



**4 kW**  
**5 hp**

# ASL09..S 3-pole Contactors - Spring Terminals

DC Operated



## Description

- 3-pole contactors with spring terminals,
- N.C. or N.O. built-in auxiliary contact,
- Low coil consumption,
- Polarity on the coil terminals (A1+ and A2-) must be respected,
- Rail-mounted, no tools required,
- Additional surge suppressor which does not increase overall dimensions.

## Main accessories available:

- Up to 2 add-on **CA3..S** 1-pole auxiliary contact blocks,
- **VM3** mechanical interlock unit without additional width,
- **RV5** or **RT5** surge suppressor.

<b>IEC</b>	AC-3 rated operational power <b>4 kW</b>	400 V
<b>UL/CSA</b>	3-phase motor power <b>5 hp</b>	440-480 V



## Ordering Details

For other coil voltage see 1SBC101023S0201.pdf

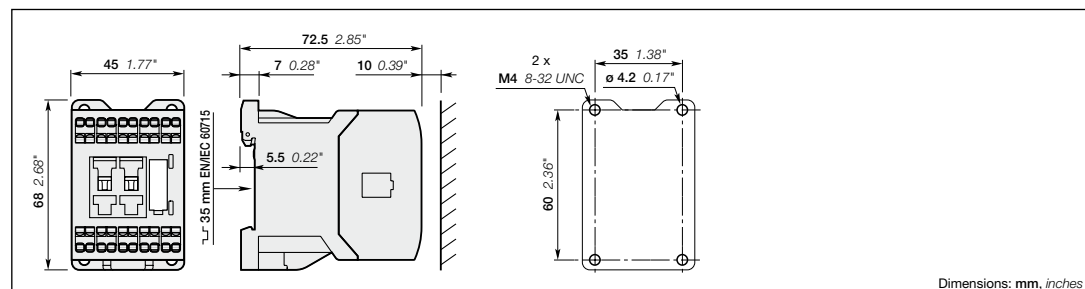
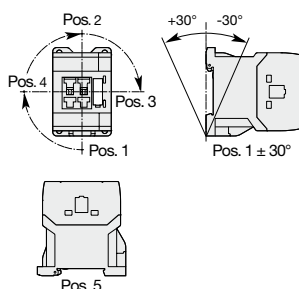
Main poles	Built-in aux. contacts	Control coil voltage DC	Type	Order code	Pack <sup>(n°)</sup> pieces	Weight kg (1 pce)
		24 V	ASL09-30-10S-81M	<b>1SBL 103 004 M8110</b>	40	0.28
		48 V	ASL09-30-10S-83M	<b>1SBL 103 004 M8310</b>	40	0.28
		110 V	ASL09-30-10S-86M	<b>1SBL 103 004 M8610</b>	40	0.28
		220 V	ASL09-30-10S-88M	<b>1SBL 103 004 M8810</b>	40	0.28
		24 V	ASL09-30-01S-81M	<b>1SBL 103 004 M8101</b>	40	0.28
		48 V	ASL09-30-01S-83M	<b>1SBL 103 004 M8301</b>	40	0.28
		110 V	ASL09-30-01S-86M	<b>1SBL 103 004 M8601</b>	40	0.28
		220 V	ASL09-30-01S-88M	<b>1SBL 103 004 M8801</b>	40	0.28

## Main Technical Data

For complete technical data see 1SBC101017S0203.pdf

<b>Main poles</b>	Rated operational voltage <b>U<sub>e</sub></b> max.	690 V
<b>IEC</b>	AC-3 Utilization category (for 1500 r.p.m., 50 Hz or 1800 r.p.m., 60 Hz, 3-phase motors) for air temperature close to contactor $\theta \leq 55^\circ\text{C}$ AC-3 rated operational power	400 V 4 kW
	<b>I<sub>e</sub></b> / AC-3 max. rated operational current	400 V 9 A
	<b>I<sub>e</sub></b> / AC-1 rated operational current ( <b>U<sub>e</sub></b> max. $\leq 690$ V, 50/60 Hz for air temperature close to contactor $\theta \leq 40^\circ\text{C}$ )	20 A
	<b>I<sub>e</sub></b> / AC-8a rated operational current (without thermal overload relay - <b>U<sub>e</sub></b> 400 V - $\theta \leq 40^\circ\text{C}$ )	12 A
<b>UL/CSA</b>	3-phase motor (for 1500 r.p.m., 50 Hz or 1800 r.p.m., 60 Hz) Motor power	440-480 V 5 hp
	Amp rating	440-480 V 7.6 A
	General use Amp rating	600 V 12 A
<b>Magnet system</b>	Coil operating limits (acc. to IEC 60947-4-1)	0.85 ... 1.1 x <b>U<sub>e</sub></b> ( $\theta \leq 60^\circ\text{C}$ )
	Average pull-in coil consumption value	3 W
	Average holding coil consumption value	3 W
<b>Built-in aux. contacts</b>	Rated operational voltage <b>U<sub>e</sub></b> max.	690 V
<b>IEC</b>	<b>I<sub>e</sub></b> / AC-15 rated operational current	400-415 V 3 A
acc. to IEC 60947-5-1	<b>I<sub>e</sub></b> / DC-13 rated operational current	24 V DC 6 A (144 W)
<b>UL/CSA</b>	Pilot duty	A600, Q300
<b>Max. electrical switching frequency</b>	AC-3	1200 cycles/h
	AC-1	600 cycles/h
<b>Connecting capacity</b>	Main pole terminals	Rigid 1 or 2 x 0.75 ... 2.5 mm <sup>2</sup> Flexible with cable end 1 or 2 x 0.75 ... 2.5 mm <sup>2</sup> AWG 1 or 2 AWG 18-12
	Coil and built-in auxiliary contact terminals	Rigid 1 or 2 x 0.75 ... 2.5 mm <sup>2</sup> Flexible with cable end 1 or 2 x 0.75 ... 2.5 mm <sup>2</sup> AWG 1 or 2 AWG 18-14
<b>Degree of protection</b>	acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529	IP 20

Mounting positions







Dimensions: mm, inches

# AS and ASL Contactors

## Technical Data

### Main Pole - Utilization Characteristics according to UL/CSA

Contactor types:	AC operated	AS09	AS12	AS16	AS09..S	AS12..S	AS16..S
	DC operated	ASL09	ASL12	ASL16	ASL09..S	ASL12..S	ASL16..S
<b>Terminals</b>		 Screw terminals			 Spring terminals		
<b>NEMA size</b>		00	00	0	00	00	00
<b>General use rating</b>							
<b>Amp rating</b>	600 V <b>A</b>	20	20	20	12	12	15.2
<b>3-phase motor rating</b>							
<b>Amp rating</b>							
	200-208 V <b>A</b>	7.8	7.8	11	7.8	7.8	11
	220-240 V <b>A</b>	6.8	9.6	15.2	6.8	9.6	15.2
	440-480 V <b>A</b>	7.6	11	14	7.6	11	14
	550-600 V <b>A</b>	9	11	11	9	11	11
<b>Motor power</b>							
	200-208 V <b>hp</b>	2	2	3	2	2	3
	220-240 V <b>hp</b>	2	3	5	2	3	5
	440-480 V <b>hp</b>	5	7 1/2	10	5	7 1/2	10
	550-600 V <b>hp</b>	7 1/2	10	10	7 1/2	10	10
<b>Short-circuit protection</b> for contactors without thermal O/L relay - Motor protection excluded							
<b>Fuse rating</b>	<b>A</b>	40	50	60	40	50	60
<b>Fuse type, 600 V</b>		J					
<b>1-phase motor rating</b>							
<b>Amp rating</b>	120 V <b>A</b>	7.2	9.8	13.8	7.2	9.8	13.8
	240 V <b>A</b>	8	10	12	8	10	12
<b>Motor power</b>	120 V <b>hp</b>	1/3	1/2	3/4	1/3	1/2	3/4
	240 V <b>hp</b>	1	1 1/2	2	1	1 1/2	2
<b>Max. electrical switching frequency</b>							
- for general use	<b>cycles/h</b>	600					
- for motor use	<b>cycles/h</b>	1200					

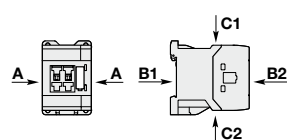
### General Technical Data

<b>Rated insulation voltage <math>U_i</math></b>		
according to IEC 60947-4-1	<b>V</b>	690
according to UL/CSA	<b>V</b>	600
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>	<b>kV</b>	6
<b>Standards</b>		Devices complying with IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1
<b>Air temperature</b> close to contactor		
- without thermal O/L relay	<b>°C</b>	-40 ... +70
- for storage	<b>°C</b>	-60 ... +80
<b>Climatic withstand</b>		Category B according to IEC 60947-1 Annex Q
<b>Operating altitude</b>	<b>m</b>	≤ 3000

### Shock withstand

acc. to IEC 60068-2-27 and EN 60068-2-27

Mounting position 1



Shock direction

A	
B1	
B2	
C1	
C2	

1/2 sinusoidal shock for 11 ms: no change in contact position

#### AS contactors - AC operated

Closed position      Open position

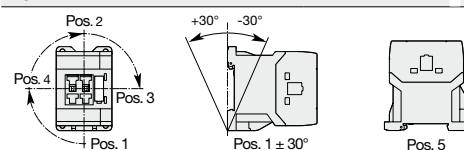
20	20
10	5
15	15
20	9
20	14

#### ASL contactors - DC operated

Closed position      Open position

20	10
15	5
10	10
15	8
14	8

### Mounting positions




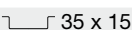
### Mounting distances

#### Fixing

- on rail acc. to IEC 60715 and EN 60715

- with screws (not supplied)

The contactors can be assembled side by side



 35 x 7.5       35 x 15

2 x M4 screws placed diagonally

# AS and ASL Contactors

## Technical Data

### Built-in Auxiliary Contacts - Utilization Characteristics according to IEC

Contactor types:	AC operated	AS09	AS12	AS16	AS09..S	AS12..S	AS16..S
	DC operated	ASL09	ASL12	ASL16	ASL09..S	ASL12..S	ASL16..S
<b>Terminals</b>		 Screw terminals			 Spring terminals		
<b>Rated operational voltage <math>U_e</math> max.</b>	<b>V</b>	690					
<b>Conventional free air thermal current <math>I_{th}</math></b>							
$\theta \leq 40$ °C	<b>A</b>	10					
<b>Rated frequency limits</b>	<b>Hz</b>	25 ... 400					
<b>Rated operational current <math>I_e</math> / AC-15</b>							
acc. to IEC 60947-5-1		24-127 V	50/60 Hz	<b>A</b>	6		
		220-240 V	50/60 Hz	<b>A</b>	4		
		400-415 V	50/60 Hz	<b>A</b>	3		
		500 V	50/60 Hz	<b>A</b>	2		
		690 V	50/60 Hz	<b>A</b>	2		
<b>Rated operational current <math>I_e</math> / DC-13</b>							
acc. to IEC 60947-5-1		24 V DC	<b>A/W</b>	6 / 144			
		48 V DC	<b>A/W</b>	2.8 / 134			
		72 V DC	<b>A/W</b>	1 / 72			
		110 V DC	<b>A/W</b>	0.55 / 60			
		125 V DC	<b>A/W</b>	0.55 / 69			
		220 V DC	<b>A/W</b>	0.3 / 66			
		250 V DC	<b>A/W</b>	0.3 / 75			
<b>Making capacity</b>	acc. to IEC 60947-5-1	10 x $I_e$ AC-15					
<b>Breaking capacity</b>	acc. to IEC 60947-5-1	10 x $I_e$ AC-15					
<b>Short-circuit protection</b>	gG type fuse	<b>A</b> 10					
<b>Rated short-time withstand current <math>I_{cw}</math></b>							
	for 1.0 s	<b>A</b>				100	
	for 0.1 s	<b>A</b>				140	
<b>Minimum switching capacity</b>	<b>V/mA</b>	12 / 3					
with failure rate acc. to IEC 60947-5-4		$10^{-7}$					
<b>Non-overlapping time between</b>							
<b>N.O. and N.C. contacts</b>	<b>ms</b>	1.5					
<b>Heat dissipation per pole at 6 A</b>	<b>W</b>	0.1					



### Built-in Auxiliary Contacts - Utilization Characteristics acc. to UL/CSA

<b>Max. rated voltage</b>	600 V AC, 250 V DC
<b>Pilot duty</b>	A600, Q300

# AS and ASL Contactors



## Technical Data

### Magnet System Characteristics for AC Operated Contactors

Contactor types:	AC operated	AS09	AS12	AS16	AS09..S	AS12..S	AS16..S
Terminals		 Screw terminals			 Spring terminals		
<b>Rated control circuit voltage <math>U_c</math></b>							
- at 50 Hz	<b>V</b>	24 ... 415					
- at 60 Hz	<b>V</b>	24 ... 415					
<b>Coil operating limits</b> acc. to IEC 60947-4-1		0.85 ... 1.1 x $U_c$ (at $\theta \leq 60$ °C) ; $U_c$ (at $\theta \leq 70$ °C)					
<b>Drop-out voltage in % of <math>U_c</math></b>		approx. 30 ... 50 %					
<b>Coil consumption</b>							
Average pull-in value	50 Hz	<b>VA</b>	33				
	60 Hz	<b>VA</b>	33				
	50/60 Hz	<b>VA</b>	33				
Average holding value	50 Hz	<b>VA/W</b>	6.5 / 1.5				
	60 Hz	<b>VA/W</b>	5 / 1.2				
	50/60 Hz	<b>VA/W</b>	6.5 / 1.5				
<b>Operating time</b>							
between coil energization and:							
- N.O. contact closing		<b>ms</b>	9 ... 24				
- N.C. contact opening		<b>ms</b>	6 ... 18				
between coil de-energization and:							
- N.O. contact opening		<b>ms</b>	5 ... 19 (1)				
- N.C. contact closing		<b>ms</b>	7 ... 22 (1)				

(1) The use of RC5-1 surge suppressor increases opening time by a factor of 2 to 3.

### Magnet System Characteristics for DC Operated Contactors

















Contactor types:	DC operated	ASL09	ASL12	ASL16	ASL09..S	ASL12..S	ASL16..S
Terminals		 Screw terminals			 Spring terminals		
<b>Rated control circuit voltage <math>U_c</math></b>	<b>V DC</b>	12 ... 240					
<b>Coil operating limits</b> acc. to IEC 60947-4-1		0.85 ... 1.1 x $U_c$ (at $\theta \leq 60$ °C) ; $U_c$ (at $\theta \leq 70$ °C)					
<b>Drop-out voltage in % of <math>U_c</math></b>		approx. 10 ... 40 %					
<b>Coil consumption</b>							
Average pull-in value		<b>W</b>	3				
Average holding value		<b>W</b>	3				
<b>Coil time constant</b>							
- open	L/R	<b>ms</b>	12				
- closed	L/R	<b>ms</b>	40				
<b>Operating time</b>							
between coil energization and:							
- N.O. contact closing		<b>ms</b>	36 ... 59				
- N.C. contact opening		<b>ms</b>	31 ... 53				
between coil de-energization and:							
- N.O. contact opening		<b>ms</b>	13 ... 17 (2)				
- N.C. contact closing		<b>ms</b>	15 ... 20 (2)				

(2) The use of RT5 surge suppressor increases opening time by a factor of 1.1 to 1.2.

# AS and ASL Contactors

## Technical Data

### Connecting Characteristics

Contactor types:	AC operated	AS09	AS12	AS16	AS09..S	AS12..S	AS16..S
	DC operated	ASL09	ASL12	ASL16	ASL09..S	ASL12..S	ASL16..S
<b>Terminals</b>		 <b>M3 Screw terminals with cable clamp</b> Delivered in open position. Screws of unused terminals must be tightened.			 <b>Spring terminals</b>		
<b>Connecting capacity</b> (min. ... max.)							
<b>Main conductors (poles)</b>							
Rigid solid		1 x mm <sup>2</sup>	0.75 ... 4		0.75 ... 2.5		
		2 x mm <sup>2</sup>	0.75 ... 4		0.75 ... 2.5		
Flexible with non-insulated cable end		1 x mm <sup>2</sup>	0.75 ... 2.5		0.75 ... 2.5		
		2 x mm <sup>2</sup>	0.75 ... 2.5		0.75 ... 2.5		
Flexible with insulated cable end		1 x mm <sup>2</sup>	0.75 ... 2.5		0.75 ... 1.5		
		2 x mm <sup>2</sup>	0.75 ... 1.5		0.75 ... 1.5		
Bars and lugs		L mm ≤ l mm >	7.7 3.2		- -		
Capacity acc. to <b>UL/CSA</b>		<b>1 or 2 x AWG</b>	18-12		18-12		
<b>Auxiliary conductors</b>							
(built-in auxiliary terminals + coil terminals)							
Rigid solid		1 x mm <sup>2</sup>	0.75 ... 2.5		0.75 ... 2.5		
		2 x mm <sup>2</sup>	0.75 ... 2.5		0.75 ... 2.5		
Flexible with non-insulated cable end		1 x mm <sup>2</sup>	0.75 ... 2.5		0.75 ... 2.5		
		2 x mm <sup>2</sup>	0.75 ... 2.5		0.75 ... 2.5		
Flexible with insulated cable end		1 x mm <sup>2</sup>	0.75 ... 2.5		0.75 ... 1.5		
		2 x mm <sup>2</sup>	0.75 ... 1.5		0.75 ... 1.5		
Bars and lugs		L mm ≤ l mm >	7.7 3.2		- -		
Capacity acc. to <b>UL/CSA</b>		<b>1 or 2 x AWG</b>	18-14		18-14		
<b>Degree of protection</b>							
acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529			IP 20		IP 20		
<b>Screwdriver type</b>							
			Flat Ø 6.5 / Pozidriv 2		Flat Ø 3.5		
<b>Stripping length</b> mm							
			9		10		
<b>Tightening torque</b>							
All terminals	- recommended	Nm / lb.in	1.00 / 9		-		
	- max.	Nm	1.20		-		