑤ CA7-60D...85D contactors have a two winding coil with built-in late break auxiliary contact and coil suppression.
- ⑥ 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.
- ⑦ AC and DC coils on CNX-xxx contactors are not interchangeable.
- ⑧ “DD” coils with integrated surge suppression diode fit CA7-xxD contactors.