

LSA 40

**Low Voltage Alternator - 4 pole
Dedicated single phase**

10.5 to 16 kVA - 50 Hz / 11.5 to 17.5 kVA - 60 Hz
Electrical and mechanical data

LEROY-SOMER™

Nidec
All for dreams

Specially adapted to applications

The LSA 40 single-phase alternator is a machine with a dedicated single-phase winding. It has 10 to 40% more power than an equivalent three-phase alternator connected with the same single-phase voltage.

Compliant with international standards

The LSA 40 alternator conforms to the main international standards and regulations:

- IEC 60034, NEMA MG 1.32-33, ISO 8528-3, CSA C22.2 n°100-14, UL 1446 (UL 1004 on request), marine regulations, etc.

It can be integrated into a CE marked generator.

The LSA 40 is designed, manufactured and marketed in an ISO 9001 environment and ISO 14001.

Top of the range electrical performance

- Class H insulation
- Dedicated single phase winding, re-connectable 4-wire, 2/3 pitch, type M (15% derating for use at PF = 0.8) (PF = 1 corresponds to general use for single phase voltage)
- 4 lead stator allowing the reconnections below:
 - 50 Hz: 230 V in series, 115 V in parallel
 - 60 Hz: 240 V in series, 120 V in parallel
- R791 interference suppression conforming to standard EN 61000-6-3, EN 61000-6-2, EN 55011 group 1 class B standard for European zone (CE marking)

Reinforced mechanical structure using finite element modelling

- Compact rigid assembly to better withstand generator vibrations
- Steel frame
- Aluminium flanges and shields
- Two-bearing and single-bearing versions designed to be suitable for commercially-available heat engines
- Half-key balancing two bearing
- Permanently greased bearings (20 000h)
- Direction of rotation : clockwise and anti-clockwise (without derating)

Excitation and regulation system suited to the application

Excitation system				Regulation options				
Voltage regulator	SHUNT	AREP	PMG	Current transformer for paralleling	Mains paralleling	3-Phase sensing	3-Phase sensing on mains paralleling unbalanced	Remote voltage potentiometer
R221	Std	-	-	-	-	-	-	√

√: possible mounting

Compact and design terminal box

- Easy access to the AVR and to the connections
- 8 way terminal block for reconnecting the voltage
- Predrilled holes for cable gland
- Steel terminal box in option

Frame dimensions

- Dimensions, weight and coupling are identical to LSA 40 three phase (see catalog ref: 4250)

Protection system suited to the environment

- The LSA 40 is IP 23
- Standard winding protection for clean environments with relative humidity $\leq 95\%$, including indoor marine environments
 - Options: - Filters on air inlet: derating 5%
 - Filters on air inlet and air outlet (IP 44): derating 10%
 - Winding protections for harsh environments and relative humidity greater than 95%
 - Space heaters
 - Thermal protection for stator windings
 - Height fixing optional: H = 180 mm with the order

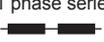
LSA 40 Dedicated single phase - 10.5 to 16 kVA - 50 Hz / 11.5 to 17.5 kVA - 60 Hz

General characteristics

Insulation class	H	Excitation system	SHUNT
Winding pitch	2/3 (wdg M)	AVR type	R221
Number of wires	4	Voltage regulation (*)	± 2 %
Protection	IP 23	Short-circuit current	-
Altitude	≤ 1000 m	Total Harmonic Distortion THD (**)	< 5 %
Overspeed	2250 R.P.M.	Waveform: NEMA = TIF (**)	< 100
Air flow	0.06m ³ /s, 50 Hz - 0.072m ³ /s, 60 Hz		

(*) Steady state. (**) Total harmonic distortion between phases, no-load or on-load (non-distorting).

Ratings: 50 Hz - 1500 R.P.M.

kVA / kW - Power factor = 1				
Duty / T° C	Continuous/40 °C		Stand-by/40 °C	Stand-by/27 °C
Class / T° K	H / 125° K	F / 105° K	H / 150° K	H / 163° K
1 phase series 	230 V	230 V	230 V	230 V
1 phase parallel 	115 V	115 V	115 V	115 V
LSA 40 VS1	10.5	9.5	11	11.4
LSA 40 VS2	12	11	12.7	13.2
LSA 40 S3	13.2	12	14	14.5
LSA 40 S4	14.5	13.2	15.4	16
LSA 40 M5	16	14.6	17	17.6

60 Hz - 1800 R.P.M.

kVA / kW - Power factor = 1				
Duty / T° C	Continuous/40 °C		Stand-by/40 °C	Stand-by/27 °C
Class / T° K	H / 125° K	F / 105° K	H / 150° K	H / 150° K
1 phase series 	240 V	240 V	240 V	240 V
1 phase parallel 	120 V	120 V	120 V	120 V
LSA 40 VS1	11.5	10.5	12	13
LSA 40 VS2	13.5	12.5	14.5	15
LSA 40 S3	14.5	13	15.5	16
LSA 40 S4	16	14.5	17	17.5
LSA 40 M5	17.5	16	19	19.5

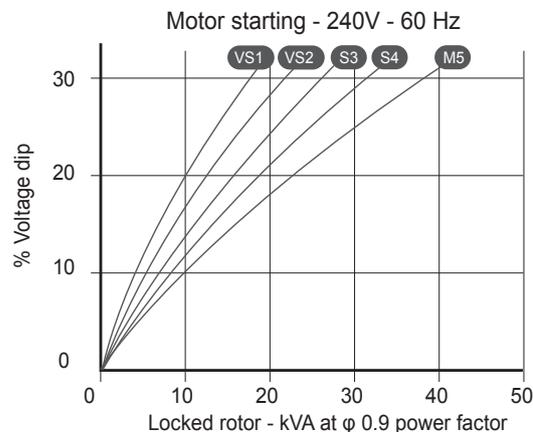
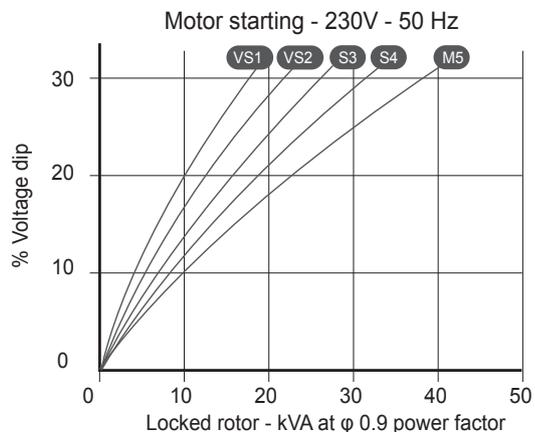
Rating kVA at P.F. 0.8 = rating kVA/kW at P.F. 1 x 0.85 - Derating (kVA) cl B = rating (kVA) class H x 0.80

Efficiencies (%)

Class H / 40°C - Power factor = 1					
	Single-phase: 230 V - 50 Hz				
	1/4	2/4	3/4	4/4	St. by
LSA 40 VS1	81.9	85.3	84.5	82.2	80.9
LSA 40 VS2	82.6	86.5	86.1	84.4	83.5
LSA 40 S3	83.4	87.2	86.8	85.4	84.6
LSA 40 S4	83.5	87.5	87.4	86.2	85.5
LSA 40 M5	83.9	88.1	88.2	87.2	86.7

Class H / 40°C - Power factor = 1					
	Single-phase: 240 V - 60 Hz				
	1/4	2/4	3/4	4/4	St. by
LSA 40 VS1	82.6	85.4	84.2	82	81
LSA 40 VS2	83.7	86.5	85.6	83.7	82.8
LSA 40 S3	84.1	87.1	86.3	84.6	83.8
LSA 40 S4	84.4	87.6	87	85.5	84.8
LSA 40 M5	84.9	88.2	87.8	86.5	85.8

Transient voltage variation



LEROY-SOMER[™]

www.leroy-somer.com/epg

[Linkedin.com/company/Leroy-Somer](https://www.linkedin.com/company/Leroy-Somer)
[Twitter.com/Leroy_Somer_en](https://twitter.com/Leroy_Somer_en)
[Facebook.com/LeroySomer.Nidec.en](https://www.facebook.com/LeroySomer.Nidec.en)
[YouTube.com/LeroySomerOfficiel](https://www.youtube.com/LeroySomerOfficiel)



Nidec
All for dreams

© Nidec 2018. The information contained in this brochure is for guidance only and does not form part of any contract. The accuracy cannot be guaranteed as Nidec have an ongoing process of development and reserve the right to change the specification of their products without notice.

Moteurs Leroy-Somer SAS. Siège : Bd Marcellin Leroy, CS 10015, 16915 Angoulême Cedex 9, France.
Capital social : 65 800 512 €, RCS Angoulême 338 567 258.