

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
EP180	180kVA/144kW	198kVA/158.4kW

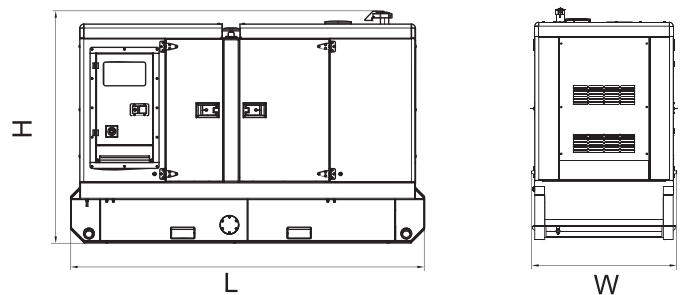
Ratings at 0.8 power factor.

Ratings and Performance Data

Engine Make & Model:	1106C-E66TAG4	
Alternator Model:	LSA46.2M3	
Alternator Brand:	Leroy Somer	
Control System:	PLC-7420	
Noise Level@7m:	/	
Circuit Breaker Type:	/	
Frequency & Phase:	50Hz & 3PH	
Engine Speed: RPM	1500	
Structure Type:	EP180	R
Fuel Tank Capacity: L	EP180	420
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)
EP180	3518	1200	1842	2620	/
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: 1106C-E66TAG4

Cooling system

Cooling pack

-overall weight (wet) 71 kg
 -overall face area 554760 mm²
 -width 745 mm
 -height 1080 mm

Radiator

Face area 35120 mm²
 Number of rows and materials 5 rows, aluminium
 Matrix density and material 10 fins per inch, aluminium
 Width of matrix 439 mm
 Height of matrix 800 mm
 Pressure cap setting (min) 100 kPa

Charge cooler

Face area 203560 mm²
 Number of rows and materials 2 rows, aluminium
 Matrix density and material 10 fins per inch, aluminium
 Width of matrix 258 mm
 Height of matrix 789 mm

Fan

Diameter 686 mm
 Drive ratio 1.2:1
 Number of blades 7
 Material nylon
 Type pusher

Coolant

Total system capacity 21 litres
 System drawdown capacity 10%
 Engine capacity 9.5 litres
 Maximum top tank temperature 112 °C
 Temperature rise across engine
 Max. rating dependent 6.8 to 11.0 °C
 Max. permissible external system resistance 35 kPa
 Thermostat operation range 85 to 95 °C
 Shutdown switch setting 118 °C
 Coolant pump method of drive gears
 Recommended coolant immersion heater
 rating (minimum) 0.75 kW
 Recommended coolant: 50% anti freeze / 50% water. For complete
 details of recommended coolant specifications, refer to the
 Operation and Maintenance Manual for this engine model

Duct Allowance			
1106C-E66TAG4 - Maximum additional restriction (Duct allowance to cooling airflow and resultant min. airflow (Standby power))			
Duct allowance with inhibited coolant at 50 °C			
Description	rev/min	kPa	m ³ /min
Duct allowance	1500	0,125	281
	1800	0,125	314
Duct allowance with inhibited coolant at 43 °C			
Minimum airflow	1500	0,200	281
	1800	0,200	314

Electrical system

Alternator Denso A127i
 Alternator voltage 12 volts
 Alternator output 100 amps
 Starter Iskra AZF
 Starter motor voltage 12 volts

Starter motor power 4.0 kW
 Number of teeth on the flywheel 126
 Number of teeth on the starter pinion 10
 Max. pull-in current of starter motor solenoid 62 amps
 Max hold-in current of starter motor solenoid @ 0°C 14 amps
 Engine stop method via ECM

Note: All leads rated at 10 amps minimum.

Cold start recommendations

Minimum required cranking speed over TDC 100 rev/min

Cold start recommendations				
Starter Model	At Temp. °C	Oil viscosity limit	Minimum Battery CCA (Cold Cranking Amps)	
			With glow plugs (SAE)	Without glow plugs
AZF (i)	-5	15W40	750	750
AZF (i)	-10	15W40	850	950
AZF (i)	-15	15W40	1500	(ii)
AZF (i)	-20	10W	1500	(ii)
AZF (i)	-25	5W30	1900	(ii)

i.AZF starter - Battery must not exceed 2400 CCA.

Induction system

Maximum air intake restriction

-clean filter 5 kPa
 -dirty filter 8 kPa
 -air filter type paper element

Exhaust system

Maximum back pressure

-1500 rev/min 10.0 kPa
 -1800 rev/min 15.0 kPa
 Exhaust outlet, internal diameter 90 mm

Fuel system

Injection components

Injector electronic
 Fuel pump CR200

Fuel priming

Priming pump type manual / electronic
 Maximum priming time 90 seconds

Fuel feed

Maximum fuel flow 1.5 l/min
 Maximum suction head at engine fuel pump inlet 30 kPa
 Maximum static pressure head 600 kPa
 Fuel temperature at engine fuel pump inlet 80 °C
 Tolerance on fuel consumption 3%

Fuel specification

Perkins recommend the use of the following fuel specifications:

- EN590 DERV Grade A, B, C, E, F, Class 0, 1, 2, 3 & 4
- BS2869 Class A2 Off-highway Gas Oil Red Diesel
- ASTM D975, Class 1D and Class 2D

Note: For further information on fuel specifications and restrictions, refer to P.5 of the OMM Fuels section for this engine model

Alternator model: LSA46.2M3

SPECIALLY ADAPTED FOR APPLICATIONS

The LSA 46.2 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 46.2 alternator conforms to the main international standards and regulations:

IEC 60034, NEMA MG 1.22, ISO 8528, CSA/UL on request, marine regulations, etc.

It can be integrated into a CE marked generator.

The LSA 46.2 is designed, manufactured and marketed in an ISO 9001 and ISO 14001 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. 23), 690 V (no. 10 or 52)
 - 60 Hz: 380 V and 416 V (no. 8), 600 V (no. 9).
- THD Total harmonic distortion < 2,5% (full load).
- 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

Excitation system				Regulation options				
Voltage regulator	SHUNT	AREP	PMG	T.I. Current transformer for paralleling	R 726 Mains paralleling	R 731 3-phase sensing	R 734 3-phase sensing on mains paralleling unbalanced	P Remote voltage potentiometer
R 250	Std	-	-	-	-	-	-	√
R 450	optional	Std	Std	√	√	√	√	√
D 510	optional	optional	optional	√	included	included	contact factory	√

Voltage regulator accuracy +/- 0.5%.

√ : possible mounting

PROTECTION SYSTEM SUITED TO THE ENVIRONMENT

- The LSA 46. 2 is IP 23.
- Standard winding protection for clean environments with relative humidity ≤ 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 windings and shields.

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.
- 12 way terminal block for reconnecting voltage reconnection.

Control System

Digital, intelligent control system allows easier operation.

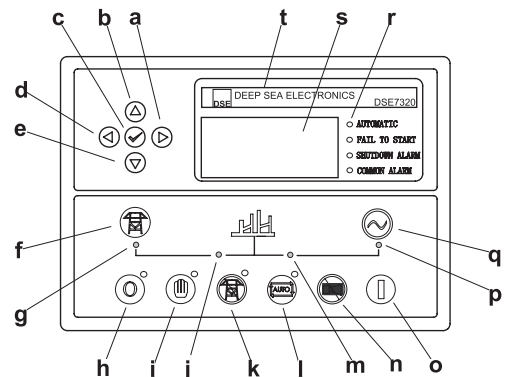
PLC-7420

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