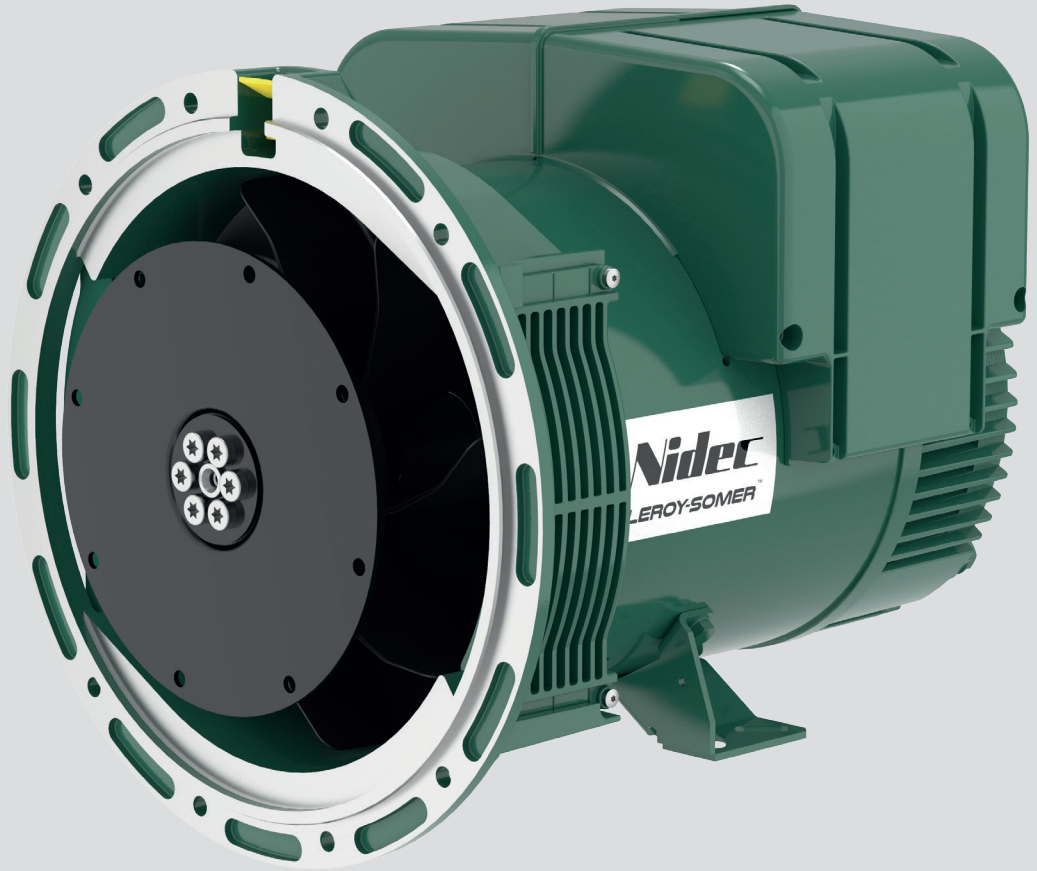




LSA 40



An Engineering and Technology Company

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



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1ER™

The best of performance

Nidec Leroy-Somer single-phase LSA 40 alternator has been designed to offer you the best power generation performances. With its meticulous design and optimized architecture, the single-phase LSA 40 strikes the perfect balance between compactness, reliability, performance and longevity.

The single-phase LSA 40 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.

Standards

Nidec Leroy-Somer single-phase LSA 40 alternator meets all key international standards and regulations, including IEC 60034, NEMA MG 1.32-33, ISO 8528-3, CSA C22.2 n°100-14 and UL 1446 (UL 1004 on request). Also compliant with IEC 61000-6-2, IEC 61000-6-3, IEC 61000-6-4, VDE 0875G, VDE 0875N and EN 55011, group 1 class A for European zone.

Nidec Leroy-Somer single-phase LSA 40 alternator can be integrated in EC marked generator set, and bears EC, UKCA and CMIM markings. It is designed, manufactured and marketed in an ISO 9001 and ISO 14001 quality assurance environment.

Electrical characteristics and performances

- Class H insulation
- 2/3 pitch winding, dedicated single-phase, 4-wire (M) reconnectable
(15% derating for use at PF = 0.8) (PF = 1 corresponds to general use for single-phase voltage)
- Possible voltages:
 - 50 Hz: 230 V in series, 115 V in parallel
 - 60 Hz: 240 V in series, 120 V in parallel

Excitation and regulation system

Excitation system		Regulation options		
AVR	SHUNT	C.T. Current transformer for paralleling	Mains paralleling	Remote voltage potentiometer
R221	Standard			√

Protection system and options

- The single-phase LSA 40 is IP 23
- Complete 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%
 - Reinforced winding protection for harsh environments and relative humidity greater than 95%
 - Space heater
 - Thermal protection for stator windings
 - Shaft height: H = 180 mm (to be specified when ordering)

Mechanical construction

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

Terminal box design

- Easy access to the voltage regulator and to the connections
- 8-way terminal block for reconnecting the voltage
- Predrilled holes for cable gland

Frame dimensions

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

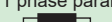
LSA 40 Dedicated single-phase - 10.5 to 16 kVA - 50 Hz / 11.5 to 17.5 kVA - 60 Hz

General characteristics

Insulation class	H	Excitation system	SHUNT
Winding pitch	2/3 (wind. M)	AVR type	R221
Number of wires	4	Voltage regulation (*)	± 0.5 %
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	0.06 m³/s (50 Hz) - 0.072 m³/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

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

60 Hz - 1800 R.P.M.

kVA / kW - Power factor = 1			
Continuous/40°C		Stand-by/40°C	Stand-by/27°C
H / 125° K	F / 105° K	H / 150° K	H / 150° K
240 V	240 V	240 V	240 V
120 V	120 V	120 V	120 V
11.5	10.5	12	13
13.5	12.5	14.5	15
14.5	13	15.5	16
16	14.5	17	17.5
17.5	16	19	19.5

Efficiencies (%)

Class H / 40°C - Power factor = 1					
Single-phase: 230 V - 50 Hz					
	1/4	2/4	3/4	4/4	Stand-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	Stand-by
82.6	85.4	84.2	82	81
83.7	86.5	85.6	83.7	82.8
84.1	87.1	86.3	84.6	83.8
84.4	87.6	87	85.5	84.8
84.9	88.2	87.8	86.5	85.8

Transient voltage variation

