



### Description

Bulletin 100S-D safety contactors are designed to provide safe isolation of hazardous motion loads, utilizing “mirror contact” performance. Mirror contacts provide reliable indication about the open/closed status of the main power poles.

### Features

- 45...220 kW @500V
- 60...600 Hp @460V
- 75...700 Hp @575V
- Electronic and Conventional Coils
  - AC & DC
  - Integrated PLC Interface
  - Low Power Pick-Up & Hold-In
  - Wide Voltage Ranges
- Complete Range of Accessories
- Environmentally-Friendly
- Compact Dimensions

### Specifications

#### Conformity to Standards

IEC 60947-4

IEC 60947-4 Annex F

IEC 60947 Type “2” Coordination

CSA 22.2 No. 14

UL 508

#### Approvals

CE marked for all applicable directives

CSA Certified

UL Listed

SUVA Certified

# Contactors & Control Relays



## Safety Contactors

### 100S-D

#### Product Selection

#### 3-pole AC Contactors

- Conventional and Electronic AC Coils
- 3 Main Contacts
- Non-Reversing

$I_e$ [A]		Switching of 3-Phase Motors—AC-2, AC-3										Auxiliary Contacts		Catalogue Number
60°C	40°C	kW (50 Hz)						Hp (60 Hz)				N.O.	N.C. ①	
AC-3	AC-1	230V	400V	415V	500V	690V	1000V	200V	230V	460V	575V			
95	160	25	50	50	55	80	45	25	30	60	75	2	2	100S-D95②22C
110	160	32	55	55	63	100	55	40	40	75	100	2	2	100S-D110②22C
140	250	45	75	75	80/90③	110/132③	75	40	50	100	125	2	2	100S-D140②22C
180	250	55	90	100	90/110③	132/160③	90	50	60	150	150	2	2	100S-D180②22C
210	350	63	110	110	150	200	110	60	75	150	200	2	2	100S-D210②22C
250	350	80	132	150	160	250	133	75	100	200	250	2	2	100S-D250②22C
300	450	90	160	160	200	300	163	100	125	250	300	2	2	100S-D300②22C
420	500	132	220	250	300	425	225	150	175	350	400	2	2	100S-D420②22C
630	800	200	355	355	450	500	425	200	250	500	600	2	2	100S-D630②22C
860	1000	250	500	500	560	600	425	250	300	600	700	2	2	100S-D860②22C

#### ⊗ AC Coil Voltage Code

The Catalogue Number as listed is incomplete. Select a coil voltage code from the table below to complete the Catalogue Number. Example: 120V 60 Hz: Catalogue Number **104S-C09②210C** becomes Catalogue Number **104S-C09D210C**.

Conventional Coil	V	24	48	100	110	120	200	208	220... 230	230	240	277	380... 400	415	440	480	500	550	600
100S-D95... 100S-D180	50 Hz	K	Y	—	D	—	—	—	A	—	T	—	N	B	G	—	M	C	—
	60 Hz	J	X	—	—	D	—	H	—	—	A	T	—	—	N	B	—	—	C
100S-D95... 100S-D110	50/60 Hz	KJ	—	KP	KN	—	KG	—	—	KF	KA	—	—	—	—	—	—	—	—

Electronic Coil w/PLC Interface ②	V	24	42... 64	100	110... 130	200	208... 277	380... 415	440... 480	500	600
100S-D95... 100S-D250	50/60 Hz	EJ	EY	EP	ED	EG	EA	EN	EN	EN	—
100S-D300... 100S-D420	50/60 Hz	—	EY	EP	ED	EG	EA	EN	EN	EN	—
100S-D630... 100S-D860	50/60 Hz	—	—	EP	ED	EG	EA	EN	EB	EM	EC

① The N.C. contacts meet IEC 60947-4 Annex F requirements to mirror contact performance. The N.C. mirror contacts are wired in series or parallel and must be used as monitoring contacts with feedback to the safety circuit.

② Signal voltage of the Cat. No. 100S-D... electronic interface:  $U_e$ : 24V DC/ $I_e$ : 15 mA



Pick-Up Voltage: 13.0V DC...30.2V DC  
Drop-Out Voltage: -3.0V DC...+5.0V DC

③ Higher kW rating only applies to contactors with electronic coil.

**Product Selection**

**3-Pole DC Contactors**

- Conventional and Electronic DC Coils
- 3 Main Contacts
- Non-Reversing

$I_e$ [A]		Switching of 3-Phase Motors—AC-2, AC-3										Auxiliary Contacts		Catalogue Number
60°C	40°C	kW (50 Hz)						Hp (60 Hz)				N.O.	N.C. ❶	
AC-3	AC-1	230V	400V	415V	500V	690V	1000V	200V	230V	460V	575V			
95	160	25	50	50	55	80	45	25	30	60	75	3	2/1L	100S-D95⊗33LC ❷
												2	2	100S-D95⊗22C
110	160	32	55	55	63	100	55	40	40	75	100	3	2/1L	100S-D110⊗33LC ❷
												2	2	100S-D110⊗22C
140	250	45	75	75	80	110	75	40	50	100	125	3	2/1L	100S-D140⊗33LC ❷
					90 ❸	132 ❸						2	2	100S-D140⊗22C
180	250	55	90	100	90	132	90	50	60	150	150	2	2	100S-D180⊗22C
					110 ❸	160 ❸								
210	350	63	110	110	150	200	110	60	75	150	200	2	2	100S-D210⊗22C
250	350	80	132	150	160	250	133	75	100	200	250	2	2	100S-D250⊗22C
300	450	90	160	160	200	300	163	100	125	250	300	2	2	100S-D300⊗22C
420	500	132	220	250	300	425	225	150	175	350	400	2	2	100S-D420⊗22C
630	800	200	355	355	450	500	425	200	250	500	600	2	2	100S-D630⊗22C
860	1000	250	500	500	560	600	425	250	300	600	700	2	2	100S-D860⊗22C

⊗ **AC Coil Voltage Code**

The Catalogue Number as listed is incomplete. Select a coil voltage code from the table below to complete the Catalogue Number. Example: 120V 60 Hz: Catalogue Number **104S-C09⊗210C** becomes Catalogue Number **104S-C09D210C**.

Conventional Coil	V	24	48	110	125	220	250
100S-D95...100S-D140 ❷	DC	ZJ	ZY	ZD	ZS	ZA	ZT

Electronic Coil w/EI Interface ❸	V	24	48...72	110...130	200...255
100S-D95...100S-D300	DC	EZJ	EZY	EZD	EZA
100S-D420	DC	—	EZY	EZD	EZA
100S-D630...860	DC	—	—	ED	EA

- ❶ The N.C. contacts meet IEC 60947-4 Annex F requirements to mirror contact performance. The N.C. mirror contacts are wired in series or parallel and must be used as monitoring contacts with feedback to the safety circuit.
- ❷ For conventional DC coil only. The pickup winding must be interconnected with the N.C. late-breaking auxiliary contacts.
- ❸ Signal voltage of the Cat. No. 100S-D... electronic interface:  $U_g$ : 24V DC/ $I_g$ : 15 mA  
 Pick-Up Voltage: 13.0V DC...30.2V DC  
 Drop-Out Voltage: -3.0V DC...+5.0V DC
- ❹ Higher kW rating only applies to contactors with electronic coil.

## Contactors & Control Relays

### Safety Contactors

#### 100S-C

#### General Ratings

	Catalogue Number 100S-C09...100S-C85
Rated Isolation Voltage $U_i$ IEC, AS, BS, SEV, VDE 0660; UL; CSA	690V 600V
Rated Impulse Voltage $U_{imp}$	8 kV
Rated Voltage $U_e$ Main Contacts AC 50/60Hz DC	115, 200, 208, 230, 240, 380, 400, 415, 460, 500, 575, 690V 24, 48, 110, 115, 220, 230, 300, 440V
Operating Frequency for AC Loads	50...60 Hz

#### Switching Motor Loads

	Catalogue Number		100S-C09	100S-C12	100S-C16	100S-C23	100S-C30	100S-C37	100S-C43	100S-C60	100S-C72	100S-C85	
Standard Ratings													
AC-2, AC-3, AC-4-50Hz DOL & Reversing IEC	230V	[A]	12	15	20	26.5	25	38	44	62	72	85	
	240V	[A]	12	15	20	26.5	35	38	44	62	72	85	
	400V	[A]	9	12	16	23	30	37	43	60	72	85	
	415V	[A]	9	12	16	23	30	37	43	60	72	85	
	500V	[A]	7	10	14	20	25	30	38	55	67	80	
	690V	[A]	5	7	9	12	18	21	25	34	42	49	
	230V	[kW]	3	4	5.5	7.5	10	11	13	18.5	22	25	
	240V	[kW]	3	4	5.5	7.5	10	11	13	18.5	22	25	
	400V	[kW]	4	5.5	7.5	11	15	18.5	22	32	40	45	
	415V	[kW]	4	5.5	7.5	11	15	20	22	32	40	45	
	500V	[kW]	4	5.5	7.5	13	15	20	25	37	45	55	
	690V	[kW]	4	5.5	7.5	10	15	18.5	22	32	40	45	
	AC-2, AC-3, AC-4-60Hz DOL & Reversing UL/CSA/IEC	1-Ph 115V	[A]	9.8	9.8	16	24	24	34	34	56	56	80
		230V	[A]	10	12	17	17	28	28	40	50	68	68
115 V		[HP]	1/2	1/2	1	2	2	3	3	5	5	7-1/2	
230 V		[HP]	1 1/2	2	3	3	5	5	7-1/2	10	15	15	
3-Ph 200V		[A]	7.8	11	17.5	17.5	25.3	32.2	32.2	48.3	62.1	78.2	
230 V		[A]	6.8	9.6	15.2	22	28	28	42	54	68	80	
460 V		[A]	7.6	11	14	21	27	34	40	52	65	77	
575 V		[A]	9	11	17	17	27	32	32	52	62	62	
200 V		[HP]	2	3	5	5	7-1/2	10	10	15	20	25	
230 V		[HP]	2	3	5	7-1/2	10	10	15	20	25	30	
460 V		[HP]	5	7-1/2	10	15	20	25	30	40	50	60	
575 V		[HP]	7-1/2	10	15	15	25	30	30	50	60	60	

**General Ratings**

	Catalogue Number 100S-D95...100S-D860
Rated Isolation Voltage $U_i$ IEC, AS, BS, SEV, VDE 0660; UL; CSA	690V 600V
Rated Impulse Voltage $U_{imp}$	12kV
Rated Voltage $U_e$ Main Contacts AC 50/60Hz DC	115, 200, 208, 230, 240, 380, 400, 415, 460, 500, 575, 690, 1000V 24, 48, 110, 115, 220, 230, 300, 440V
Operating Frequency for AC Loads	50...60 Hz

**Switching Motor Loads**

	Catalogue Number		100S-D95	100S-D110	100S-D140	100S-D140	100S-D180	100S-D180	100S-D210	100S-D250	100S-D300	100S-D420	100S-D630	100S-D860
<b>Coil Type</b>	Conventional		X	X	X	—	X	—	—	—	—	—	—	—
	Electronic-EI		X	X	—	X	—	X	X	X	X	X	X	X
Standard Ratings  AC-2, AC-3, AC-4-50Hz DOL & Reversing IEC	230V	[A]	95	110	140	140	180	180	210	250	300	420	630	860
	240V	[A]	95	110	140	140	180	180	210	250	300	420	630	860
	400V	[A]	95	110	140	140	180	180	210	250	300	420	630	860
	415V	[A]	95	110	140	140	180	180	210	250	300	420	630	860
	500V	[A]	95	110	115	140	140	180	210	250	300	420	630	753
	690V	[A]	95	110	115	140	140	180	210	250	300	420		
	1000V	[A]	33	40	55	55	65	65	80	95	115	160		
	230V	[kW]	25	32	45	45	57	57	67	80	97	135	200	250
	240V	[kW]	25	32	45	45	60	60	70	83	101	141	200	250
	400V	[kW]	45	55	75	75	101	101	118	140	170	238	355	500
	415V	[kW]	45	55	80	80	105	105	122	145	174	250	355	500
	500V	[kW]	55	63	80	90	98	126	150	177	213	300	450	560
	690V	[kW]	80	100	110	132	135	176	205	250	300	425		
	1000V	[kW]	45	55	75	75	90	90	110	132	160	225		
AC-2, AC-3, AC-4-60Hz DOL & Reversing UL/CSA/IEC	1-Ph 115V	[A]	80	100	135	135	—	—	—	—	—	—	—	—
	230V	[A]	68	110	136	136	176	176	216	—	—	—	—	—
	115 V	[HP]	7.5	10	15	15	—	—	—	—	—	—	—	—
	230 V	[HP]	15	25	30	30	40	40	50	—	—	—	—	—
	3-Ph 200V	[A]	78.2	120	120	120	150	150	177	221	285	414	552	692
	230 V	[A]	80	104	130	130	154	154	192	248	312	420	602	720
	460 V	[A]	77	96	124	124	180	180	180	240	302	414	590	702
	575 V	[A]	77	99	125	125	144	144	192	242	289	382	562	651
	200 V	[HP]	25	40	40	40	50	50	60	75	100	150	200	250
	230 V	[HP]	30	40	50	50	60	60	75	100	125	175	250	300
	460 V	[HP]	60	75	100	100	150	150	150	200	250	350	500	600
	575 V	[HP]	75	100	125	125	150	150	200	250	300	400	600	700

## Contactors & Control Relays

# Safety Contactors

## 100S-C

### Coil Data

			100S-C09	100S-C12	100S-C16	100S-C23	100S-C30	100S-C37	100S-C43	100S-C60	100S-C72	100S-C85
Voltage Range AC: 50 Hz, 60 Hz, 50/60 Hz	Pick-up	[x U <sub>S</sub> ]	0.85...1.1									
		[x U <sub>S</sub> ]	0.3...0.6									
	Dropout	[x U <sub>S</sub> ]	0.8...1.1									
		[x U <sub>S</sub> ]	0.1...0.6									
DC	Pick-up	[x U <sub>S</sub> ]	0.85...1.1									
		[x U <sub>S</sub> ]	0.3...0.6									
	Dropout	[x U <sub>S</sub> ]	0.8...1.1									
		[x U <sub>S</sub> ]	0.1...0.6									
Coil Consumption AC: 50 Hz, 60 Hz, 50/60 Hz	Pick-up	[VA/W]	70/50	70/50	70/50	70/50	80/60	80/60	130/90	200/110	200/110	200/110
	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
DC	Pick-up	[W]	6.5	6.5	6.5	9.2	9.2	9.2	10.1	200	200	200
	Hold-in	[W]	6.5	6.5	6.5	9.2	9.2	9.2	10.1	4.5	4.5	4.5
Operating Time AC: 50 Hz, 60 Hz, 50/60 Hz	Pick-up	[ms]	15...30	15...30	15...30	15...30	15...30	15...30	15...30	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
	with RC Suppressor	Dropout	[ms]	10...60	10...60	10...60	10...60	10...60	10...60	10...60	10...60	10...60
DC	Pick-up	[ms]	40...70	40...70	40...70	40...70	50...80	50...80	50...80	20...40	20...40	20...40
	Dropout	[ms]	7...15	7...15	7...15	7...15	7...15	7...15	7...15	—	—	—
	with Integ. Suppres.	Dropout	[ms]	14...20	14...20	14...20	17...23	17...23	17...23	17...23	20...35	20...35
with Diode Suppres.	Dropout	[ms]	70...95	70...95	70...95	80...125	80...125	80...125	80...125	80...125	80...125	80...125

**Coil Data**

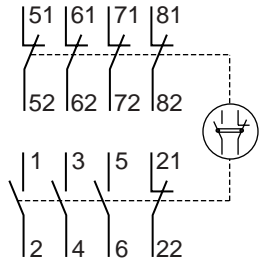
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Coil Type	Conventional	X	X	X	—	X	—	—	—	—	—	—	—
	Electronic-EI	X	X	—	X	—	X	X	X	X	X	X	X
Voltage Range		0.85...1.1										0.85...1.1	
AC: 50 Hz, 60 Hz, 50/60 Hz	Pick-up	[x U <sub>S</sub> ]										0.3...0.8	
	Dropout	[x U <sub>S</sub> ]										0.3...0.8	
DC	Pick-up	[x U <sub>S</sub> ]										0.80...1.1	
	Dropout	[x U <sub>S</sub> ]										0.3...0.8	
Coil Consumption		370/243 ❶										590/355 ❶	1915/1720 ❶
AC: 50 Hz, 60 Hz, 50/60 Hz	Pick-up	[VA/W]										15/7	33/30
	Hold-in	[VA/W]										375 ❶	1980 ❶
DC	Pick-up	[W]										7	30
	Hold-in	[W]										6	30
Operating Time		75...90										75...90	60...100
AC: 50 Hz, 60 Hz, 50/60 Hz	Pick-up	[ms]										30...60	70...145
	Dropout	[ms]										—	—
with RC Suppressor	Dropout	[ms]										—	—
DC	Pick-up	[ms]										75...90	60...100
	Dropout	[ms]										30...60	70...145
with Integ. Suppres.	Dropout	[ms]										—	—
with Diode Suppres.	Dropout	[ms]										—	—

❶ Electronic coil drives are designed to minimize coil consumption. However, this design may cause a large inrush (<1ms) when energizing. This must be taken into account when sizing power supplies, all-or-nothing relays and the cross-sections of the coil wires.

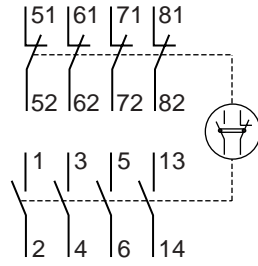
Contactors & Control Relays

**Safety Contactors**  
Connections

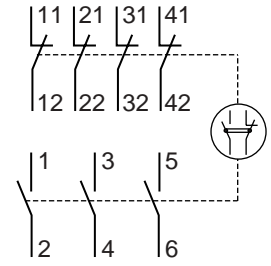
**3-Pole Safety Contactors**



100S-C09®05C...C23®05C

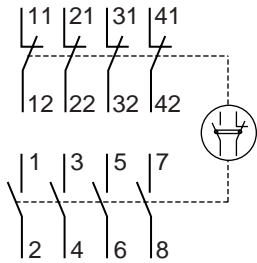


100S-C09®14C...C23®14C

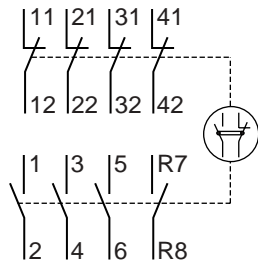


100S-C30®04C...C85®04C

**4-Pole Safety Contactors**

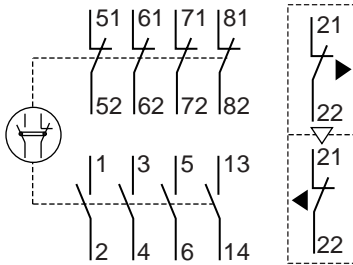


100S-C09®404C...C23®404C

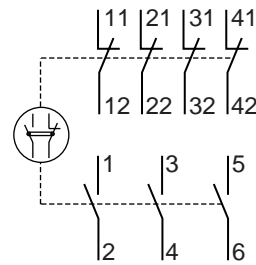
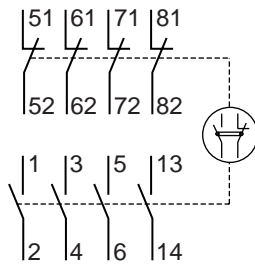


100S-C09®304C...C23®304C

**Reversing Safety Contactors**



104S-C09®210C...C23®210C



104S-C30®010C...C85®010C

