



NS..S 4-pole / 8-pole Contactor Relays - Spring Terminals AC Operated



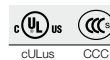
Description

- 1-stack contactor relays: 4-pole,
- 2-stack contactor relays: 8-pole,
- Mechanically linked contact elements available,
- Rail-mounted, no tools required.

Main accessories available:

- **RV5** or **RC5-1** 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

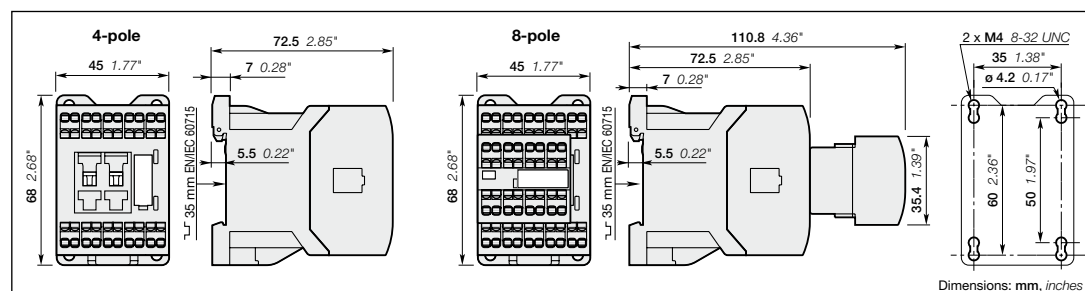
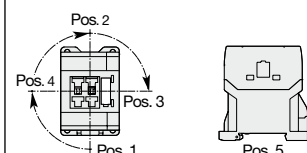
Number of contacts		Control coil voltage		Type	Order code	Pack ⁽ⁿ⁾ pieces	Weight kg (1 pce)
1 st stack	2 nd stack	50 Hz	60 Hz				
		24 V	24 V	NS22ES-20M	1SBH 101 004 M2022	40	0.22
		110 V	110 V	NS22ES-23M	1SBH 101 004 M2322	40	0.22
		-	120 V	NS22ES-16M	1SBH 101 004 M1622	40	0.22
		230 V	230 V	NS22ES-26M	1SBH 101 004 M2622	40	0.22
		24 V	24 V	NS31ES-20M	1SBH 101 004 M2031	40	0.22
		110 V	110 V	NS31ES-23M	1SBH 101 004 M2331	40	0.22
		-	120 V	NS31ES-16M	1SBH 101 004 M1631	40	0.22
		230 V	230 V	NS31ES-26M	1SBH 101 004 M2631	40	0.22
		24 V	24 V	NS40ES-20M	1SBH 101 004 M2040	40	0.22
		110 V	110 V	NS40ES-23M	1SBH 101 004 M2340	40	0.22
		-	120 V	NS40ES-16M	1SBH 101 004 M1640	40	0.22
		230 V	230 V	NS40ES-26M	1SBH 101 004 M2640	40	0.22
		24 V	24 V	NS44ES-20M	1SBH 101 004 M2044	20	0.26
		110 V	110 V	NS44ES-23M	1SBH 101 004 M2344	20	0.26
		-	120 V	NS44ES-16M	1SBH 101 004 M1644	20	0.26
		230 V	230 V	NS44ES-26M	1SBH 101 004 M2644	20	0.26
		24 V	24 V	NS53ES-20M	1SBH 101 004 M2053	20	0.26
		110 V	110 V	NS53ES-23M	1SBH 101 004 M2353	20	0.26
		-	120 V	NS53ES-16M	1SBH 101 004 M1653	20	0.26
		230 V	230 V	NS53ES-26M	1SBH 101 004 M2653	20	0.26
		24 V	24 V	NS62ES-20M	1SBH 101 004 M2062	20	0.26
		110 V	110 V	NS62ES-23M	1SBH 101 004 M2362	20	0.26
		-	120 V	NS62ES-16M	1SBH 101 004 M1662	20	0.26
		230 V	230 V	NS62ES-26M	1SBH 101 004 M2662	20	0.26
		24 V	24 V	NS71ES-20M	1SBH 101 004 M2071	20	0.26
		110 V	110 V	NS71ES-23M	1SBH 101 004 M2371	20	0.26
		-	120 V	NS71ES-16M	1SBH 101 004 M1671	20	0.26
		230 V	230 V	NS71ES-26M	1SBH 101 004 M2671	20	0.26
		24 V	24 V	NS80ES-20M	1SBH 101 004 M2080	20	0.26
		110 V	110 V	NS80ES-23M	1SBH 101 004 M2380	20	0.26
		-	120 V	NS80ES-16M	1SBH 101 004 M1680	20	0.26
		230 V	230 V	NS80ES-26M	1SBH 101 004 M2680	20	0.26

Main Technical Data

For complete technical data see 1SBC101018S0201.pdf

Main poles	Rated operational voltage U_n max.	690 V
	Conventional free air thermal current I_{th} (open contactors $\theta \leq 40^\circ\text{C}$)	10 A
IEC acc. to IEC 60947-5-1	I_e / AC-15 rated operational current	400 V AC 3 A
	I_e / 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_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
Max. electrical switching frequency		
Connecting capacity	Poles	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



Dimensions: mm, inches

NS and NSL Contactor Relays

Technical Data

Contact Utilization Characteristics according to IEC

Contactor relay types:		AC operated	NS range	NS..S range
		DC operated	NSL 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, $\theta \leq 40^\circ\text{C}$		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}				
at 40 °C ambient temp., for 1.0 s		A	100	
in free air, from a cold state 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	
Max. electric switching frequency		cycles/h	1200	
Mechanical durability				
– millions of operating cycles			20	
– max. mechanical switching frequency		cycles/h	3600	

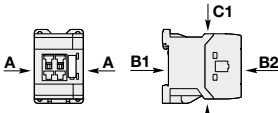
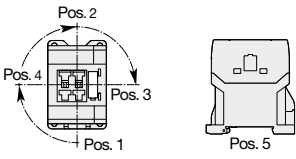
Contact Utilization Characteristics according to UL/CSA

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	NS range	NS..S range
		DC operated	NSL 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				
		Shock direction		
		A		
		B1		
		B2		
		C1		
		C2		
Mounting positions				
				
Mounting distances				
Fixing				
– on rail acc. to IEC 60715 and EN 60715			 35 x 7.5  35 x 15	
– with screws (not supplied)			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	NS range		NS..S range
		DC operated	NLS 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 mm ²	0.75 ... 2.5	0.75 ... 2.5	
		2 x mm ²	0.75 ... 2.5	0.75 ... 2.5	
Flexible with non-insulated cable end		1 x mm ²	0.75 ... 2.5	0.75 ... 2.5	
		2 x mm ²	0.75 ... 2.5	0.75 ... 2.5	
Flexible with insulated cable end		1 x mm ²	0.75 ... 2.5	0.75 ... 1.5	
		2 x mm ²	0.75 ... 1.5	0.75 ... 1.5	
Bars or 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			9	10	
Tightening torque					
All terminals	– recommended	Nm / lb.in	1.00 / 9	-	
	– max.	Nm	1.20	-	