

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 |
|----------------------|--------------|--------------|
| WPS200B/S | 200kVA/160kW | 220kVA/176kW |

Ratings at 0.8 power factor.

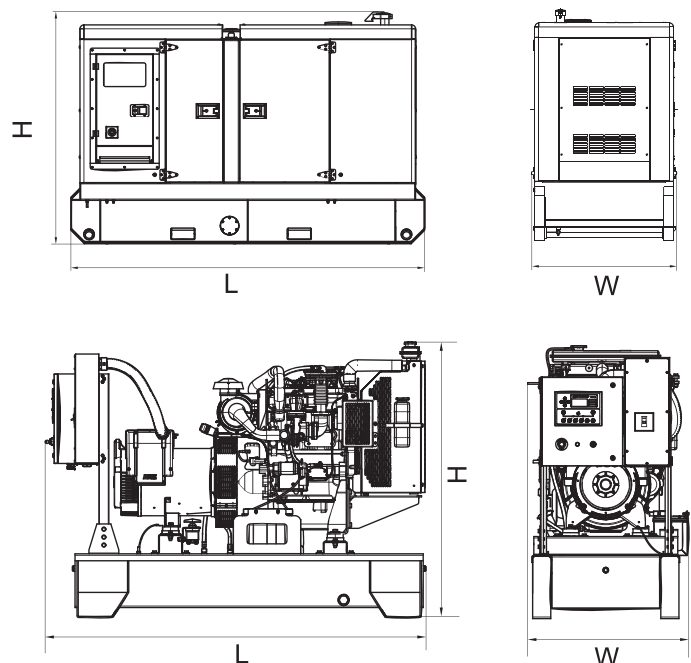
Ratings and Performance Data

| | | |
|---|--------------------|-----|
| Engine Make & Model: | 1106A-70TAG4 | |
| Alternator Model: | LSA46.2M5 | |
| 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: | WPS200B | B |
| | WPS200BS | R |
| Fuel Tank Capacity: L | WPS200B | 350 |
| | WPS200BS | 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) |
|----------------------|--------------------|-------------------|--------------------|-------------|-------------|
| WPS200B | 2785 | 986 | 1759 | 2044 | / |
| WPS200BS | 3468 | 1263 | 1843 | 2740 | / |

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/ECCU: 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: 1106A-70TAG4

Cooling system

Cooling pack

-overall weight (wet) 70 kg
 -overall face area 524800 mm²
 -width 724 mm
 -height 1090 mm

Radiator

Face area 351200 mm²
 Number of rows and materials 4 rows, Aluminium
 Matrix density and material 10 fins per inch, Aluminium
 Width of matrix 439 mm (17.3 in)
 Height of matrix 800 mm (31.5 in)
 Pressure cap setting (Min.) 100 kPa (14.5 lb/in²)

Charge cooler

Face area 173,600 mm²
 Number of rows and materials 2 rows, Aluminium
 Matrix density and material 10 fins per inch, Aluminium
 Width of matrix 220 mm
 Height of matrix 789 mm

Fan

Diameter 610 mm (23.7 in)
 Drive ratio 1,2:1
 Number of blades 7
 Material Nylon
 Type Pusher
 Air flow @ 1500 rev/min 282 m³/min
 Power @ 1500 rev/min 5 kW

Coolant

Total system capacity 21 litres
 System drawdown capacity 10%
 Engine capacity 9.5 litres
 Maximum top tank temperature 110°C (230°F)
 Temperature rise across engine (Max. rating dependent) 6°C - 12°C (42.8°F)
 Max. permissible external system resistance 35 kPa (5.1 lbf/in²)
 Thermostat operation range 82°C to 93°C (179.6°F to 199.4°F)
 Shutdown switch setting 118°C
 Coolant pump method of drive Gear
 Recommended coolant immersion heater rating (Min.) 0,75 kW
 Recommended coolant BS6580 - 1992, ASTM D3306 and ELC coolants to 1E1966

Fuel system

Injection components

Injector Mechanical
 Fuel pump DP210G

Fuel priming

Priming pump type Manual
 Maximum priming time 90 seconds

Fuel feed

Maximum fuel flow 135 l/min
 Maximum suction head at engine fuel pump inlet 10 kPa
 Maximum static pressure head 10 kPa
 Fuel temperature at engine fuel pump inlet 46°C (114.8°F)
 Tolerance on fuel consumption ± 5%

Electrical system

Alternator A115i
 Alternator voltage 12 volts
 Alternator output 85 amps
 Starter AZF
 Starter motor voltage 12 volts
 Starter motor power 4.2 kW
 Number of teeth on the flywheel 126
 Pull-in current of starter motor solenoid @ -25°C Max. ⁽¹⁾ pulse signal 12 volts (68 amps)
 Hold-in current of starter motor solenoid @ 0°C Max. ⁽¹⁾ pulse signal 12 volts (20 amps)
 Engine stop method Solenoid
 1 All leads to rated at 10 amps minimum

Cold start recommendations

| | 5 to -10°C | -10 to -20°C | -20 to -25°C |
|-----------------------------|-------------|--------------|--------------|
| Oil | 15W40 | 10W40 | 5W40 |
| Starter | AZF | | |
| Battery | 2x 900CCA | | |
| Max. breakaway current | 1020 amps | | |
| Cranking current | 960 | | |
| Aids | None | Glowplugs | |
| Minimum mean cranking speed | 100 rev/min | 110 rev/min | 120 rev/min |

- Battery capacity is defined by the 20 hour rate
- If a change to a low viscosity oil is made, the cranking torque necessary at low ambient temperatures is much reduced. The starting equipment has been selected to take advantage of this. It is important to change to the appropriate multigrade oil in anticipation of operating in low ambient temperatures
- Breakaway current is dependent on battery capacity available. Cables should be capable of handling the transient current which may be up to double the steady cranking current.

Exhaust system

Maximum back pressure
 -1500 rev/min 15,0 kPa (4.43 in Hg)
 Exhaust outlet, internal diameter 72 mm (2.83 in)

Lubrication system

Maximum total system oil capacity 16.5 litres (22.0 UK pints)
 Minimum oil capacity in sump 12.4 litres (26.4 UK pints)
 Maximum oil capacity in sump 14.9 litres (32.8 UK pints)
 Maximum engine operating angles - front up, front down, right side, left side. 25°
 Sump drain plug tapping size 3/4 - 16 UNF
 Shutdown switch setting (where fitted)
 -no Temp. switch TBC°C
 -oil pressure 9-13 Psi

Alternator model: LSA46.2M5

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.

WPS200B / WPS200BS

Control System PLC-920 (Optional)

Multiphase Power 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 |
|--|---------|----------|
| AVR | ● | ● |
| Electronic Governing | × | × |
| Glow plug control | ● | ● |
| Cycle Cranking | ● | ● |
| (MODBUS) Networking | × | ● |
| 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) | ● | ● |
| Alphanumeric screen | ● | ● |
| Remote start input active LED | × | ● |
| Alarm reset | ● | ● |
| Oil pressure | ● | ● |
| Water Temperature | ● | ● |
| Engine Speed | ● | ● |
| Hours Run | ● | ● |
| Number of Starts | ● | ● |
| Battery Voltage | ● | ● |
| Coolant Temperature | ● | ● |
| 3Phase-L Voltage&Frequency | ● | ● |
| 3phase Current | ● | ● |
| Frequency | ● | ● |
| kWh | ● | ● |
| Apparent Power | ● | ● |
| Active Power and Reactive Power | ● | ● |
| Power Factor | ● | ● |
| Per PhasekW, WAr | ● | ● |
| Per Phase kVA | ● | ● |
| Phase Voltage | ● | ● |
| Output Power | × | ● |
| Grid Line Voltage | × | ● |
| Grid Phase Voltage | × | ● |
| Grid Frequency | × | ● |
| Low Fuel Level | ● | ● |
| High Fuel Level | × | ○ |
| Low Oil Pressure | ● | ● |
| High Water Temperature | ● | ● |
| Failure to Stop | ● | ● |
| Failure to Start | ● | ● |
| Controllable start circles/times | × | ● |
| Overspeed | ● | ● |
| Under/Over Voltage | ● | ● |
| Under/Over Frequency | ● | ● |
| Overcurrent | ● | ● |
| Earth Leakage | ○ | ○ |
| Reverse Power | × | × |
| Reverse kW | × | × |
| Low Oil Pressure | ● | ● |
| Low Water Temperature | ○ | ○ |
| High Water Temperature | ● | ● |
| 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 | ○ | ○ |
| Synchoscope(Independent Bus) | × | × |
| Active and Reactive Power Control | × | × |
| Synchoscope(Shared Bus) | × | × |
| Synchronization Detector | × | × |
| Peak Lopping | × | × |
| Automatic Transfer | ○ | ● |
| Hard Closed Transition | ● | ● |
| Soft Closed Transition | × | × |
| Gen/Mains Breaker | × | ● |
| Gen/Mains Breaker Status Protection | × | ● |
| 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% | ● | ● |
| 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 | ● | ● |
| Safe PIN Code | ● | ● |
| RS232/485 Interface | × | ● |
| Language Selection | ● | ● |
| Multi-Language Function | ● | ● |

Control System

Digital, intelligent control system allows easier operation.

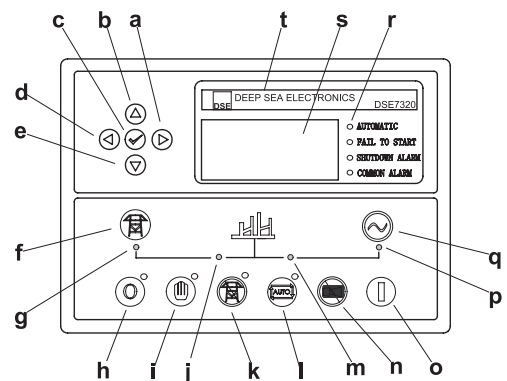
PLC-7420

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 |
|---|---|--|--|--|
| <ul style="list-style-type: none"> • Water Jacket Preheater • Oil Preheater | <ul style="list-style-type: none"> • Winding Temperature Measuring Instrument • Alternator Preheater • PMG • Anti-damp and anti-corrosion treatment • Anti-condensation heater | <ul style="list-style-type: none"> • Tools with the machine | <ul style="list-style-type: none"> • Low fuel level alarm • Automatic fuel feeding system • Fuel T-valves | <ul style="list-style-type: none"> • Trailer |
| Lubricating System | Exhaust System | Cooling System | Control Panel | Voltages |
| <ul style="list-style-type: none"> • Oil with the machine | <ul style="list-style-type: none"> • Protection board from hotness | <ul style="list-style-type: none"> • Front heat protection • Coolant (-30°C) | <ul style="list-style-type: none"> • Remote control panel • PLC-920 • PLC-7420 • ATS | <ul style="list-style-type: none"> • 415/240V • 400/230V • 380/220V • 220/127V • 200-115V |

