

Features:

- Excitation system: self-excited (AREP and PMG are optional)
- 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
WPS80/S	80kVA/64kW	88kVA/70.4kW

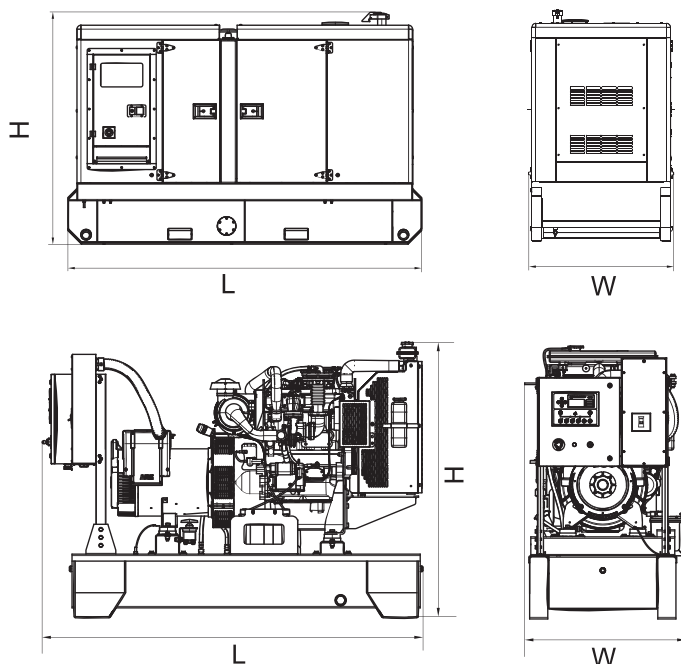
Ratings at 0.8 power factor.

Ratings and Performance Data

Engine Make & Model:		1104A-44TG2
Alternator Model:		LSA43.2L8
Alternator Brand:		Leroy Somer
Control System:		PLC-920 / PLC-7420
Noise Level@7m:		/
Circuit Breaker Type:		/
Frequency & Phase:		50Hz & 3PH
Engine Speed: RPM		1500
Structure Type:	WPS80	B
	WPS80S	R
Fuel Tank Capacity: L	WPS80	265
	WPS80S	180
Fuel Consumption: l/hr (100% Load)	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)
WPS80	2083	811	1366	1088	/
WPS80S	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 m² (2.97 ft²)
- 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			
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 ² /s @ 40 °C)	2,5 - 3,5
Sulphur content (%)	0,1 - 0,2
Cetane number	45 - 50

Fuel consumption litres/hour (UK gals/hr)

Power rating					
Speed	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

SPECIALLY 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 (regreaseable 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.

WPS80/ WPS80S

Control System PLC-920 (Optional)

PowerLink PLC-920 generator controllers integrating digital, intelligent and network techniques are used as the automatic control systems for diesel generators. It can carry out functions including pre-alarm, warning & electrical trip, fail monitoring and controls etc.

FEATURES

- Parameter configuration via RS-232 serial communication;
- Log last 50 events & alarm information with measured values;
- Statistics records;
- Remote start/stop;
- Speed sensing from alternator voltage or magnetic pickup;
- Configurable 3 inputs and 6 outputs;
- ECU powers, ECU stop, STOP or fuel solenoid selection;
- Automatic transfer switching control and engine control;
- Adjustable start, load and stop timers.



SPECIFICATION

- Dimensions: 111mm*81mm*61mm
- Protection: IP65 at front panel
- Operating temperature: -20 °C to 70 °C
- Max. Operating current is 360mA
- Sender measurement: 0 to 1300 ohm
- Panel cut-out: 81mm*70mm
- Weight: approximately 0.3kg
- DC battery supply voltage: 8 to 32Vdc
- CT secondary: 5A
- Accuracy: 1%FS, resolution: 1 ohm

FUNCTION

- Pre-Alarm
- Engine temperature
- Oil pressure
- Over/under voltage
- Over/under frequency
- Over/under speed
- Warning & Electrical trip
- Over current
- Short circuit
- Error
- Over/under speed
- Speed loss
- Battery low
- Battery high
- Maintenance
- Over current
- Short circuit
- Engine stop
- Can bus
- Charge alternator
- Fail monitoring
- Emergency stop
- Multiple engage fail
- Failed to start
- Low oil pressure
- High temperature
- Speed failure
- Voltage
- Charging fail
- Shutdown
- Warning
- Controls
- Fuel and stop solenoid
- ECU power and stop
- Starter motor
- Automatic generator start
- Preheat
- External alarm horn
- Engine cooling
- Idle mode

Control System function list

	MODEL	PLC-920	PLC-7420
General accessory	AVR	●	●
	Electronic Governing	×	×
	Glow plug control	●	●
	Cycle Cranking	●	●
	(MODBUS) Networking	×	●
Operator Interface	Fault History	●	●
	manual start/stop	●	●
	Auto/remote start	●	●
	Regular Test	●	●
	Auto operation LED	●	●
	Manual operation LED	●	●
	Common Shutdown LED	●	●
	Common warning LED	●	●
	Fail to start LED	●	●
	Emergency stop(local)	●	●
Measurement and Instrumentation	Alphanumeric screen	●	●
	Remote start input active LED	×	●
	Alarm reset	●	●
	Engine	●	●
	Oil pressure	●	●
	Water Temperature	●	●
	Engine Speed	●	●
	Hours Run	●	●
	Number of Starts	●	●
	Battery Voltage	●	●
	Coolant Temperature	●	●
	3Phase-L Voltage&Frequency	●	●
	3phase Current	●	●
	Frequency	●	●
	kWh	●	●
Main Expression	Alternator	●	●
	Apparent Power	●	●
	Active Power and Reactive Power	●	●
	Power Factor	●	●
	Per PhasekW, kWh	●	●
	Per Phase kVA	●	●
	Phase Voltage	●	●
	Output Power	×	●
	Grid Line Voltage	×	●
	Grid Phase Voltage	×	●
Shutdown Protection and Indication	Grid Frequency	×	●
	Engine	●	●
	Low Fuel Level	●	●
	High Fuel Level	×	○
	Low Oil Pressure	●	●
	High Water Temperature	●	●
	Failure to Stop	●	●
	Failure to Start	●	●
	Controlable start circles/times	×	●
	Over-speed	●	●
Threshold Warning/Indication	Alternator	●	●
	Under&Over Voltage	●	●
	Under&Over Frequency	●	●
	Overcurrent	●	●
	Earth Leakage	○	○
	Reverse Power	×	×
	Reverse kWh	×	×
	Low Oil Pressure	●	●
	Low Water Temperature	○	○
	High Water Temperature	●	●
Paralleling Capability	Low Water Level	●	●
	Low/High Battery Voltage	●	●
	Failure to Charge	●	●
	Overcurrent	●	●
	Overload	●	●
	Genset Under/Over Voltage	●	●
	Genset Under/Over Frequency	●	●
	under/over Speed	●	●
	High Engine Temperature	●	●
	Earth Leakage	○	○
Power Transfer Function	Synchroscope(Independent Bus)	×	×
	Active and Reactive Power Control	×	×
	Synchroscope(Shared Bus)	×	×
	Synchronization Detector	×	×
	Peak Lopping	×	×
	Automatic Transfer	○	●
	Hard Closed Transition	●	●
	Soft Closed Transition	×	×
	Gen/Mains Breaker	×	●
	Gen/Mains Breaker Status Protection	×	●
Environment	Speed/Voltage Control	×	×
	Power Indication	×	●
	Fuel&Solenoid Valve Control	●	●
	Starter Control	●	●
	Preheating	○	○
	Mains Transfer Switch (Standard)	×	●
	Mains Transfer Switch (Emergency)	×	●
	Operating Temperature (-40 °C~70 °C)	●	●
	Ambient Temperature (-25 °C~45 °C)	●	●
	Humidity≤80%	●	●
Monitoring Function	Grid Over/Under Voltage Control	×	●
	Grid Over/Under Frequency Control	×	●
	Remote Start Output(Load/No-load)	●	●
	Optional Relay Output	●	●
	Remote Telecom Control with All Functions	×	●
	Engine Instrument Monitoring	●	●
	Alternator Output Instrument Monitoring	●	●
	Connection Point with All-around Setting for 4 Users	●	●
	3 Users Input Connection Point	●	●
	LCD Light Control of Low Light Operation Environment	●	●
Monitoring Function	Safe PIN Code	●	●
	RS232/485 Interface	×	●
	Language Selection	●	●
	Multi-Language Function	●	●

Control System

Digital, intelligent control system allows easier operation.

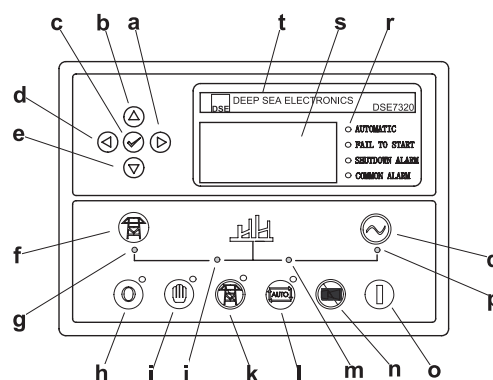
PLC-7420

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

Optional

Engine	Alternator	Generator Set	Fuel System	Canopy
- Water Jacket Preheater - Oil Preheater	- Winding Temperature Measuring Instrument - Alternator Preheater - PMG - Anti-damp and anti-corrosion treatment - Anti-condensation heater	Tools with the machine	- Low fuel level alarm - Automatic fuel feeding system - Fuel T-valves	Trailer
Lubricating System	Exhaust System	Cooling System	Control Panel	Voltages
Oil with the machine	Protection board from hotness	- Front heat protection - Coolant (-30°C)	- Remote control panel - PLC-920 - PLC-7420 - ATS	415/240V 400/230V 380/220V 220/127V 200-115V

The following lists are optional by the needs of customers.

Engine Model: 1104A-44TG2

Minor Repair / 1000 hrs optional				
No.	Part Name	Part No.	Qty	Remark
1	Fuel Filter	26560201	6	
2	Oil Filter	2654407	6	
3	Air Filter	26510342	5	
4	BELT	2614B654	1	
5	SEAL - ROCKER BOX COVER	3681A055	1	
6	GASKET - CYLINDER HEAD	3681E051	1	
7	THERMOSTAT	4133L507	1	
8	FRONT OIL SEAL	2418F437	1	
9	SEAL - REAR END OIL	2418F704	1	