

## Features:

- Excitation system: self-excited
- ATS (automatic transfer switch) receptacle
- Lockable battery isolator switch
- Stainless galvanized zinc plates with strong corrosion resistance
- Vibration isolators between the engine/alternator and base frame
- Integrated wiring design
- Base fuel tank for at least 8 hours running
- Equipped with an industrial muffler
- Engine oil pump
- 50 C radiator
- Top lifting and steel base frame with forklift holes
- Drainage for fuel tank
- Complete protection functions and safety labels
- IP54 (soundproof sets), IP56 (control system)
- Water jacket preheater, oil heater and double air cleaner, etc. are available.



### Output Ratings

Generating Set Model	Prime	Standby
EP80	80kVA/64kW	88kVA/70.4kW

Ratings at 0.8 power factor.

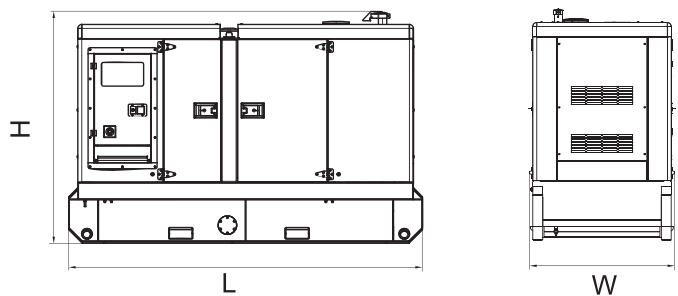
### Ratings and Performance Data

<b>Engine Make &amp; Model:</b>		1104A-44TG2
<b>Alternator Model:</b>		LSA43.2L8
<b>Alternator Brand:</b>		Leroy Somer
<b>Control System:</b>		PLC-7420
<b>Noise Level@7m:</b>		/
<b>Circuit Breaker Type:</b>		/
<b>Frequency &amp; Phase:</b>		50Hz & 3PH
<b>Engine Speed: RPM</b>		1500
<b>Structure Type:</b>	EP80	R
<b>Fuel Tank Capacity: L</b>	EP80	180
<b>Fuel Consumption: l/hr (100% Load)</b>	Prime	/
	Standby	/

### Dimensions and Weights

Generating Set Model	Length (L) mm (in)	Width (W) mm (in)	Height (H) mm (in)	Dry kg (lb)	Wet kg (lb)
EP80	2788	1100	1700	1730	/

Dry = With Lube Oil      Wet = With Lube Oil and Coolant



Also available in the following voltages: 415/240V-380/220V-220/127V-200/115V;

ESP: Standby Power Standby duty, operation under variable load, without over load;

PRP: Prime Power-Continuous duty operation, under variable load 24/24h-10% over load permissible 1 hour/12 hours;

The data is only for your reference but not for use of sales.

M: Mechanical speed governor, E/ECU: Electronic speed governor;

NA: Naturally aspirated, TC: Turbocharged, TCA: Turbocharged and air-air aftercooled. TCW: Water-cooled Turbocharged;

The weights are approximate and without fuel.

## Engine model: 1104A-44TG2

### Cooling system

#### Radiator

- face area ..... 0.276 m<sup>2</sup> (2.97 ft<sup>2</sup>)
- rows and materials..... double row aluminium
- matrix density and material..... Aluminium 12,5 fins/inch
- width of matrix..... 526 mm (20.7 in)
- height of matrix..... 524 mm (20.6 in)
- pressure cap setting ..... 107 kPa

#### Fan

- diameter..... 457,0 mm (18 in)
- drive ratio ..... 1,25 : 1
- number of blades ..... 7
- material..... Composite
- type..... Pusher

#### Coolant

- Total system capacity
- with radiator ..... 13,0 l (27.4 pt)
- without radiator ..... 7,0 l (14.7 pt)
- Maximum top tank temperature ..... 110 °C (230 °F)
- Thermostat operating range..... 82 - 93 °C (180 - 199 °F)
- Recommended coolant: 50 % ethylene glycol with a corrosion inhibitor (BS 658 : 1992 or MOD AL39) and 50% clean fresh water.

### Electrical system

- Type..... Negative ground
- Alternator voltage..... 12 V
- Alternator output ..... 65 amps
- Starter motor voltage..... 12 V
- Starter motor power ..... 3 kW
- Number of teeth on flywheel ..... 126
- Pull in current of starter motor solenoid ..... 60 amps
- Hold in current of starter motor solenoid..... 15 amps
- Engine stop solenoid..... 12 V
- Stop solenoid (minimum)
- pull in current..... 10 amps
- hold in current..... 10 amps

#### Cold start recommendations

- Minimum cranking speed..... 105 rev/min

#### Starter specification

Starter motor type	Minimum starting temperature	Lubricating oil viscosity SAE / battery type - values in CCA			
		15W/40	10W/40	5W/40	5W/30
12 volt 3.0 kW	°C (°F)	15W/40	10W/40	5W/40	5W/30
	-10 (14)	1 x 810			
	-15 (5) *		1 x 810		
	-20 (-4) *			1 x 810	
	-25 (-13) *				1 x 900

\* - Glow plug start aid fitted.

CCA - Cold Cracking Amps to SAEJ537.

### Exhaust system

- Maximum back pressure
- 1500 rev/min ..... 10 kPa
- 1800 rev/min ..... 15 kPa
- Exhaust outlet size ..... 64 mm (2.5 in)

### Fuel System

- Type of injection ..... Direct
- Fuel injection pump ..... Rotary
- Fuel atomiser..... Multi-hole
- Nozzel opening pressure ..... 29,0 MPa (290 bar)

#### Fuel lift pump

- Type ..... Electrical
- flow/hour ..... 120 - 150 l/h (211 - 264 pt/m)
- pressure ..... 30 - 75 kPa (4.4 - 10.9 psi)
- Maximum suction head ..... 17 kPa (2.46 psi)

#### Governor type

- Electronic governor (optional) ..... Woodward LCG2
- Electronic governor speed control to ..... ISO 8528 , G3 (Hot)
- Mechanical governor speed control to ..... ISO 8528, G2 (Cold)

#### Fuel specification

Fuel Specification	European RF75-T-96 / DIN EN590 / BS2869 class A2
Density (kg/l @ 15 °C)	0,835 - 0,845
Viscosity (mm <sup>2</sup> /s @ 40 °C)	2,5 - 3,5
Sulphur content (%)	0,1 - 0,2
Cetane number	45 - 50

#### Fuel consumption litres/hour (UK gals/hr)

Speed	Power rating				
	110%	100%	75%	50%	25%
1500	20,5 (4.5)	18,7 (4.1)	14,0 (3.0)	9,7 (2.1)	5,2 (1.1)
1800	24,4 (5.3)	22,3 (4.9)	16,9 (3.7)	11,9 (2.6)	6,5 (1.4)

### Induction system

#### Maximum air intake restriction

- clean filter..... 5,0 kPa
- dirty filter..... 8,0 kPa
- air filter type..... Dry

### Lubrication system

#### Lubricating oil capacity

- Total system ..... 8,0 l (16.9 pt)
- Sump minimum ..... 5,5 l (11.6 pt)
- Sump maximum ..... 7,0 l (14.7 pt)
- Maximum engine operating angles:

- front up, front down, right side or left side ..... 25°

#### Lubricating oil pressure

- relief valve opens ..... 415 - 470 kPa
- at maximum no-load speed..... 276 - 414 kPa
- Max continuous oil temperature ..... 125 °C (257 °F)
- Oil consumption at full load as a % of fuel consumption ..... 0.15%

## Alternator model: LSA43.2L8

### SPECIALY ADAPTED FOR APPLICATIONS

The LSA 43.2 alternator is designed to be suitable for typical generator applications, such as: backup, standard production, cogeneration, marine applications, rental, telecommunications, etc.

### COMPLIANT WITH INTERNATIONAL STANDARDS

The LSA 43.2 alternator conforms to the main international standards and regulations: IEC 60034, NEMA MG 1.22, ISO 8528, CSA, CSA/UL, marine regulations, etc.

It can be integrated into a CE marked generator.

The LSA 43.2 is designed, manufactured and marketed in an ISO 9001 environment.

### TOP OF THE RANGE ELECTRICAL PERFORMANCE

- Class H insulation.
- Standard 12-wire re-connectable winding, 2/3 pitch, type no. 6 .
- Voltage range: 220 V - 240 V and 380 V - 415 V (440 V) - 50 Hz / 208 V - 240 V and 380 V - 480 V - 60 Hz.
- High efficiency and motor starting capacity.
- Other voltages are possible with optional adapted windings:
  - 50 Hz: 440 V (no. 7), 500 V (no. 9), 600 V (no. 22 or 23), 690 V (no. 10 or 52)
  - 60 Hz: 380 V and 416 V (no. 8), 600 V (no. 9).
- Total harmonic content < 2%.
- R 791 interference suppression conforming to standard EN 55011 group 1 class B standard for European zone (CE marking).

### EXCITATION AND REGULATION SYSTEM SUITED TO THE APPLICATION

Voltage regulator	Excitation system			Regulation options				
	SHUNT	AREP	PMG	Current transformer for paralleling	Mains paralleling R 726	3-phase sensing R 731 R 734		Remote voltage potentiometer
R230	Std	-	-	-	-	-	-	√
R438	-	Std	Std	√	√	√	√	√
R448	optional	-	-	√	√	√	√	√

Voltage regulator accuracy +/- 0.5%.

### PROTECTION SYSTEM SUITED TO THE ENVIRONMENT

- The LSA 43. 2 is IP 23.
- Standard winding protection for clean environments with relative humidity ≤ 95 %, including indoor marine environments.
- Options:
  - Filters on air inlet and air outlet (IP 44).
  - Winding protections for harsh environments and relative humidity greater than 95%.
  - Space heaters.
  - Thermal protection for winding.

### REINFORCED MECHANICAL STRUCTURE USING FINITE ELEMENT MODELLING

- Compact and rigid assembly to better withstand generator vibrations.
- Steel frame.
- Cast iron flanges and shields.
- Twin-bearing and single-bearing versions designed to be suitable for engines on the market.
- Half-key balancing.
- Greased for life bearings (regreasable bearings optional)

### ACCESSIBLE TERMINAL BOX PROPORTIONED FOR OPTIONAL EQUIPMENT

- Easy access to the voltage regulator and to the connections.
- Possible clusion of accessories for paralleling, protection and measurement.
- 8 way terminal block for reconnecting voltage reconnection.

## Control System

**Digital, intelligent control system allows easier operation.**

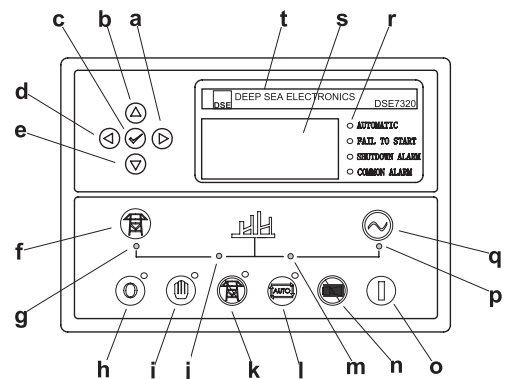
### PLC-7420

PLC-7420 is an advanced control module based on micro-processor, containing all necessary functions for protection of the genset and the breaker control. It can monitor the mains supply, breaker control and automatically start the engine when the mains is abnormal. Accurately measure various operational parameters and display all values and alarms information on the LCD. In addition, the control module can automatically shut down the engine and indicate the engine failure.



### FEATURES

- Microprocessor control, with high stability and credibility
- Monitoring and measuring operational parameters of the mains supply and genset
- Indicating operation status, fault conditions, all parameters and alarms
- Multiple protections; multiple parameters display, like pressure, temp. etc.
- Manual, automatic and remote work mode selectable
- Real time clock for time and date display, overall runtime display, 250 log entries
- Overall power output display
- Integral speed/frequency detecting, telling status of start, rated operation, overspeed etc.
- Communication with PC via RS485 OR RS232 interface, using MODBUS protocol



**Control Panel**

- a Button (next page)
- b Button (increase value / previous item)
- c Button (accept)
- d Button (previous page)
- e Button (decrease value / next item)
- f Button (transfer the load to the mains supply, when in Manual mode only)
- g Mains supply available LED
- h Stop / Reset button
- i Manual button (Manual control mode)
- j Mains supply on load LED
- k Test button (Test mode)
- l Auto button (Auto mode)
- m Genset on load LED
- n Mute/Lamp test button
- o Start button (Manual)
- p Genset available LED
- q Button (transfer the load to the genset, when in Manual mode only)
- r Alarm LED (4 alarm items)
- s LCD display
- t Control module name