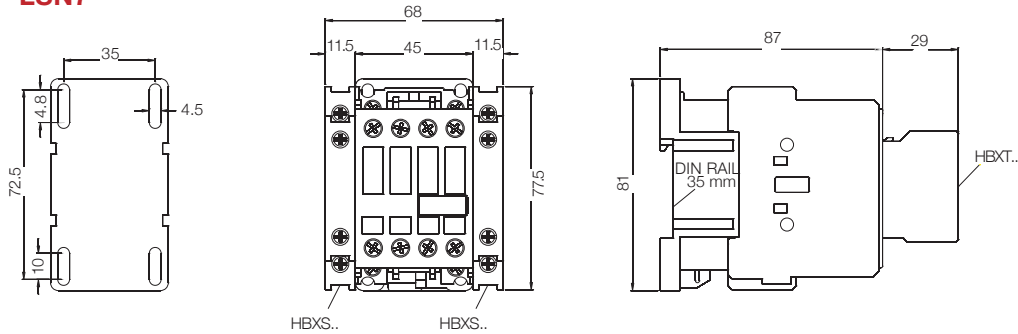


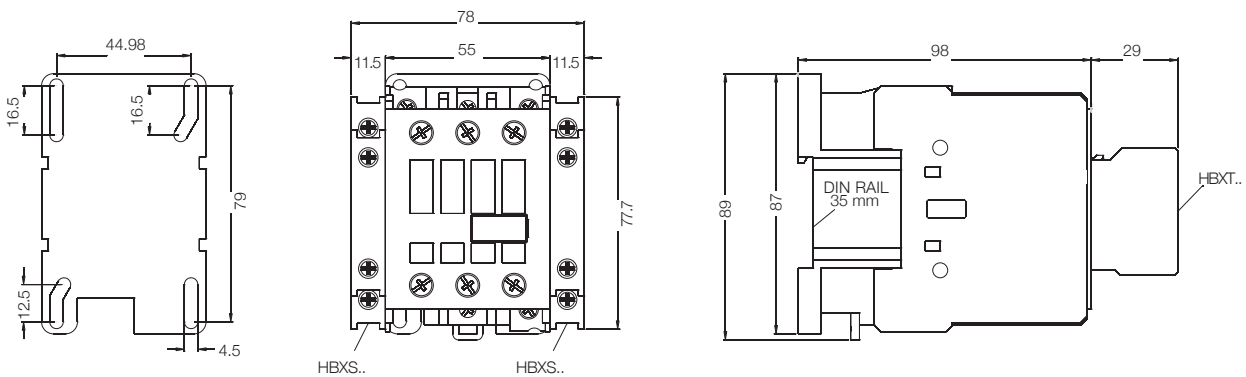
## Dimensions

### Dimensions (mm)

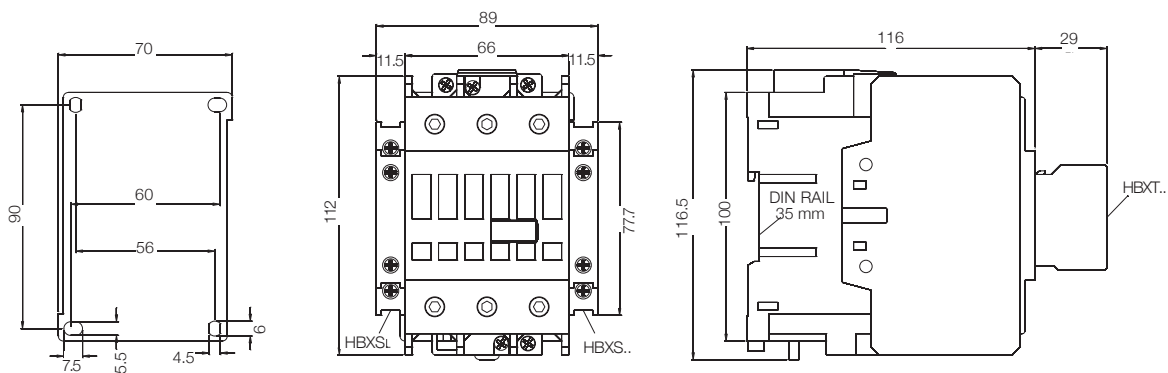
#### LSN7



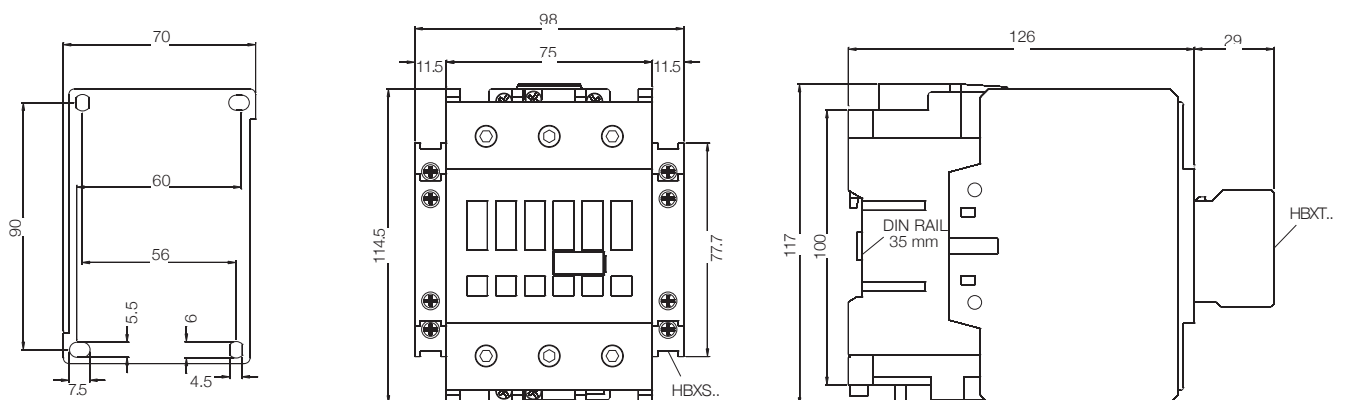
#### LSN18



#### LSN37

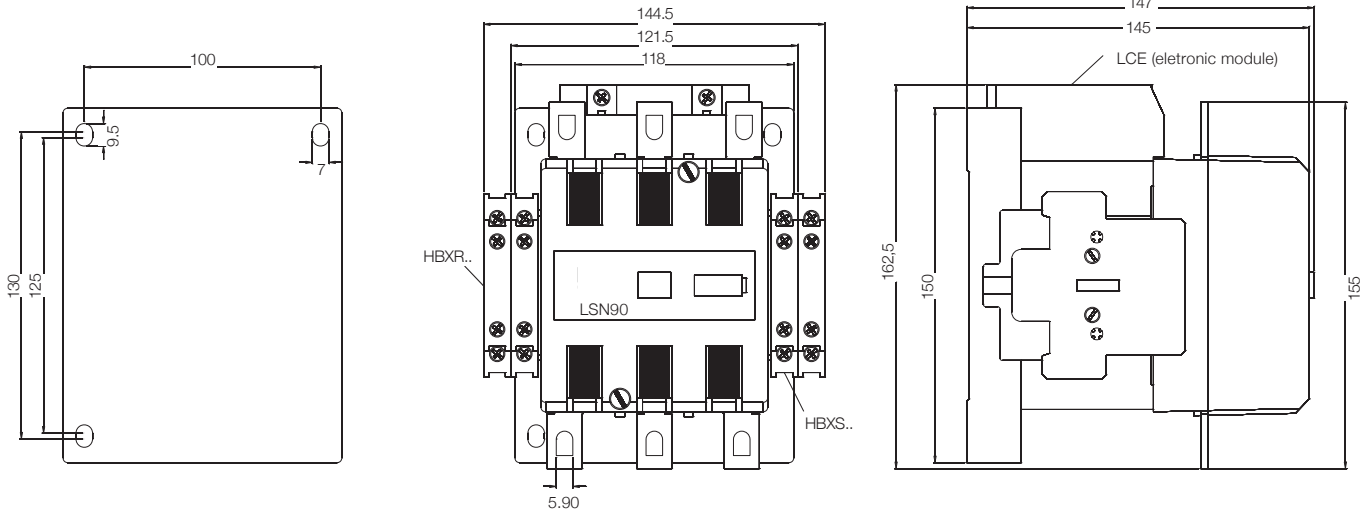


#### LSN45

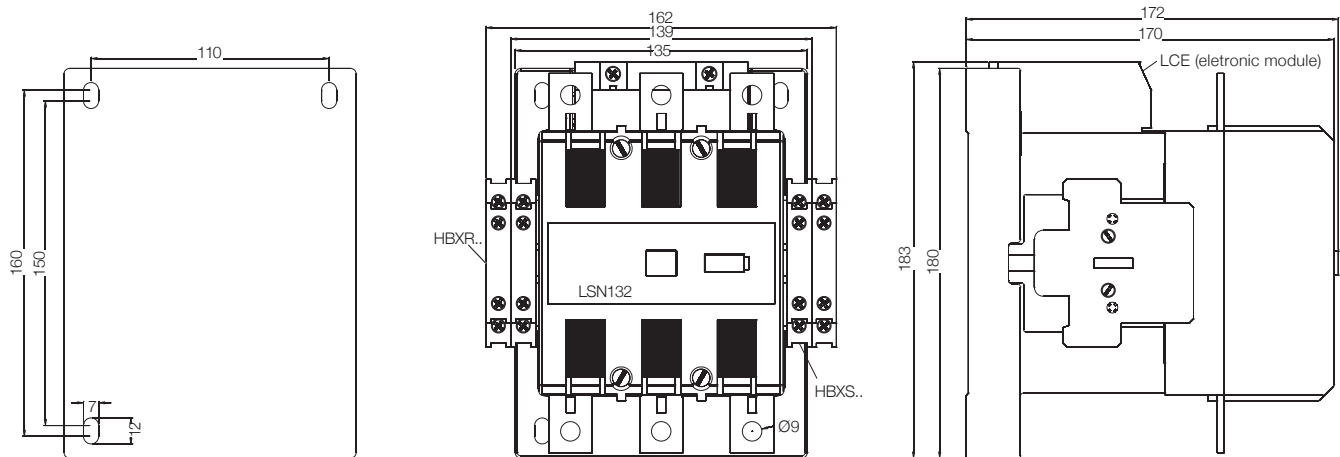


## Dimensions

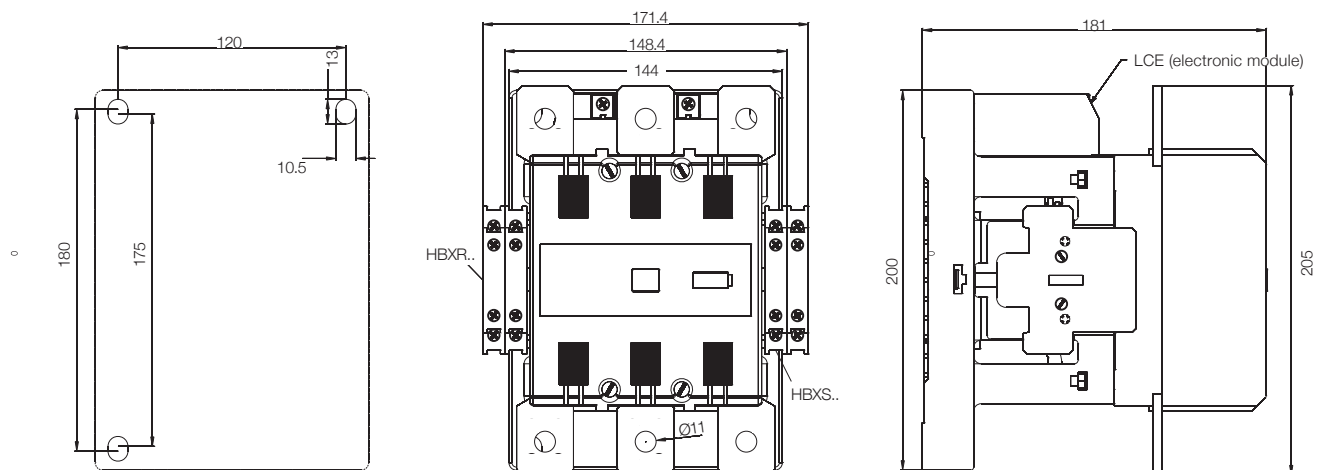
### LSN75...LSN90



### LSN132



### LSN220



## Technical Data

### General Data


Reference code	LSN7	LSN18	LSN37	LSN45	LSN75	LSN90	LSN132	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								
Operating temperature	-25 °C to +55 °C							
Storage temperature	-55 °C to +80 °C							
Altitude								
Normal values	Up to 3,000 m							
90% $I_g$ / 80% $U_g$	3,000 to 4,000 m							
80% $I_g$ / 75% $U_g$	4,000 to 5,000 m							
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							
Mechanical lifespan	Ops x 10 <sup>6</sup>				10			
Mounting	Screw or 35 mm DIN Rail					Screw		

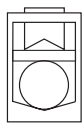
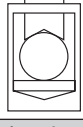


### Control Circuit


Reference code	LSN7	LSN18	LSN37	LSN45	LSN75	LSN90	LSN132	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	
Number of terminals	AC coil			4	4	3	2	
Operation time	Closing /Opening (AC) ms			8...20 / 6...13	10...19 / 5...25	15...30 / 9...15		
Power consumption of the AC coil 50/60 Hz								
Pick-up	(VA)			69.5	98	255		
	cos $\varphi$			0.85	0.69	0.32		
Sealing	(VA)			4...7.2	6.6...12.3	13.1...19.1		
	cos $\varphi$			0.28	0.34	0.54		
Coil operation limits 50/60 Hz				0.85...1.1 x $U_g$			0.85...1.1 x $U_g$	
Bifrequency coils	Pick-up					0.7...0.85		0.7...0.85
	Sealing					0.4...0.6		0.4...0.6

## Technical Data

### Terminal Capacity and Tightening Torque - Power Terminals

Reference code		LSN7		
Screw type		M3.5x 9 Flat / Phillips		
Power terminal capacity <sup>1)</sup>		Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm <sup>2</sup>		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
AWG (UL/CSA)		14...10		
Tightening torque (N.m)		1...1.5		
Tightening torque (lb.in) (UL/CSA)		15		

Reference code		LSN18			LSN37			LSN45		
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										
mm <sup>2</sup>		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										
mm <sup>2</sup>		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										
mm <sup>2</sup>		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										
mm <sup>2</sup>		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		LSN220	
Screw type		M6 Hexagon head		M8 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
mm <sup>2</sup>		2x 25...70	2x (15 x 3)	2x 50...120	2x (20 x 3)	2x 50...150	2x (30 x 5)
AWG (UL/CSA)		2x 2...3/0	-	2x 1/0...250	-	2x 1/0...300	-
Tightening torque (N.m)		5.4...6		14...16		23...26	

## Technical Data

### Terminal Capacity and Tightening Torque - Coil Terminals

Reference code	LSN7...LS455			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 <sup>2</sup>	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		

### Auxiliary Contacts

Reference code	Auxiliary contact blocks		
	HBXT..	HBXS..	HCTXS..
Rated insulation voltage U <sub>i</sub> IEC/EN 60 947 UL/CSA	(V)	1,000 600	1,000 600
Rated operational voltage U <sub>e</sub>	(V)	690	690
Conv. thermal current I <sub>m</sub>	(A)	10	10
Rated operational current I <sub>e</sub> AC-15 UL/CSA	220 - 240 V (A) 380 - 400 V (A) 415 V (A) 500 V (A)	10 4 3.5 2.5	10 4 4 2.5
DC-13 UL/CSA	24 V (A) 48 V (A) 110 V (A) 220 V (A)	4 2 0.7 0.3	4 2 0.7 0.3
Making capacity I <sub>m</sub> AC-15 DC-13	U <sub>e</sub> ≤ 400 V 50/60 Hz (A) U <sub>e</sub> ≤ 220 V dc (A)	90 90	10 x I <sub>e</sub> 1.1 x I <sub>e</sub>
Breaking capacity I <sub>b</sub> AC-15 DC-13	U <sub>e</sub> ≤ 400 V 50/60 Hz (A) U <sub>e</sub> ≤ 220 V dc (A)	60 0.95	10 x I <sub>e</sub> 1.1 x I <sub>e</sub>
Short-circuit protection max. fuse gL/gG	(A)	10	10
Control circuit reliability		I <sub>e</sub> min = 5 mA U <sub>e</sub> min = 17 V	5 mA 17 V
Electrical lifespan	Ops	10 <sup>6</sup>	
Mechanical lifespan	Ops	10 x 10 <sup>6</sup>	

### Terminal Capacity and Tightening Torque - Auxiliary Contact Blocks

Reference code	HBXT...HBXS			HCTXS		
Screw type	M3.5x9 Flat / Phillips			M3.5 Flat / Phillips		
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 <sup>2</sup>	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			-		