

NSL..S 4-pole / 8-pole Contactor Relays - Spring Terminals

DC Operated



Description

- 1-stack contactor relays: 4-pole,
- 2-stack contactor relays: 8-pole,
- Mechanically linked contact elements available,
- Low coil consumption,
- Polarity on the coil terminals (A1+ and A2-) must be respected,
- Rail-mounted, no tools required.

Main accessories available:

- **RV5** or **RT5** surge suppressors which do not increase overall dimensions,
- Up to 2 add-on **CA3..S** 1-pole auxiliary contact blocks for 1-stack contactor relays.

IEC AC-15 rated operational current **3 A** 400 V
UL/CSA Pilot duty **A600, Q300**



Ordering Details

For other coil voltage see 1SBC101024S0201.pdf

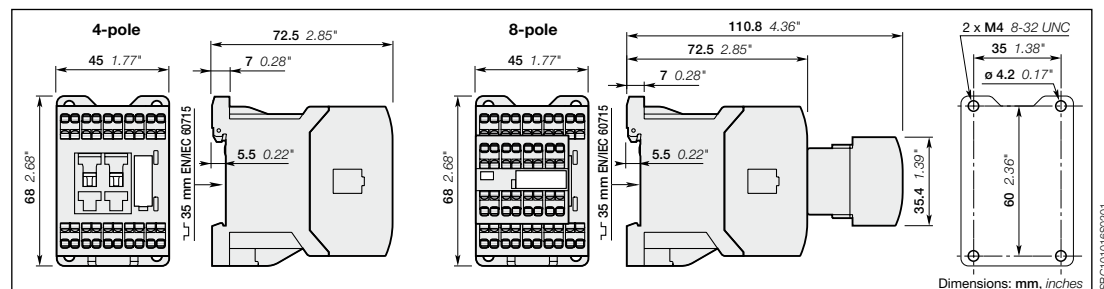
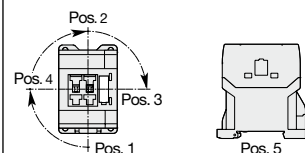
Number of contacts		Control coil voltage DC	Type	Order code	Pack ^(ing) pieces	Weight kg (1 pce)
1 st stack	2 nd stack					
		24 V	NSL22ES-81M	1SBH 103 004 M8122	40	0.28
		48 V	NSL22ES-83M	1SBH 103 004 M8322	40	0.28
		110 V	NSL22ES-86M	1SBH 103 004 M8622	40	0.28
		220 V	NSL22ES-88M	1SBH 103 004 M8822	40	0.28
		24 V	NSL31ES-81M	1SBH 103 004 M8131	40	0.28
		48 V	NSL31ES-83M	1SBH 103 004 M8331	40	0.28
		110 V	NSL31ES-86M	1SBH 103 004 M8631	40	0.28
		220 V	NSL31ES-88M	1SBH 103 004 M8831	40	0.28
		24 V	NSL40ES-81M	1SBH 103 004 M8140	40	0.28
		48 V	NSL40ES-83M	1SBH 103 004 M8340	40	0.28
		110 V	NSL40ES-86M	1SBH 103 004 M8640	40	0.28
		220 V	NSL40ES-88M	1SBH 103 004 M8840	40	0.28
		24 V	NSL44ES-81M	1SBH 103 004 M8144	20	0.32
		48 V	NSL44ES-83M	1SBH 103 004 M8344	20	0.32
		110 V	NSL44ES-86M	1SBH 103 004 M8644	20	0.32
		220 V	NSL44ES-88M	1SBH 103 004 M8844	20	0.32
		24 V	NSL53ES-81M	1SBH 103 004 M8153	20	0.32
		48 V	NSL53ES-83M	1SBH 103 004 M8353	20	0.32
		110 V	NSL53ES-86M	1SBH 103 004 M8653	20	0.32
		220 V	NSL53ES-88M	1SBH 103 004 M8853	20	0.32
		24 V	NSL62ES-81M	1SBH 103 004 M8162	20	0.32
		48 V	NSL62ES-83M	1SBH 103 004 M8362	20	0.32
		110 V	NSL62ES-86M	1SBH 103 004 M8662	20	0.32
		220 V	NSL62ES-88M	1SBH 103 004 M8862	20	0.32
		24 V	NSL71ES-81M	1SBH 103 004 M8171	20	0.32
		48 V	NSL71ES-83M	1SBH 103 004 M8371	20	0.32
		110 V	NSL71ES-86M	1SBH 103 004 M8671	20	0.32
		220 V	NSL71ES-88M	1SBH 103 004 M8871	20	0.32
		24 V	NSL80ES-81M	1SBH 103 004 M8180	20	0.32
		48 V	NSL80ES-83M	1SBH 103 004 M8380	20	0.32
		110 V	NSL80ES-86M	1SBH 103 004 M8680	20	0.32
		220 V	NSL80ES-88M	1SBH 103 004 M8880	20	0.32

Main Technical Data

For complete technical data see 1SBC101018S0201.pdf

Main poles	Rated operational voltage U_o max.	690 V
IEC	Conventional free air thermal current I_{th} (open contactors $\theta \leq 40^\circ\text{C}$)	10 A
acc. to IEC 60947-5-1	I_o / AC-15 rated operational current	400 V AC 3 A
	I_o / DC-13 rated operational current	24 V DC 6 A (144 W)
UL/CSA	Pilot duty	A600, Q300
Magnet system	Coil operating limits (acc. to IEC 60947-5-1)	0.85 ... 1.1 x U_o ($\theta \leq 60^\circ\text{C}$)
	Average pull-in coil consumption value	3 W
	Average holding coil consumption value	3 W
Max. electrical switching frequency		1200 cycles/h
Connecting capacity	Poles	Rigid 1 or 2 x 0.75 ... 2.5 mm ²
	and coil terminals	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



NS and NSL Contactor Relays

Technical Data

Contact Utilization Characteristics according to IEC

Contactor relay types:	AC operated DC operated	NS range NSL range	NS..S range NSL..S range
Terminals		 Screw terminals	 Spring terminals
Rated operational voltage U_e max.	V	690	
Conventional free-air thermal current I_{th} acc. to IEC 60947-5-1, open contactors, $\theta \leq 40$ °C	A	10	
Rated frequency limits	Hz	25 ... 400	
Rated operational current I_e / AC-15 acc. to IEC 60947-5-1	A		
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	A/W		
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} at 40 °C ambient temp., for 1.0 s in free air, from a cold state for 0.1 s	A	100 140	
Minimum switching capacity with failure rate acc. to IEC 60947-5-4	V/mA	12 / 3 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	
Max. electric switching frequency	cycles/h	1200	
Mechanical durability – millions of operating cycles – max. mechanical switching frequency	cycles/h	20 3600	



Contact Utilization Characteristics according to UL/CSA

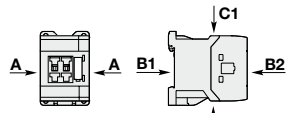
Max. rated voltage	600 V AC, 250 V DC
Pilot Duty	A600, Q300

NS and NSL Contactor Relays

Technical Data

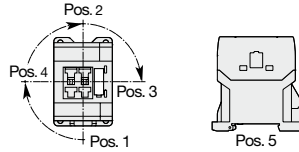
General Technical Data

Contactor relay types:	AC operated DC operated	NS range NSL range	NS..S range NSL..S range
Terminals		 Screw terminals	 Spring terminals
Rated insulation voltage U_i according to IEC 60947-5-1	V	690	
according to UL/CSA	V	600	
Rated impulse withstand voltage $U_{imp.}$	kV	6	
Standards		Devices complying with IEC 60947-5-1 and EN 60947-5-1	
Air temperature close to contactor – for operation in free air	°C	-40 ... +70	
– for storage	°C	-60 ... +80	
Climatic withstand		Category B according to IEC 60947-1 Annex Q	
Operating altitude	m	≤ 3000	
Shock withstand acc. IEC 60068-2-27 and EN 60068-2-27		1/2 sinusoidal shock for 11 ms: no change in contact position	
Mounting position 1		NS contactor relays - AC operated	NSL contactor relays - DC operated
		Closed position	Open position
		20	20
		5	5
		15	15
		19	8
		16	13
		20	10
		15	5
		10	10
		19	8
		14	8



Shock direction
A
B1
B2
C1
C2

Mounting positions


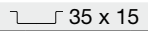


Mounting distances

Fixing

- on rail acc. to IEC 60715 and EN 60715
- with screws (not supplied)



The contactor relays can be assembled side by side

 35 x 7.5  35 x 15
2 x M4 screws placed diagonally

NS and NSL Contactor Relays



Technical Data

Magnet System Characteristics for AC Operated Contactor Relays

Contactor relay types:	AC operated	NS range	NS..S range
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 60947-5-1		0.85 ... 1.1 x U_c (at $\theta \leq 60^\circ\text{C}$) ; U_c (at $\theta \leq 70^\circ\text{C}$)	
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 Contactor Relays










Contactor relay types:	DC operated	NSL range	NSL..S range
Terminals		 Screw terminals	 Spring terminals
Rated control circuit voltage U_c	V DC	12 ... 240	
Coil operating limits acc. to IEC 60947-5-1		0.85 ... 1.1 x U_c (at $\theta \leq 60^\circ\text{C}$) ; U_c (at $\theta \leq 70^\circ\text{C}$)	
Drop-out voltage in % of U_c		approx. 10 ... 40 %	
Coil consumption			
- pull-in value	W	3	
- 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.

NS and NSL Contactor Relays

Technical Data

Connecting Characteristics

Contactor relay types:	AC operated DC operated	NS range NLS range	NS..S range NSL..S range
Terminals		 M3 Screw terminals with cable clamp Delivered in open position. Screws of unused terminals must be tightened.	 Spring terminals
Connecting capacity (min. ... max.)			
Pole and coil terminals			
Rigid solid	 1 x mm²  2 x mm²	0.75 ... 2.5	0.75 ... 2.5
Flexible with non-insulated cable end	 1 x mm²  2 x mm²	0.75 ... 2.5	0.75 ... 2.5
Flexible with insulated cable end	 1 x mm²  2 x mm²	0.75 ... 2.5	0.75 ... 1.5
Bars or lugs	 L mm ≤ l mm >	7.7 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			
Screwdriver type			
Flat Ø 6.5 / Pozidriv 2			
Stripping length			
9			
Tightening torque			
All terminals	- recommended	Nm / lb.in	1.00 / 9
	- max.	Nm	1.20