

DATA SHEET



S-N CONTACTORS

The Overview (Type designation breakdown)

Frame Size		N10	N11	N12	N18	N20	N21	N25	N35	N50	N65	N80	N95	N125	N150	N180	N220	N300	N400	N600	N800			
Spec	Rated capacity	220-240V	2.5	3.5	3.5	4.5	5.5	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	125	190	220		
	Category AC-3(kW)	380-440V	4	5.5	5.5	7.5	11	11	15	18.5	22	30	45	55	60	75	90	132	160	220	330	440		
Spec	Number of aux. contacts	Standard	1NO	1NO	1NO1NC	—	1NO1NC	← 2NO2NC →																
		Special	1NC	1NC	2NO	—	2NO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
ACCESSORIES	Additional aux. contact blocks	Front-on ¹	← 2P or 4P →										—	—	—	—	—	—	—	—	—	—		
		Side-on	← 1NO1NC×2(max.) →		—	← 1NO1NC×2(max.) →															2NO2NC×1(max.)			
	Surge absorber ³	← Attachable →										← Provided as a standard →												
	Mechanical interlock unit	← Attachable →		—	← Attachable →																			
CONTACTORS	Open	AC operated	S-□	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
		DC operated	SD-□	—	○	○	—	○	—	○	○	○	○	○	○	○	○	—	○	○	○	○	○	○
		Finger protected	S-□CX	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	—	—	—	—	—	—
			SD-□CX	—	○	○	—	○	—	○	—	○	—	—	—	—	—	—	—	—	—	—	—	—
	Mechanically latched	SL(D)-□	—	—	—	—	○	—	○	○	○	○	○	○	○	—	○	○	○	○	○	○		
STARTERS	Open	AC operated	MSO-□	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
		DC operated	MSOD-□	—	○	○	—	○	—	○	○	○	○	○	○	○	○	—	○	○	○	○	○	
		With phase failure protection	MSO-□KP	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Enclosed Class IP20	Slow trip type with saturable reactor	MSO-□SR	○	○	○	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
		Quick-trip type with 2 heater elements	MSO-□FS	—	—	—	—	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	—	—
			with phase failure protection	MSO-□KF	○	○	○	—	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	—
Enclosed Class IP20	Standard type	MS-□	○	○	○	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	With push button	MS-□PM	○	○	—	—	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	—	—	
	With phase failure protection	MS-□KP	○	○	○	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Mounting on 35mm rail	← Available →										—	—	—	—	—	—	—	—	—	—	—		

Notes: 1. Additional head-on type aux. contact blocks cannot be attached to the enclosed type, mechanically latched type of size N50 & N65.
 2. Surge absorber is provided as a standard on ac operated contactors and starters of sizes N50 to N800.

Technical Data of Series S-N Contactors

Contactor	Type	S/SD-			S/SD-			S/SD-			S/SD-		
		S-N10	N11, N12	S-N18	S-N20	N21	S-N25	N35	N50	N65	S-N10	N11, N12	S-N18
Rated insulation voltage	V	690	690	690	690	690	690	690	690	690	690	690	
Conventional free air thermal current	Ith	A	20	20	25	32	32	50	60	80	100	100	
Rated capacity for resistive loads													
3-ph, Category AC-1													
	220-240V	kW(A)	7.5(20)	7.5(20)	9.5(25)	12(32)	12(32)	18(50)	20(60)	30(80)	35(100)	35(100)	
	380-440V	kW(A)	7(11)	8.5(13)	13(20)	20(32)	20(32)	30(50)	35(60)	50(80)	65(100)	65(100)	
	500V	kW(A)	7(8)	9.5(11)	13(16)	25(32)	25(32)	40(50)	50(60)	65(80)	85(100)	85(100)	
	690V	kW(A)	7(6)	8(8)	11(10)	30(32)	30(32)	50(50)	60(60)	80(80)	100(100)	100(100)	
Rated operational current													
3-ph, Category AC-3													
	220-240V	A	11	13	18	22	22	30	40	55	65	65	
	380-440V	A	9	12	16	22	22	30	40	50	65	65	
	500V	A	7	9	13	17	17	24	32	38	60	60	
	690V	A	5	7	9	9	9	12	17	26	38	38	
Rated capacity for jogging of AC motors													
3-ph, category AC-4													
	220-240V	kW	0.75	1.1	1.5	2.2	2.2	3	3.7	5.5	7.5	7.5	
Electrical life is ca.	380-440V	kW	1.1	1.5	2.2	3.7	3.7	5.5	5.5	7.5	11	11	
200,000 operations	500V	kW	1.1	1.5	2.2	3.7	3.7	5.5	5.5	7.5	11	11	
	690V	kW	1.1	1.5	2.2	3.7	3.7	5.5	5.5	7.5	11	11	
Max. current for AC-4 duty at 440V													
	A	A	6	9	9	13	13	17	24	32	47	47	
Rated current for DC non-inductive loads													
Category DC-1													
	48V	A	10	12	12	20	20	25	35	50	65	65	
100 operations/hour max.	110V	A	8	12	12	20	20	25	35	50	65	65	
500,000 operations	220V	A	8	12	12	20	20	22	30	40	50	50	
Rated Current for DC motors													
Category DC-3 & DC-5													
	48V	A	6	10	10	20	20	25	30	35	40	40	
100 operations/hour max.	110V	A	4	8	8	15	15	20	20	30	35	35	
500,000 operations	220V	A	2	4	4	8	8	10	10	12	15	15	
Rated capacity for 3-ph, capacitors ⁴													
120 operations/hour max.													
	220-240V	kvar	2.2	3	4	5.5	5.5	8.5	12	20	20	20	
Electrical durability at maximum load:	380-440V	kvar	3.3	4	6	10	10	14	20	40	40	40	
100,000 operations	550V	kvar	4	5	6	10	10	14	20	30	35	35	
(ambient temperature 40°C)	690V	kvar	3.3	4.5	5.5	10	10	14	20	30	40	40	
Rated insulation voltage													
	V	V	690	690	690	690	690	690	690	690	690	690	
Making & breaking													
3-ph, cosφ=0.35													
	240V/440V	Making current	A	110/110	130/120	180/180	220/220	220/220	300/300	400/400	550/460	650/620	
		Breaking current	A	100/72	120/100	180/130	220/220	220/220	300/240	400/320	550/460	650/620	
Switching frequency	Category AC-1	operations/hour	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,200	1,200	
	Category AC2 & AC-3	operations/hour	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,200	1,200	1,200	
	Category AC-4	operations/hour	660	660	600	600	600	600	600	600	600	600	
Operating time (at rated coil voltage)													
AC operated													
	Closing	ms	15	15	15	15	15	15	15	25	25	25	
	Opening	ms	10	10	10	10	10	10	10	53	53	53	
DC operated													
	Closing	ms	—	45	—	—	33	—	50	57	57	57	
	Opening	ms	—	10	—	—	12	—	13	15	15	15	
Coil consumption (at rated coil voltage)													
AC operated													
	Inrush	VA	60	60	60	90	90	110	110	132	132	132	
	Sealed	VA	10	10	10	15	15	13	13	17	17	17	
	Watts	W	3.5	3.5	3.5	5.3	5.3	5.3	5.3	2.8	2.8	2.8	
DC operated													
	Inrush	VA	—	7	—	—	16	—	18	24	24	24	
	Sealed	VA	—	7	—	—	16	—	18	24	24	24	
Coil voltage tolerance													
			0.85 to 1.1 times rated coil voltage										
Mechanical endurance (make/break operations)													
	million	million	10	10	10	10	10	10	10	5	5	5	
Permissible ambient temperature													
	°C	°C	-25 to +55										
Vibration (10-55 Hertz)													
	m/s ²	m/s ²	19.6										
Shock (10 ms half sine wave)													
	m/s ²	m/s ²	49										
Conductor size													
	mm ²	mm ²	1-2.5	1-2.5	1-6	1-6	1-6	2-16	2-16	2-25	2-25	2-25	
Main terminal (contactor)													
	mm ²	mm ²	1-2.5	1-2.5	1-6	1-6	1-6	2-16	2-16	2-25	2-25	2-25	
Main terminal (overload relay)													
	mm ²	mm ²	1-2.5	1-2.5	1-2.5	1-2.5	1-2.5	1-2.5	1-2.5	1-2.5	1-4	1-4	
Control terminal													
	mm	mm	—	—	—	—	—	—	—	—	—	—	
Busbar width													
	mm	mm	—	—	—	—	—	—	—	—	—	—	

Notes: 1. 660A at ambient temperature 40-55°C. 2. 800A at ambient temperature 40-55°C.
 3. Conductor size in parentheses indicate compression terminal style not for bare clamping.
 4. The peak value of inrush current should be less than 2000% of the effective value for rated current of capacitors.
 The selection is invalid for the circuit of parallel capacitors which are controlled individually.

S/SD-	S/SD-	S/SD-	S/SD-	S-	S/SD-	S/SD-	S/SD-	S/SD-	S/SD-	S/SD-		
											N80	N95
690	690	690	690	1000	1000	1000	1000	1000	1000	1000		
135	150	150	200	260	260	350	450	800 ¹	1000 ²			
50(135)	55(150)	55(150)	75(200)	95(260)	95(260)	130(350)	170(450)	250(660)	300(800)			
85(135)	90(150)	90(150)	130(200)	170(260)	170(260)	230(350)	290(450)	430(660)	530(800)			
110(135)	120(150)	120(150)	170(200)	220(260)	220(260)	300(350)	380(450)	570(660)	700(800)			
135(135)	150(150)	150(150)	200(200)	260(260)	260(260)	350(350)	450(450)	660(660)	900(800)			
85	105	125	150	180	250	300	400	630	800			
85	105	120	150	180	250	300	400	630	800			
75	85	90	140	180	200	250	350	500	720			
52	65	70	100	120	150	220	300	420	630			
7.5	11	15	18.5	22	22	37	45	65	75			
15	18.5	22	30	37	45	60	75	110	130			
15	18.5	22	37	45	55	60	90	130	150			
15	18.5	22	30	50	55	75	90	130	150			
62	75	90	110	150	180	220	300	400	630			
80	93	120	150	180	220	300	400	630	800			
80	93	100	150	180	220	300	400	630	800			
60	70	80	150	180	220	300	300	630	800			
60	90	90	130	180	220	280	280	630	630			
50	80	80	120	150	150	200	200	630	630			
20	50	50	80	100	100	150	150	630	630			
35	35	38	50	60	60	95	115	190	190			
60	60	65	80	120	120	150	200	350	350			
48	60	65	80	150	150	200	250	350	350			
50	60	65	80	150	150	200	200	400	400			
690	690	690	690	1,000	1,000	1,000	1,000	1,000	1,000			
850/850	1050/1050	1250/1250	1500/1500	1800/1800	2500/2500	3000/3000	4000/4000	6500/6500	8000/8000			
800/750	930/930	1000/1000	1200/1200	1450/1450	2000/2000	2400/2400	3200/3200	5040/5040	6400/6400			
1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200			
1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200			
600	300	300	300	300	300	300	300	300	300			
27	27	25	27	30	30	35	35	65	65			
75	75	85	85	100	100	120	120	75	75			
75	75	125	135	—	145	175	175	105	105			
18	18	22	37	—	40	55	55	80	80			
225	225	320	320	480	480	480	480	800	800			
22	22	26	26	44	44	54	54	100	100			
3.3	3.3	3.5	3.5	5	5	7.3	7.3	15	15			
27	27	31	31	—	41	55	55	600	600			
27	27	31	31	—	41	55	55	75	75			
0.85 to 1.1 times rated coil voltage												
5	5	5	5	5	5	5	5	5	5			
-25 to +55												
19.6												
49												
2-50	2-50											
	(2-60) ³	(6-70) ³	(6-95) ³	(10-120) ³	(10-150) ³	(25-240) ³	(25-240) ³	(70-325) ³	(70-325) ³			
2-50	2-50	(6-70) ³	(6-95) ³	(10-120) ³	(10-150) ³	(25-240) ³	(25-240) ³	—	—			
1-2.5	1-2.5	1-2.5	1-2.5	1-2.5	1-2.5	1-2.5	1-2.5	1-4	1-4			
15	15	15	20	25	25	3						