



4 kW
5 hp

AS09..S 3-pole Contactors - Spring Terminals

AC Operated

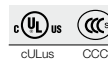
Description

- 3-pole contactors with spring terminals,
- N.C. or N.O. built-in auxiliary contact,
- 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 interlocking without additional width,
- **RV5** or **RC5-1** surge suppressor.

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



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Ordering Details

For other coil voltage see 1SBC101023S0201.pdf

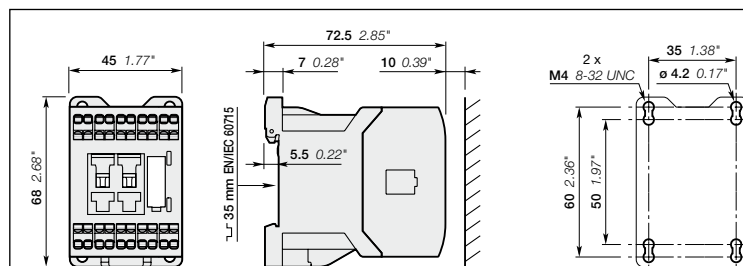
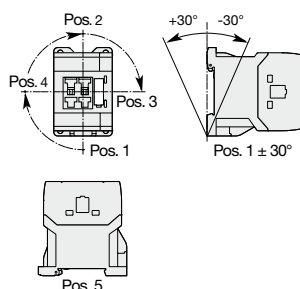
Main poles	+ Built-in aux. contacts	Control coil voltage 50 Hz 60 Hz	Type	Order code	Pack ⁽ⁿ⁾ pieces	Weight kg (1 pc)
	13 NO 14 NO	24 V 24 V	AS09-30-10S-20M	1SBL 101 004 M2010	40	0.22
		110 V 110 V	AS09-30-10S-23M	1SBL 101 004 M2310	40	0.22
		- 120 V	AS09-30-10S-16M	1SBL 101 004 M1610	40	0.22
		230 V 230 V	AS09-30-10S-26M	1SBL 101 004 M2610	40	0.22
	21 NC 22 NC	24 V 24 V	AS09-30-01S-20M	1SBL 101 004 M2001	40	0.22
		110 V 110 V	AS09-30-01S-23M	1SBL 101 004 M2301	40	0.22
		- 120 V	AS09-30-01S-16M	1SBL 101 004 M1601	40	0.22
		230 V 230 V	AS09-30-01S-26M	1SBL 101 004 M2601	40	0.22

Main Technical Data

For complete technical data see 1SBC101017S0203.pdf

Main poles	Rated operational voltage U_e max.		690 V
IEC	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
	I_e / AC-3 max. rated operational current		400 V 9 A
	I_e / AC-1 rated operational current (U_e max. $\leq 690\text{ V}$, 50/60 Hz for air temperature close to contactor $\theta \leq 40^\circ\text{C}$)		20 A
	I_e / AC-8a rated operational current (without thermal overload relay - U_e 400 V - $\theta \leq 40^\circ\text{C}$)		12 A
UL/CSA	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
Magnet system	Coil operating limits (acc. to IEC 60947-4-1)		0.85 ... 1.1 x U_e ($\theta \leq 60^\circ\text{C}$)
	Average pull-in coil consumption value		50/60 Hz 33 VA
	Average holding coil consumption value		50/60 Hz 6.5 VA / 1.5 W
Built-in aux. contacts	Rated operational voltage U_e max.		690 V
IEC	I_e / AC-15 rated operational current		400-415 V 3 A
acc. to IEC 60947-5-1	I_e / DC-13 rated operational current		24 V DC 6 A (144 W)
UL/CSA	Pilot duty		A600, Q300
Max. electrical switching frequency	AC-3		1200 cycles/h
	AC-1		600 cycles/h
Connecting capacity	Main pole terminals	Rigid	1 or 2 x 0.75 ... 2.5 mm ²
		Flexible with cable end	1 or 2 x 0.75 ... 2.5 mm ²
		AWG	1 or 2 AWG 18-12
	Coil and built-in auxiliary contact terminals	Rigid	1 or 2 x 0.75 ... 2.5 mm ²
		Flexible with cable end	1 or 2 x 0.75 ... 2.5 mm ²
		AWG	1 or 2 AWG 18-14
Degree of protection	acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529		IP 20

Mounting positions



Dimensions: mm, inches

AS and ASL Contactors

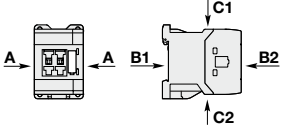
Technical Data

Main Pole - Utilization Characteristics according to UL/CSA

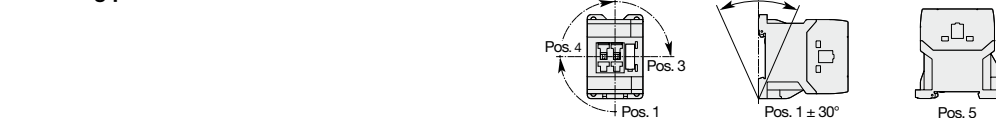
Contactor types:			AS09	AS12	AS16	AS09..S	AS12..S	AS16..S		
AC operated DC operated			ASL09	ASL12	ASL16	ASL09..S	ASL12..S	ASL16..S		
Terminals			 Screw terminals			 Spring terminals				
NEMA size			00	00	0	00	00	00		
General use rating										
Amp rating			20	20	20	12	12	15.2		
3-phase motor rating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

General Technical Data

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

			AS contactors - AC operated		ASL contactors - DC operated	
			Closed position	Open position	Closed position	Open position
	A	Shock direction	20	20	20	10
	B1		10	5	15	5
	B2		15	15	10	10
	C1		20	9	15	8
	C2		20	14	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
Terminals		 Screw terminals			 Spring terminals		
Rated operational voltage U_e max.	V	690					
Conventional free air thermal current I_{th}							
$\theta \leq 40\text{ }^{\circ}\text{C}$	A	10					
Rated frequency limits	Hz	25 ... 400					
Rated operational current I_e / AC-15							
acc. to IEC 60947-5-1		24-127 V	50/60 Hz	A	6		
		220-240 V	50/60 Hz	A	4		
		400-415 V	50/60 Hz	A	3		
		500 V	50/60 Hz	A	2		
		690 V	50/60 Hz	A	2		
Rated operational current I_e / DC-13							
acc. to IEC 60947-5-1		24 V DC	A/W	6 / 144			
		48 V DC	A/W	2.8 / 134			
		72 V DC	A/W	1 / 72			
		110 V DC	A/W	0.55 / 60			
		125 V DC	A/W	0.55 / 69			
		220 V DC	A/W	0.3 / 66			
		250 V DC	A/W	0.3 / 75			
Making capacity	acc. to IEC 60947-5-1	10 x I_e AC-15					
Breaking capacity	acc. to IEC 60947-5-1	10 x I_e AC-15					
Short-circuit protection gG type fuse	A	10					
Rated short-time withstand current I_{cw}							
	for 1.0 s	A	100				
	for 0.1 s	A	140				
Minimum switching capacity	V/mA	12 / 3					
with failure rate acc. to IEC 60947-5-4		10^{-7}					
Non-overlapping time between							
N.O. and N.C. contacts	ms	1.5					
Heat dissipation per pole at 6 A	W	0.1					

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

Max. rated voltage	600 V AC, 250 V DC
Pilot duty	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		
Rated control circuit voltage U_c							
- at 50 Hz	V	24 ... 415					
- at 60 Hz	V	24 ... 415					
Coil operating limits acc. to IEC 60947-4-1		0.85 ... 1.1 x U_c (at $\theta \leq 60\text{ }^{\circ}\text{C}$) ; U_c (at $\theta \leq 70\text{ }^{\circ}\text{C}$)					
Drop-out voltage in % of U_c		approx. 30 ... 50 %					
Coil consumption							
Average pull-in value	50 Hz	VA	33				
	60 Hz	VA	33				
	50/60 Hz	VA	33				
Average holding value	50 Hz	VA/W	6.5 / 1.5				
	60 Hz	VA/W	5 / 1.2				
	50/60 Hz	VA/W	6.5 / 1.5				
Operating time							
between coil energization and:							
– N.O. contact closing	ms	9 ... 24					
– N.C. contact opening	ms	6 ... 18					
between coil de-energization and:							
– N.O. contact opening	ms	5 ... 19 ⁽¹⁾					
– N.C. contact closing	ms	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
Rated control circuit voltage U_c	V DC	12 ... 240					
Coil operating limits acc. to IEC 60947-4-1		0.85 ... 1.1 x U_c (at $\theta \leq 60\text{ }^{\circ}\text{C}$) ; U_c (at $\theta \leq 70\text{ }^{\circ}\text{C}$)					
Drop-out voltage in % of U_c		approx. 10 ... 40 %					
Coil consumption							
Average pull-in value	W	3					
Average holding value	W	3					
Coil time constant							
– open	L/R	ms	12				
– closed	L/R	ms	40				
Operating time							
between coil energization and:							
– N.O. contact closing	ms	36 ... 59					
– N.C. contact opening	ms	31 ... 53					
between coil de-energization and:							
– N.O. contact opening	ms	13 ... 17 ⁽²⁾					
– N.C. contact closing	ms	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
Terminals		 M3 Screw terminals with cable clamp Delivered in open position. Screws of unused terminals must be tightened.			 Spring terminals		
Connecting capacity (min. ... max.)							
Main conductors (poles)							
Rigid solid		1 x mm²	0.75 ... 4		0.75 ... 2.5		
		2 x mm²	0.75 ... 4		0.75 ... 2.5		
Flexible with non-insulated cable end		1 x mm²	0.75 ... 2.5		0.75 ... 2.5		
		2 x mm²	0.75 ... 2.5		0.75 ... 2.5		
Flexible with insulated cable end		1 x mm²	0.75 ... 2.5		0.75 ... 1.5		
		2 x mm²	0.75 ... 1.5		0.75 ... 1.5		
Bars and lugs		L mm ≤	7.7		-		
		l mm >	3.2		-		
Capacity acc. to UL/CSA		1 or 2 x AWG	18-12		18-12		
Auxiliary conductors							
(built-in auxiliary terminals + coil terminals)							
Rigid solid		1 x mm²	0.75 ... 2.5		0.75 ... 2.5		
		2 x mm²	0.75 ... 2.5		0.75 ... 2.5		
Flexible with non-insulated cable end		1 x mm²	0.75 ... 2.5		0.75 ... 2.5		
		2 x mm²	0.75 ... 2.5		0.75 ... 2.5		
Flexible with insulated cable end		1 x mm²	0.75 ... 2.5		0.75 ... 1.5		
		2 x mm²	0.75 ... 1.5		0.75 ... 1.5		
Bars and lugs		L mm ≤	7.7		-		
		l mm >	3.2		-		
Capacity acc. to UL/CSA		1 or 2 x AWG	18-14		18-14		
Degree of protection							
acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529		IP 20			IP 20		
Screwdriver type		Flat Ø 6.5 / Pozidriv 2			Flat Ø 3.5		
Stripping length		mm	9		10		
Tightening torque							
All terminals	– recommended	Nm / lb.in	1.00 / 9		-		
	– max.	Nm	1.20		-		