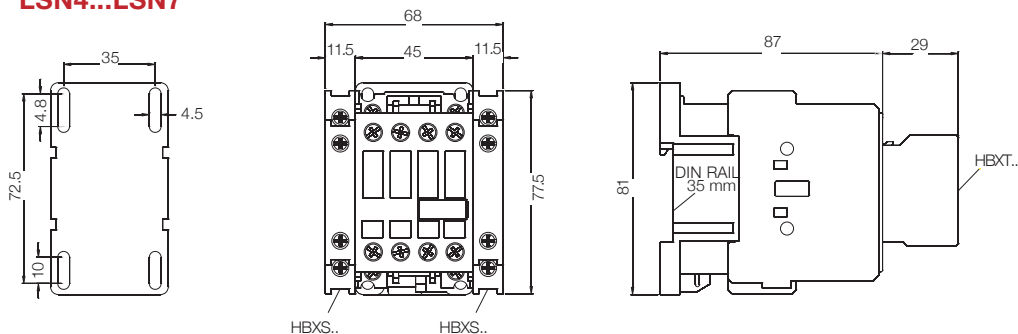


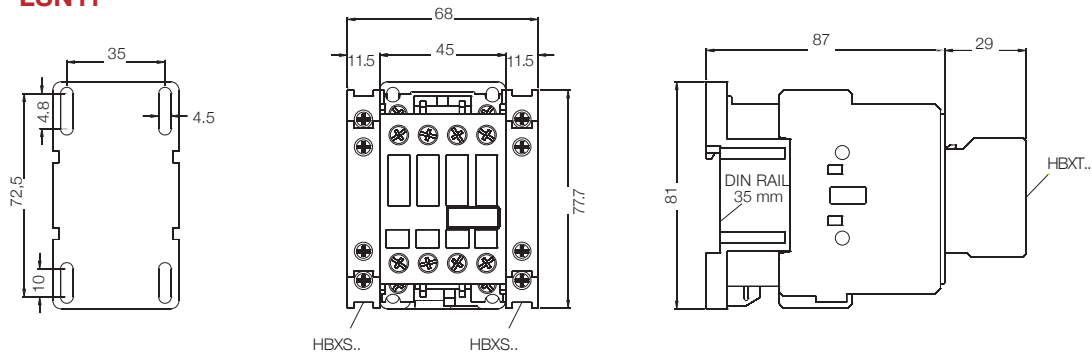
Dimensions

Dimensions (mm)

LSN4...LSN7

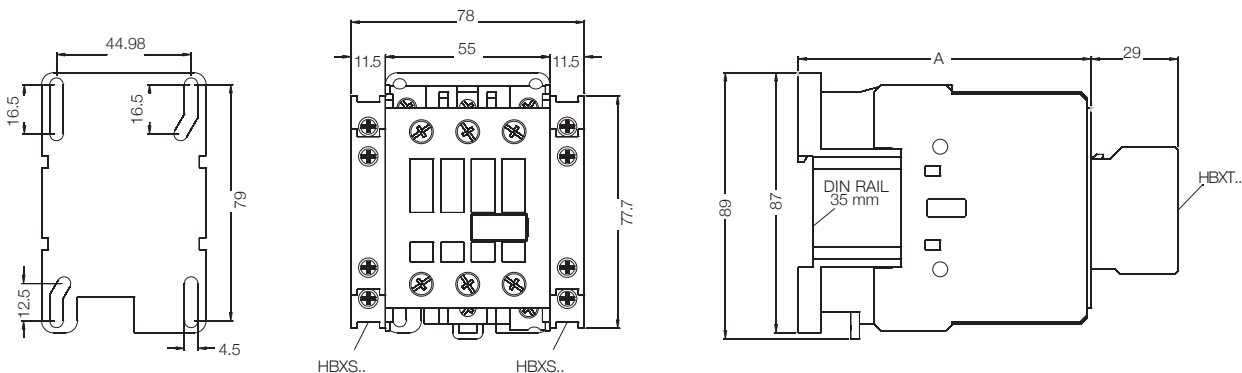


LSN11



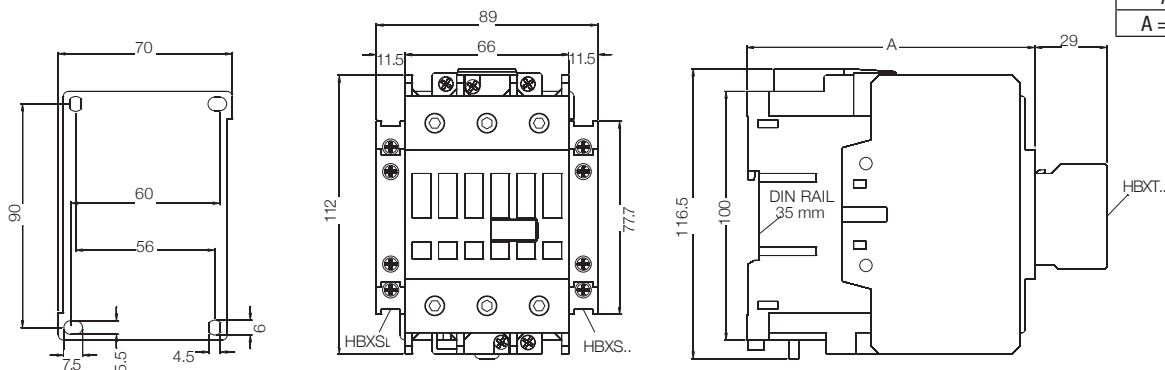
LSN15...LSN18

Coil	
AC	DC
A = 98	A = 118



LSN22...LSN37

Coil	
AC	DC
A = 116	A = 116

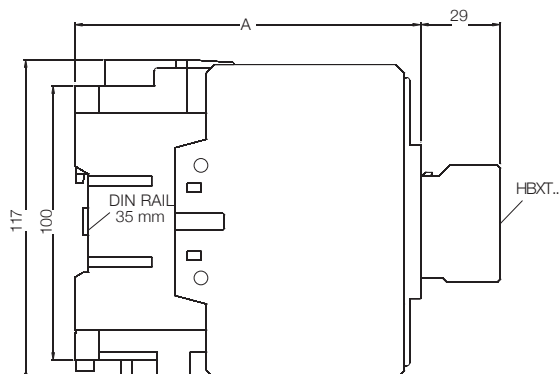
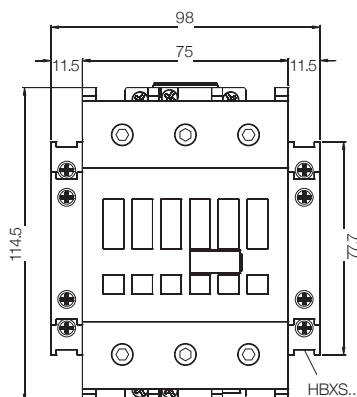
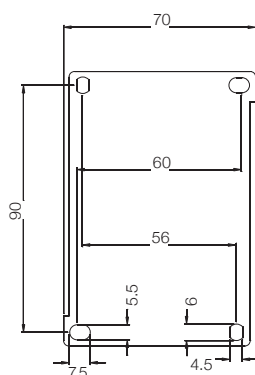


Dimensions

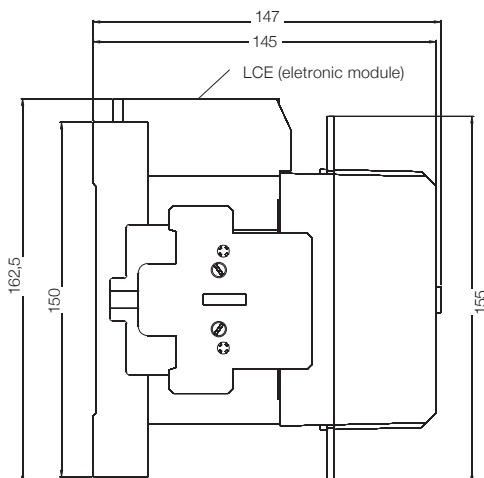
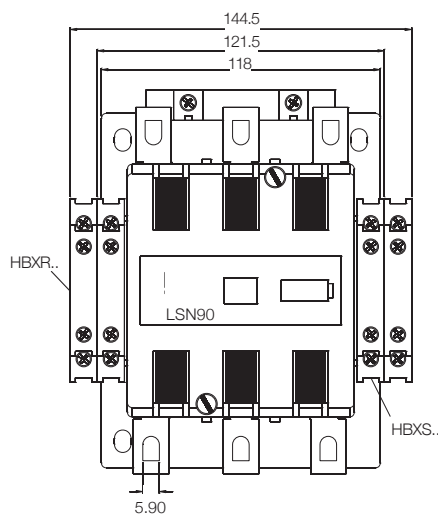
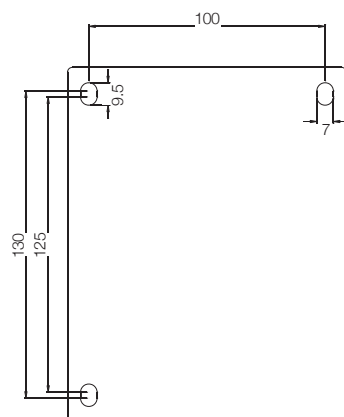
Dimensions (mm)

LSN45...LSN55

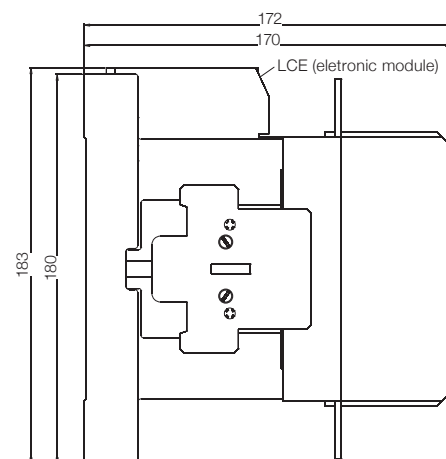
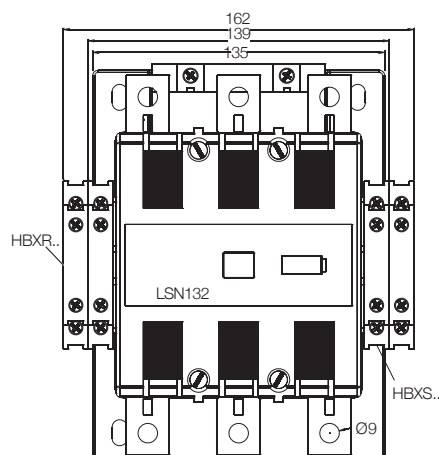
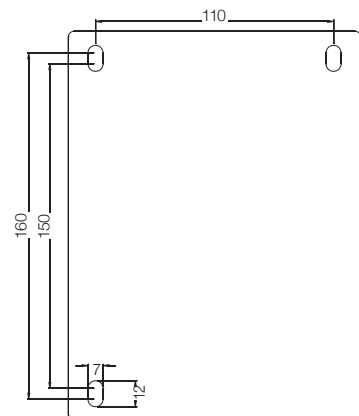
Coil	
AC	DC
A = 126	A = 126



LSN75...LSN90



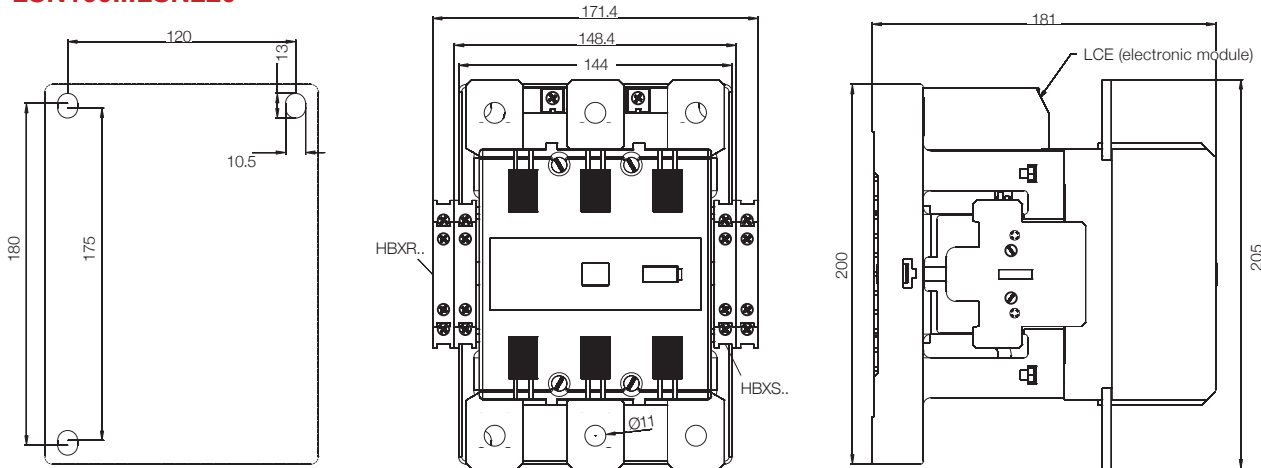
LSN132



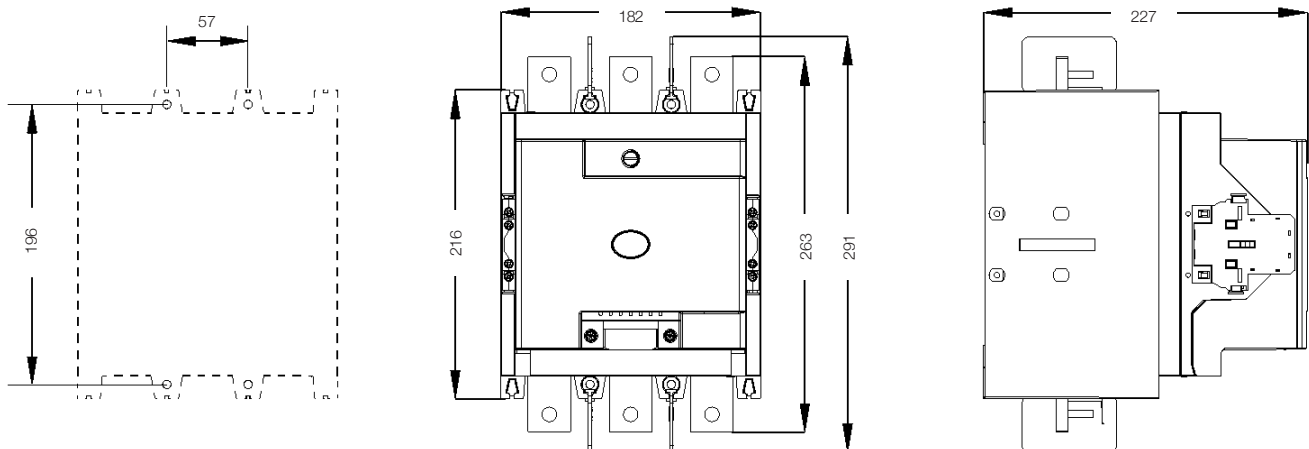
Dimensions

Dimensions (mm)

LSN160...LSN220

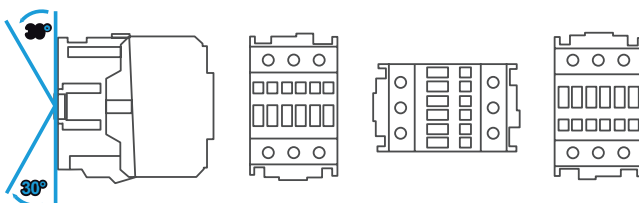


LSN280...LSN375

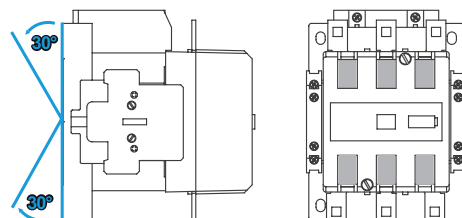


Mounting Position

LSN4...LSN55



LSN75...LSN220



Technical Data

General Data

Reference code	LSN4	LSN5	LSN7	LSN11	LSN15	LSN18	LSN22	LSN30	LSN37	LSN45	LSN55	LSN75	LSN90	LSN132	LSN160	LSN220
Standards	IEC 60947 / UL 508 / CSA 22.2 #14															
Rated insulation voltage U _i IEC 60947 UL / CSA	1,000 V 600 V															
Rated impulse withstand voltage U _{imp}	6 kV						8 kV									
Rated operational frequency	25 - 400 Hz															
Degree of protection	Protection against direct contact from the front when operated by a perpendicular test finger (IEC 536)															
Main circuits	IP20		IP10										IP00			
Control circuits and auxiliary contacts	IP20															
Ambient temperature	-25 °C to +55 °C -55 °C to +80 °C															
Operating temperature																
Storage temperature																
Altitude	Up to 3,000 m 3,000 to 4,000 m 4,000 to 5,000 m															
Normal values																
90% I _g / 80% U _g 80% I _g / 75% U _g																
Overvoltage category / Pollution degree	III / 3															
Climatic proofing	Acc. IEC 60680-2															
Pole numbers of main circuits	3															
Rated operation voltage U _g	690 V						1,000 V									
Mechanical lifespan	Ops x 10 ⁶				10											
Electrical lifespan (AC - 3)	Ops x 10 ⁶				1.5		1.2		1.1				1.0			
Mounting	Screw or 35 mm DIN Rail												Screw			

Control Circuit

Reference code		LSN4	LSN5	LSN7	LSN11	LSN15	LSN18	LSN22	LSN30	LSN37	LSN45	LSN55	LSN75	LSN90	LSN132	LSN160	LSN220	
Rated insulation voltage U_i	IEC	1,000 V																
	UL, CSA	600 V																
Rated voltages (standard coil) Us 50/60 Hz		12...660 V											-					
Rated voltages (electronic module) Us 50/60 Hz		-											24...500 V					
Rated voltages Us dc		-			24...240 V								24...500 V					
Number of terminals	AC coil	4			4		3			2								
	DC coil	-			4		3			2								
Operation time	Closing/Opening (AC) ms	8...20 / 6...13			10...19 / 5...25		15...30 / 9...15			60...70 / 13...17								
	Closing/Opening (DC) ms	-			50...60 / 55...60					60...70 / 13...17					60...70 / 15...25			
Power consumption of the AC coil 50/60 Hz																		
Pick-up	(VA)	69.5			98		255			590			759		1,104			
	cos φ	0.85			0.69		0.32			0.43			0.14		0.16			
Sealing	(VA)	4...7.2			6.6...12.3		13.1...19.1			28...41			37...52		70...105			
	cos φ	0.28			0.34		0.54			0.31			0.39		0.36			
Coil operation limits 50/60 Hz		0.85...1.1 x U_s											0.85...1.1 x U_s					
Bifrequency coils	Pick-up									0.7...0.85			0.7...0.85		0.7...0.85			
	Sealing									0.4...0.6			0.4...0.6		0.4...0.6			
Power consumption of the coil - DC coils																		
Pick-up	(W)	-			240		340			415			375		380			
Sealing	(W)	-			6		6.5			12.5			12.5		12.5			

Technical Data

Main Contacts

Reference code			LSN4	LSN5	LSN7	LSN11	LSN15	LSN18	LSN22	LSN30	LSN37	LSN45	LSN55	LSN75	LSN90	LSN132	LSN160	LSN220	
Rated operational current I _e	AC-3 (U _e ≤ 440 V)	(A)	9	12	18	25	32	40	50	65	80	95	105	112	150	180	250	300	
	AC-4 (U _e ≤ 440 V)	(A)	5	7	8	12	16	18.5	23	30	37	44	50	63	69	73	110	145	
	AC-1 (θ ≤ 55 °C, U _e ≤ 690 V)	(A)	25	25	32	45	60	60	90	110	110	140	140	180	225	225	350	410	
Rated operational voltage U _e	IEC/EN 60947-4-1, VDE 0660	(V)	690						1,000										
	UL, CSA	(V)	600																
Rated thermal current I _m (θ ≤ 55 °C)			(A)	25	25	32	45	60	60	90	110	110	140	140	180	225	225	350	410
Making capacity - IEC/EN 60947			(A)	300	300	300	450	550	550	1,000	1,000	1,000	1,280	1,280	1,430	1,820	2,100	2,600	3,000
Breaking capacity IEC/EN 60947	(U _e ≤400 V)	(A)	250	250	250	350	450	450	920	920	920	1,050	1,050	1,290	1,350	1,400	2,000	-	
	(U _e =500 V)	(A)	250	250	250	320	450	450	920	920	920	1,050	1,050	1,290	1,350	1,400	2,000	-	
	(U _e =690 V)	(A)	130	130	130	170	205	205	780	780	780	950	950	-	-	-	-	-	
Short-time current No current flowing during recovery time 10 min. and θ ≤ 40 °C)	1 sec	(A)	455	455	570	630	1,010	1,265	1,580	2,530	2,530	3,300	3,300	3,165	3,763	4,649	4,427	-	
	5 sec	(A)	205	205	254	280	450	450	710	1,130	1,130	1,485	1,485	1,820	2,164	2,673	2,546	-	
	10 sec	(A)	144	144	180	200	320	400	500	800	800	1,050	1,050	1,430	1,700	2,100	2,000	-	
	30 sec	(A)	85	85	104	115	185	230	290	460	460	600	600	826	980	1,212	1,155	-	
	1 min	(A)	60	60	74	80	130	165	205	325	325	430	430	584	694	857	816	-	
	3 min	(A)	35	35	46	50	90	100	120	185	185	250	250	337	401	495	471	-	
Protection against short-circuits with fuses(gL/gG)	@600 V - UL/CSA	(kA)	5						10						18				
	Coordination type 1	(A)	50	50	63	63	100	125	200	200	200	250	250	-	355	355	500	630	
	Coordination type 2	(A)	25	35	35	50	63	80	100	125	125	160	200	224	250	250	400	500	
	Acc. to UL/CSA J Type	(A)	25	35	40	45	60	70	100	125	125	150	200	250	350	400	500	700	
Impedance per pole			(mΩ)	2.4	2.4	2.4	1.7	1.3	1.0	0.9	0.9	0.9	0.8	0.8	0.5	0.5	0.45	0.3	0.3
Power dissipation per pole	AC-1	(W)	1.5	1.5	2.5	3.3	4.6	3.4	6.7	10.4	10.4	14.9	14.9	16	25	21.6	35	45.7	
	AC-3	(W)	0.2	0.3	0.8	1.0	1.3	1.5	2.1	3.6	5.5	6.9	8.4	6.2	11.1	13.8	17.9	25.7	
			Utilization category AC-3																
Rated operational current I _e (θ ≤ 55 °C)	U _e ≤ 440 V	(A)	9	12	18	25	32	40	50	65	80	95	105	112	150	180	250	300	
	U _e ≤ 500 V	(A)	7.5	10.5	14	19	24	32	38	55	63	79	85	95	130	155	220	265	
	U _e ≤ 690 V	(A)	7	9	13	15	22	25	34	44	48	60	67	82	110	135	185	220	
	U _e ≤ 1,000 V	(A)	Not available						19	25	30	37	40	42	48	68	103	126	
Rated operational power	220 / 230 V	(kW)	2.2	3	4.5	5.5	9.2	11	15	18.5	22	22	30	30	45	55	75	90	
		(HP)	3	4	6	7.5	12.5	15	20	25	30	30	40	40	60	75	100	125	
	380 / V	(kW)	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	55	75	90	132	150	
		(HP)	5	7.5	10	15	20	25	30	40	50	60	75	75	100	125	175	200	
	400 / 415 V	(kW)	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	55	75	110	132	150	
		(HP)	5	7.5	10	15	20	25	30	40	50	60	75	75	100	150	175	200	
	440 V	(kW)	4.5	5.5	9.2	11	15	22	30	37	45	55	55	55	90	110	150	185	
		(HP)	6	7.5	12.5	15	20	30	40	50	60	75	75	75	125	150	200	250	
	500 V	(kW)	4.5	5.5	9.2	11	15	22	30	37	45	55	55	55	90	110	150	185	
		(HP)	6	7.5	12.5	15	20	30	40	50	60	75	75	75	125	150	200	250	
	660 / 690 V	(kW)	5.5	7.5	11	11	18.5	22	30	37	45	55	55	75	110	110	150	185	
		(HP)	7.5	10	15	15	25	30	40	50	60	75	75	100	150	150	200	250	
Percentage of the maximum operational current at	600 ops./h	(%)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
	1,200 ops./h	(%)	100	100	100	100	100	100	100	100	100	75	75	75	75	75	75	75	
	3,000 ops./h	(%)	35	35	35	35	35	35	35	35	35	25	25	25	25	25	25	25	

Technical Data

Main Contacts

Reference code		LSN4	LSN5	LSN7	LSN11	LSN15	LSN18	LSN22	LSN30	LSN37	LSN45	LSN55	LSN75	LSN90	LSN132	LSN160	LSN220	
Utilization category AC-4																		
Rated operational current I _e AC-4 (U _e ≤ 690 V)		(A)	5	7	8	12	16	18.5	23	30	37	44	50	50	55	58	88	116
Rated operational power	220 / 230 V	(kW)	1.1	1.5	1.5	3	3.7	4.5	5.5	7.5	9.2	11	11	18.5	18.5	22	37	45
		(HP)	1.5	2	2	4	5	6	7.5	10	12.5	15	15	25	25	30	50	60
	380 / 400 V	(kW)	2.2	3	3.7	5.5	7.5	9.2	11	15	18.5	22	22	30	30	37	55	75
		(HP)	3	4	5	7.5	10	12.5	15	20	25	30	30	40	40	50	75	100
	415 V	(kW)	2.2	3.7	4.5	5.5	9.2	11	11	15	22	22	30	37	37	45	55	75
		(HP)	3	5	6	7.5	12.5	15	15	20	30	30	40	50	50	60	75	100
	440 V	(kW)	2.2	3.7	4.5	5.5	9.2	11	11	15	22	22	30	37	37	45	55	75
		(HP)	3	5	6	7.5	12.5	15	15	20	30	30	40	50	50	60	75	100
	500 V	(kW)	3	3.7	5.5	7.5	9.2	11	15	18.5	22	22	30	37	45	45	75	90
		(cv)	4	5	7.5	10	12.5	15	20	25	30	30	40	50	60	60	100	125
	660 / 690 V	(kW)	3	4.5	5.5	7.5	11	11	15	18.5	22	30	30	45	45	55	90	90
		(cv)	4	6	7.5	10	15	15	20	25	30	40	40	60	60	75	125	125
Utilization category AC-1																		
Rated thermal current I _{th} (θ ≤ 55 °C)		(A)	25	25	32	45	60	60	90	110	110	140	140	180	225	225	350	410
Max. operational current at ambient temperature of (up to 690 V)	θ ≤ 55 °C	(A)	25	25	32	45	60	60	90	110	110	140	140	160	190	200	350	350
	θ ≤ 70 °C	(A)	20	20	25	32	48	48	72	88	88	110	110	120	145	145	215	250
	θ ≤ 75 °C	(A)	17	17	22	26	42	42	63	77	77	95	95	101	124	120	177	206
Max. operational power θ ≤ 55 °C (Three-phase resistors)	220 / 230 V	(kW)	9.5	9.5	12	17	22.5	22.5	34	42	42	53	53	68	85	85	130	156
	380 / 400 V	(kW)	16.5	16.5	21	29.5	39.5	39.5	59	72.5	72.5	92	92	118	145	145	230	270
	415 / 440 V	(kW)	19	19	24	34	45.5	45.5	68.5	84	84	106.5	106.5	130	160	160	250	295
	500 V	(kW)	21.5	21.5	27.5	39	52	52	77	95	95	121	121	155	190	190	300	355
	575 / 600 V	(kW)	24.1	24.1	30.9	43.4	57.9	57.9	86.8	106.1	106.1	135.1	135.1	180	225	225	350	400
660 / 690 V	(kW)	28.5	28.5	38	51	68.5	68.5	100	125	125	160	160	205	255	255	400	470	

UL/CSA Power

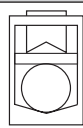
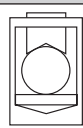
Reference code			LSN4	LSN5	LSN7	LSN11	LSN15	LSN18	LSN22	LSN30	LSN37	LSN45	LSN55	LSN75	LSN90	LSN132	LSN160	LSN220
General purpose current	(600 V)	(A)	25	25	32	32	60	60	90	110	110	140	140	170	200	200	300	400
1-phase	110 / 120 V	(HP)	0.75	0.75	1	2	3	3	5	5	7.5	7.5	10	-	-	-	-	-
	220 / 240 V	(HP)	1.5	2	3	5	5	7.5	10	10	15	15	20	-	-	-	-	-
3-phase	208 V	(HP)	3	3	5	7.5	10	10	15	20	20	25	30	40	50	60	75	100
	220 / 240 V	(HP)	3	3	5	7.5	10	15	15	20	25	30	40	50	60	75	100	125
	440 / 480 V	(HP)	5	7.5	10	15	20	30	40	50	50	60	75	100	125	150	200	250
	550 / 600 V	(HP)	7.5	10	15	15	25	25	40	50	60	75	75	100	150	200	250	350

Technical Data

Terminal Capacity and Tightening Torque - Power Terminals

Reference code		LSN4...LSN7			LSN11		
Screw type		M3.5x 9 Flat / Phillips			M4x 12 Flat / Phillips		
Power terminal capacity ¹⁾		Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm²		1x 0.5...4 2x 0.5...2.5	1x 1...6 2x 1...2.5 2x 2.5...6	1x 0.5...6 2x 0.5...2.5 2x 2.5...6	1x 1...10 2x 1...2.5 2x 2.5...6	1x 2.5...10 2x 2.5...10	1x 1...10 2x 1...2.5 2x 2.5...10
AWG (UL/CSA)		14...10			14...8		
Tightening torque (N.m)		1...1.5			1.6...2.5		
Tightening torque (lb.in) (UL/CSA)		15			16		

Note: this information is also valid for built-in auxiliary terminals for LSN4 to LSN7.

Reference code		LSN15...LSN18			LSN22...LSN37			LSN45...LSN55		
Screw type		M4x 16.5 Flat / Phillips			M8 Allen 4mm			M10 Allen 4mm		
Power terminal capacity		Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
One conductor on bottom										
mm²		1...16	1.5...16	1...16	2.5...35	6...35	2.5...35	4...35	6...35	4...35
AWG (UL/CSA)		14...8			14...1/0			10...1/0		
One conductor on top										
mm²		0.75...16	1...16	0.75...16	1...35	1.5...35	1...35	1.5...50	2.5...50	1.5...50
AWG (UL/CSA)		14...8			14...1/0			10...1/0		
Two conductors at the same time - bottom conductor										
mm²		1...16	1.5...16	1...16	2.5...25	6...35	2.5...35	4...35	6...35	4...35
AWG (UL/CSA)		14...8			14...1/0			10...1/0		
Two conductors at the same time - top conductor										
mm²		0.75...16	1...16	0.75...16	1...25	1.5...35	1...35	1.5...50	2.5...50	1.5...50
AWG (UL/CSA)		14...8			14...1/0			10...1/0		
Tightening torque (N.m)		2...2.5			4...6			5...6.5		
Tightening torque (lb.in) (UL/CSA)		22			40			60		

Reference code		LSN75...LSN90		LSN132		LSN160...LSN220		LSN380...LSN375	
Screw type		M6 Hexagon head		M8 Hexagon head		M10 Hexagon head		M10 Hexagon head	
Main terminal capacity		Solid and stranded with end sleeve	Busbars	Solid and stranded with end sleeve	Busbars	Solid and stranded with end sleeve	Busbars	Solid and stranded with end sleeve	Busbars
mm²		2x 25...70	2 x (15 x 3)	2x 50...120	2 x (20 x 3)	2x 50...150	2 x (30 x 5)	2x 50...240	2x (40x5)
AWG (UL/CSA)		2x 2...3/0	-	2x 1/0...250	-	2x 1/0...300	-	2x 1/0...500	-
Tightening torque (N.m)		5.4...6		14...16		23...26		24	

Technical Data

Terminal Capacity and Tightening Torque - Coil Terminals

Reference code	LSN4...LSN55			LSN75...LSN220		
Screw type	M3.5x 10 Flat / Phillips			M3.5x 10 Flat / Phillips		
Coil terminal	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm ²	1x 0.5...4 2x 0.5...1.5 2x 1...2.5	1x 1...4 2x 1...2.5	1x 0.5...4 2x 0.5...1.5 2x 1...2.5	1x 0.5...4 2x 0.5...1.5 2x 1...2.5	1x 1...4 2x 1...2.5	1x 0.5...4 2x 0.5...1.5 2x 1...2.5
AWG (UL/CSA)	1x 20...10 2x 20...14 2x 16...12	1x 16...10 2x 16...12	1x 20...10 2x 20...14 2x 16...12	1x 20...10 2x 20...14 2x 16...12	1x 16...10 2x 16...12	1x 20...10 2x 20...14 2x 16...12
Tightening torque (N.m)	0.8...1.1			0.8...1.1		
Tightening torque (lb.in) (UL/CSA)	10			10		

Reference code	LSN280...LSN375		
Screw type	M3.5 Flat / Phillips		
Coil terminal	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm ²	2 x 1...2.5		
AWG (UL/CSA)	-		
Tightening torque (N.m)	0.8...1.1		
Tightening torque (lb.in) (UL/CSA)	-		

Technical Data

Auxiliary Contacts

Reference code	Built-in auxiliary contacts of contactors			Auxiliary contact blocks		
	LSN4	LSN5	LSN7	HBXT..	HBXS..	HCXS..
Rated insulation voltage U_i IEC/EN 60 947 UL/CSA	(V) (V)	1,000 600		1,000 600		1,000 600
Rated operational voltage U_e	(V)	690		690		690
Conv. thermal current I_m	(A)	16		10		10
Rated operational current I_e AC-15 220 - 240 V 380 - 400 V 415 V 500 V UL/CSA	(A) (A) (A) (A)	10 6 5 4 A600		10 4 3.5 2.5 A600		10 4 4 2.5 A600
DC-13 24 V 48 V 110 V 220 V UL/CSA	(A) (A) (A) (A)	6 4 2 0.7 P600		4 2 0.7 0.3 Q600		4 2 0.7 0.3 Q600
Making capacity I_m AC-15 DC-13 $U_e \leq 400$ V 50/60 Hz $U_e \leq 220$ V dc	(A) (A)	250 250		90 90		10 x I_e 1.1 x I_e
Breaking capacity I_c AC-15 DC-13 $U_e \leq 400$ V 50/60 Hz $U_e \leq 220$ V dc	(A) (A)	250 2		60 0.95		10 x I_e 1.1 x I_e
Short-circuit protection max. fuse gL/gG	(A)	10		10		10
Control circuit reliability		I_e min = 5 mA U_e min = 17 V				5 mA 17 V
Electrical lifespan	Ops	10^6				
Mechanical lifespan	Ops	10×10^6				

Terminal Capacity and Tightening Torque - Auxiliary Contact Blocks

Reference code	HBXT...HBXS			HCXS		
Screw type	M3.5x9 Flat / Philips			M3.5 Flat / Philips		
Auxiliary contact block	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm ²	1x 0.5...4 2x 0.5...2.5	1x 0.75...2.5 2x 0.75...2.5	1x 0.5...4 2x 0.5...2.5	2 x 1...2.5		
AWG (UL/CSA)	22...12			-		
Tightening torque (N.m)	0.8...1.1			1.0		
Tightening torque (lb.in) (UL/CSA)	10			-		