

### General



Type SCO 2  
Size 1, 3-pole contactor



Starter with  
Motor Logic  
solid-state overload relay



Size 00, 0, 1  
reversing contactor  
(horizontal type)



Reversing starter with  
Motor Logic  
solid-state overload relay  
(vertical type)

#### Full-voltage contactors

Class 8502 Type S magnetic contactors are used to switch heating loads, capacitors, transformers and electric motors where overload protection is provided separately. Class 8502 contactors are available in NEMA Sizes 00 to 7. Type S contactors are designed for operation up to ~ 600 V, 50 to 60 Hz.

#### Full-voltage starters

Class 8536 Type S magnetic starters are used for full-voltage starting and stopping of a.c. squirrel-cage motors. Motor overload protection is provided via solid-state overload relays. Type S starters are available in NEMA Sizes 00 to 7 and are designed for operation up to ~ 600 V, 50 to 60 Hz.

#### Full-voltage reversing contactors

Class 8702 Type S reversing magnetic contactors are used for starting, stopping and reversing a.c. motors where overload protection is provided separately. Class 8702 reversing contactors consist of two Class 8502 contactors mechanically and electrically interlocked. Open-type devices, Sizes 0 to 5, are available in either horizontal or vertical arrangements. Sizes 00, 6 and 7 are available as horizontal only. Enclosed devices Size 00 to 7 use horizontally arranged components. Type S reversing contactors are designed for operation up to ~ 600 V, 50 to 60 Hz.

#### Full-voltage reversing starters

Class 8736 Type S reversing magnetic starters are used for full-voltage starting, stopping and reversing of a.c. squirrel-cage motors. Class 8736 starters consist of one Class 8502 contactor and one Class 8536 starter mechanically and electrically interlocked. Open-type devices, Sizes 0 to 5, are available in either horizontal or vertical arrangements. Sizes 00, 6 and 7 are available as horizontal only. Enclosed devices use horizontally arranged components. Type S starters are designed for operation up to ~ 600 V, 50 to 60 Hz.

### Characteristics

#### Environment

Class			8502, 8536, 8702, 8736								
Size			00	0	1	2	3	4	5	6	7
<b>Rated insulation voltage</b>											
Conforming to UL, CSA			V 600								
<b>Rated impulse withstand voltage</b>											
			kV 5   10   18								
<b>Conforming to standards</b>			NEMA ICS-1, ICS-2, UL 508								
<b>Product certifications</b>											
Type S magnetic contactors and starters		UL	Yes								
		CSA	Yes								
		CE	Yes						No		
<b>Ambient air temperature around the device</b>											
Storage		°C	0...40								
Operation		°C	0...40								
<b>Maximum operating altitude</b>											
Without derating		m	1300								
<b>Operating position (1)</b>											
Without derating			± 90°						Vertical		

(1) ± 90° degrees possible in relation to normal vertical mounting plane.

# Contactors and Starters

## Type S, NEMA-style Starters Class 8536

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531008



8536 SAO 12 V02 H20

### 3-pole starters

NEMA Size	Standard power ratings of 3-phase motors 50/60 Hz								Continuous current ratings A	Enclosure type (1)	Basic reference Add code indicating control circuit voltage (2) and optional variants (3) and "H" code (4)	Weight kg (lb)
	Motor volts											
	200 V		230 V		460 V		575 V					
	hp	kW	hp	kW	hp	kW	hp	kW				
00	1.5	1.1	1.5	1.1	2	1.5	2	1.5	9	Open	8536 SAO 12 (2) (3) (4)	2 (4)
										NEMA 1	8536 SAG 12 (2) (3) (4)	3 (8)
										NEMA 12	8536 SBA 2 (2) (3) (4)	7 (16)
0	3	2.2	3	2.2	5	3.7	5	3.7	18	Open	8536 SBO 2 (2) (3) (4)	2 (4)
										NEMA 1	8536 SBG 2 (2) (3) (4)	4 (8)
										NEMA 12	8536 SBA 2 (2) (3) (4)	7 (16)
1	7.5	5.5	7.5	5.5	10	7.5	10	7.5	27	Open	8536 SCO 3 (2) (3) (4)	2 (4)
										NEMA 1	8536 SCG 3 (2) (3) (4)	3 (8)
										NEMA 12	8536 SCA 3 (2) (3) (4)	7 (16)
2	10	7.5	15	11	25	18.5	25	18.5	45	Open	8536 SDO 1 (2) (3) (4)	3 (6.75)
										NEMA 1	8536 SDG 1 (2) (3) (4)	7 (15.5)
										NEMA 12	8536 SDA 1 (2) (3) (4)	10 (23)
3	25	18.5	30	22	50	37	50	37	90	Open	8536 SEO 1 (2) (3) (4)	6 (14)
										NEMA 1	8536 SEG 1 (2) (3) (4)	17 (37)
										NEMA 12	8536 SEA 1 (2) (3) (4)	31 (68)
4	40	30	50	37	100	75	100	75	135	Open	8536 SFO 1 (2) (3) (4)	8 (18)
										NEMA 1	8536 SFG 1 (2) (3) (4)	25 (56)
										NEMA 12	8536 SFA 1 (2) (3) (4)	33 (73)
5	75	55	100	75	200	150	200	150	270	Open	8536 SGO 1 (2) (3) (4)	20 (45)
										NEMA 1	8536 SGG 1 (2) (3) (4)	73 (160)
										NEMA 12	8536 SGA 1 (2) (3) (4)	80 (177)
6	150	110	200	150	400	300	400	300	540	Open	8536 SHO 2 (2) (3) (4)	32 (80)
										NEMA 1	8536 SHG 2 (2) (3) (4)	105 (231)
										NEMA 12	8536 SHA 2 (2) (3) (4)	106 (233)
7	-	-	300	220	600	450	600	450	810	Open	8536 SJO 2 (2) (3) (4)	61 (135)
										NEMA 1	8536 SJG 2 (2) (3) (4)	130 (287)
										NEMA 12	8536 SJA 2 (2) (3) (4)	140 (309)

(1) Open: no enclosure ("O").

NEMA 1: General purpose enclosure ("G").

NEMA 12: Dust-tight and drip-tight industrial-use enclosure ("A").

(2) Standard control circuit voltage:

Volts	24	110	120	208	220	240	380	440	480	550	600
50 Hz	-	V02	-	-	V03	-	V05	V06	-	V07	-
60 Hz	V01	-	V02	V08	-	V03	-	-	V06	-	V07

24 V and 120 V coils require the addition of form "S" for separate control. Example: 8536 SAO 12 V01 H10S.

(3) For optional variants, see pages 1/10 to 1/13.

(4) To complete the "H" code for solid-state overload relays, see page 1/10.

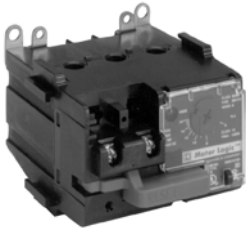
# Contactors and Starters

## Type S, NEMA-style

### Variants – Motor Logic® Overload Relay

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551123



H10

#### Variants – Motor Logic solid-state overload relays

Type	For use on		Description	Overload relay range	Suffix to the starter reference (1)	Weight kg (lb)
	Class	Enclosure Type				
Motor Logic solid state overload relays (no additional auxiliary contact)	8536, 8736	Open, NEMA 1, NEMA 12	Base unit, trip class 10	(2)	H10	–
			Base unit, trip class 20	(2)	H20	–
			Feature unit	(2)	H30	–
Motor Logic solid state overload relays (with additional auxiliary contact)	8536, 8736	Open, NEMA 1, NEMA 12	Base unit, trip class 10	(2)	H11	–
			Base unit, trip class 20	(2)	H21	–
			Feature unit	(2)	H31	–

(1) Example: 8536 SAO 12 V01 H10.

(2) Standard current ranges, depending on contactor size:

Size	00	0	1	2	3	4	5	6	7
Current ranges A	3...9	6...18	9...27	15...45	30...90	40...135	90...270	180...540	270...810
								(3)	(4)

(3) Only available with feature unit.

(4) Only available with feature unit with auxiliary contact.

#### Associations

Contactor Size	Trip type	Motor Logic solid-state overload relays											
		No auxiliary contact		With auxiliary contact		No auxiliary contact		With auxiliary contact		No auxiliary contact		With auxiliary contact	
00	Class 10	Size 00C (3–9 A) H10   H11		Size 00B (1.5–4.5 A) H108   H118									
	Class 20	H20   H21		H208   H218									
	Class 10/20 (selectable)	H30   H31		H308   H318									
0	Class 10	Size 0 (6–18 A) H10   H11		Size 00C (3–9 A) H109   H119		Size 00B (1.5–4.5 A) H108   H118							
	Class 20	H20   H21		H209   H219		H208   H218							
	Class 10/20 (selectable)	H30   H31		H309   H319		H308   H318							
1	Class 10	Size 1 (9–27 A) H10   H11		Size 0 (6–18 A) H100   H110		Size 00C (3–9 A) H109   H119		Size 00B (1.5–4.5 A) H108   H118					
	Class 20	H20   H21		H200   H210		H209   H219		H208   H218					
	Class 10/20 (selectable)	H30   H31		H300   H310		H309   H319		H308   H318					
2	Class 10	Size 2 (15–45 A) H10   H11		Size 1 (9–27 A) H101   H111		Size 0 (6–18 A) H100   H110		Size 00C (3–9 A) H109   H119		Size 00B (1.5–4.5 A) H108   H118		–	–
	Class 20	H20   H21		H201   H211		H200   H210		H209   H219		H208   H218		–	–
	Class 10/20 (selectable)	H30   H31		H301   H311		H300   H310		H309   H319		H308   H318		H308	H318
3	Class 10	Size 3 (30–90 A) H10   H11											
	Class 20	H20   H21											
	Class 10/20 (selectable)	H30   H31											
4	Class 10	Size 4 (45–135 A) H10   H11		Size 3 (30–90 A) H103   H113									
	Class 20	H20   H21		H203   H213									
	Class 10/20 (selectable)	H30   H31		H303   H313									
5	Class 10	Size 5 (90–270 A) H10   H11											
	Class 20	H20   H21											
	Class 10/20 (selectable)	H30   H31											

Available codes

Not available

# Contactors and Starters

## Type S, NEMA-style Variants

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### Variants – Operators

Description	For use on		Colour/Marking	Suffix to the contactor or starter reference (1)	Weight kg (lb)
	Class	Enclosure type			
Push buttons	8502, 8536	NEMA 1, 12	"Start-Stop"	A	–
	8702, 8736	NEMA 1, 12	"Forward-Reverse-Stop"	A1	–
			"High-Low-Stop"	A2	–
Pilot lights without operating interlock (2)	8502, 8536, 8702, 8736	NEMA 1	Red	P1	–
			Green	P2	–
			Amber	P3	–
			Clear	P4	–
Push-to-test pilot lights without operating interlock (2)	8502, 8536, 8702, 8736	NEMA 12	Red	P21	–
			Green	P22	–
			Amber	P23	–
			Clear	P24	–
			Yellow	P25	–
LED pilot lights	8502, 8536, 8702, 8736	NEMA 1	Red	P51	–
			Green	P52	–
			Yellow	P55	–
Special wiring	8502, 8536, 8702, 8736	NEMA 1	Red/"Off"	P71	–
			Green/"On"	P72	–
Selector switches	8502, 8536, 8702, 8736	NEMA 1,	"Hand-Off-Auto"	C	–
		NEMA 12			
	8702, 8736	NEMA 1,	"On-Off"	C6	–
		NEMA 12	"Forward-Off-Reverse"	C14	–
			"Forward-Reverse"	C20	–

### Variants – Transformers

Description	For use on		Functions	Suffix to the contactor or starter reference (1)	Weight kg (lb)
	Class	Enclosure type			
Separate control circuit	8502, 8536, 8702, 8736	NEMA 1, 12	Specify voltage and frequency	S	–
Fused control circuit without transformer	8502, 8536, 8702, 8736	NEMA 1, 12	One fuse	F	–
			Two fuses	F4	–
Control circuit transformers standard capacity (50/60 Hz) (3)	8502, 8536, 8702, 8736	NEMA 1, 12	Fuses: 2 (primary), 0 (secondary)	F4T (4)	–
			Fuses: 2 (primary), 1 (secondary)	FF4T	–
			Fuses: 1 (primary), 2 (secondary) (5)	F1F10T	–
			Fuses: 2 (primary), 2 (secondary)	F4F10T	–
Additional capacity (50/60 Hz) Two fuses in primary (3)	8502, 8536, 8702, 8736	NEMA 1, 12	100 VA additional capacity	F4T11 (6)	–
			200 VA additional capacity	F4T12 (6)	–
Additional capacity (50/60 Hz) Two fuses in primary and one fuse in secondary (3)	8502, 8536, 8702, 8736	NEMA 1, 12	100 VA additional capacity	FF4T11	–

(1) Example: **8536 SAG 12 V01 A P1 P2**. All suffixes are listed in alphanumeric order after the voltage code.

(2) Unless otherwise requested, the standard practice is to wire the red pilot light to indicate that the device is energized. No additional auxiliary contact is required. Also, standard practice is to wire the green pilot light to indicate that the device is de-energized. An additional normally closed auxiliary contact is required; please consult your regional sales office.

(3) Control circuit transformer selection table:

Primary-secondary	120-24 (7)	208-120	240-24 (7)	240-120	277-120	480-24 (7)	480-120	480-240	600-120
60 Hz	V89	V84	V82	V80	V85	V83	V81	V87	V86

Example: **8536 SAG 12 V81 F4T A P1 P2**.

(4) Not available with 24 V secondary on Size 3. Select appropriate transformer with secondary fuse protection. See transformer selection table.

(5) Single phase with one leg earthed, or earthed 3-phase applications only.

(6) Not available with 24 V secondary. Select appropriate transformer with secondary fuse protection. See transformer selection table for 24 V secondary restrictions.

(7) 24 V coils are not available on Sizes 4–7.