

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
EP27	27kVA/22kW	30kVA/24kW

Ratings at 0.8 power factor.

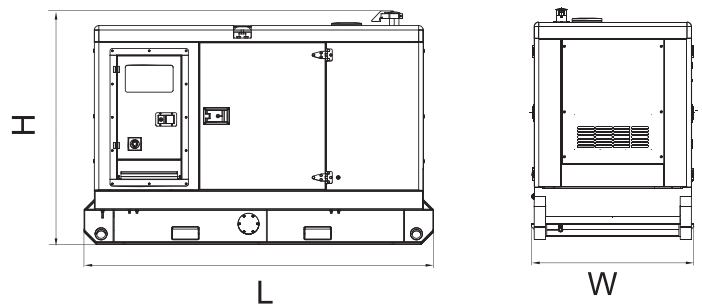
Ratings and Performance Data

Engine Make & Model:	404D-22TG	
Alternator Model:	ECP28-VL/4	
Alternator Brand:	MECC	
Control System:	PLC-7420	
Noise Level@7m:	/	
Circuit Breaker Type:	/	
Frequency & Phase:	50Hz & 3PH	
Engine Speed: RPM	1500	
Structure Type:	EP27	R
Fuel Tank Capacity: L	EP27	100
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)
EP27	2142	865	1369	940	/

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: 404D-22TG

Cooling system

Radiator

-face area 0.3 m²
 -rows and materials 1 row, Aluminium
 -matrix density and material 54 tubes / row
 -width of matrix 570 mm
 -height of matrix 524.2 mm
 -pressure cap setting 110kPa
 Estimated cooling air flow reserve kPa

Fan

-diameter 457.2 mm
 -drive ratio 1.1 : 1
 -number of blades 7
 -material plastic
 -type pusher

Coolant

Total system capacity
 -with radiator 9.32 litres
 -without radiator 3.6 litres
 Maximum top tank temperature 112 °C
 Temperature rise across engine 7,5 °C
 Max permissible external system resistance kPa
 Thermostat operation range 82 - 95 °C
 Max. static pressure head on pump 30,4 kPa
 Recommended coolant:
 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

Maximum additional restriction (duct allowance) to cooling airflow and resultant minimum airflow		
Ambient clearance 50% Glycol	Duct allowance Pa	m ³ /sec
N/A	N/A	N/A
N/A	N/A	N/A

Lubrication system

Lubricating oil capacity

Max. sump capacity 10,6 litres
 Min. sump capacity 8,9 litres
 Maximum engine operating angles
 -front up, front down, right side or left side 35° continuous

Lubricating oil pressure

-relief valve opens 352 - 448 kPa
 Min oil pressure 120 kPa
 -at maximum no-load speed 147 kPa
 Oil flow at rated speed 13 litres/min
 Normal oil temperature 125 °C

Recommended SAE viscosity

A single or multigrade oil must be used which conforms API-CH-4 or ACEA E5.

Exhaust system

Maximum back pressure 10,2 kPa
 Exhaust outlet size 42 mm

Electrical system

-type 12V negative grounding
 -alternator 65 amps, 12 V
 -starter motor Delco Remy, 12 V
 -starter solenoid pull-in current TBA
 -starter solenoid hold-in current TBA
 Number of teeth on starter pinion 9
 Number of teeth on flywheel 126
 Minimum engine cranking speed over TDC 150 rev/min

Cold start recommendations

Minimum starting temperature °C	Grade of engine lubricating oil	Battery specifications			
		BS3911 Cold start amps	SAEJ537 Cold cranking amps	Number of batteries needed	Commercial ref number
0	20W	540	740	1	647
-15	10W	540	740	1	647
-20	5W	600	780	1	655

Note: Additional information for battery and cable limits can be found in the installation manual.

Induction system

Maximum static bending moment

at rear face of block 1400 Nm

Maximum air intake restriction

-clean filter 3,0 kPa
 -dirty filter 6,4 kPa
 -air filter type dry element type

Fuel system

Type of injection Indirect injection
 Fuel injection pump Cassette type
 Fuel injector Pintle nozzle
 Nozzle opening pressure 14.7 MPa
 Max. particle size 25 microns

Fuel lift pump

-type mechanical (camshaft driven)
 -flow/hour 63 litres/hr
 -pressure 10 kPa
 Maximum suction head 0,8 m
 Maximum static pressure head 3,0 m
 Governor type Electronic/mechanical

Fuel specification

USA Fed Off Highway - EPA2D 89.330-96

Europe Off Highway - CEC RF-06-99

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

Fuel consumption - 1500 rev/min

Power rating %			
110	100	75	50
g/kWh (litres/hr) estimated			
261 (8.3)	246 (7.1)	232 (5.0)	238 (3.5)

Note: All fuel consumption figures are based on Nett engine power

Alternator model: ECP28-VL/4

Electrical Characteristics										
Frequency		Hz	50				60			
Voltage (series star)		V	380	400	415	440	415	440	460	480
Rated power class H		kVA	30	30	30	/	33	36	36	36
		kW	24	24	24	/	26,4	28,8	28,8	28,8
Rated power class F		kVA	26	26	26	/	29	32	32	32
		kW	20,8	20,8	20,8	/	23,2	25,6	25,6	25,6
Regulation with		DSR	±1 % with any power factor and speed variations between -5% +30%							
Insulation class			H							
Execution			Brushless							
Stator winding			12 ends							
Rotor			without damping cage							
Efficiencies class H	4/4	%	87,7	88,1	88,4	/	88,9	89,2	89,4	89,8
(see graph. for details)	3/4	%	88,2	88,5	88,6	/	89,7	89,9	90,1	90,3
	2/4	%	86,4	86,5	86,5	/	88,1	88,2	88,3	88,4
	1/4	%	84,2	84	84	/	86,1	86,1	86	85,9
Reactances (f. l.cl. F)		Xd	182,8	165	153,3	/	202,3	196,4	179,7	165
		Xd'	17,06	15,4	14,31	/	18,89	18,33	16,77	15,4
		Xd''	9,75	8,8	8,18	/	10,79	10,47	9,58	8,8
		Xq	78,7	71	66,0	/	87,1	84,5	77,3	71
		Xq'	78,7	71	66,0	/	87,1	84,5	77,3	71
		Xq''	21,1	19	17,7	/	23,3	22,6	20,7	19
		z	14,63	13,2	12,26	/	16,19	15,71	14,37	13,2
		X ₀	3,10	2,8	2,60	/	3,43	3,33	3,05	2,8
Short Circuit Ratio	Kcc		0,55	0,62	0,68	/	0,38	0,44	0,55	0,62
Time Constants	Td'		0,046							
	Td''		0,012							
	Tdo'		0,93							
	α		0,011							
Short Circuit Current Capacity	%		>300				>350			
Excitation at no load	Amp.		0,4	0,6	0,8	/	0,35	0,4	0,5	0,55
Excitation at full load	Amp.		1,75	1,96	2,1	/	1,5	1,6	1,8	1,9
Overload (long-term)	%		1 hour in a 6 hours period 110% rated load							
Overload per 20 sec.	%		300							
Stator Winding Resistance (20°C)	Ω		0,106							
Rotor Winding Resistance (20°C)	Ω		1,86							
Exciter Resistance (20 °C)	Ω		Rotor : 0,417				Stator : 10,60			
Heat dissipation at f.l.cl.H	W		3366	3242	3149	/	3296	3487	3415	3271
Telephone Interference			THF < 2%				TIF < 45			
Radio interference			EN61000-6-3 EN61000-6-1. For others standards apply to factory							
Waveform Distors.(THD) at f. load	LL/LN %		2,1 / 2							
Waveform Distors.(THD) at no load	LL/LN %		3,3 / 3,1							

Mechanical characteristics										
Protection			IP 23 (other protection on request)							
DE bearing			6309-2RS							
NDE bearing			6207-2RS							
Weight of wound stator assembly	kg		57							
Weight of wound rotor assembly	kg		33,4							
Weight of complete generator	kg		165							
Maximun overspeed	rpm		2250							
Unbalanced magnetic pull at f.l.cl.F	kN/mm		4,7							

Control System

Digital, intelligent control system allows easier operation.

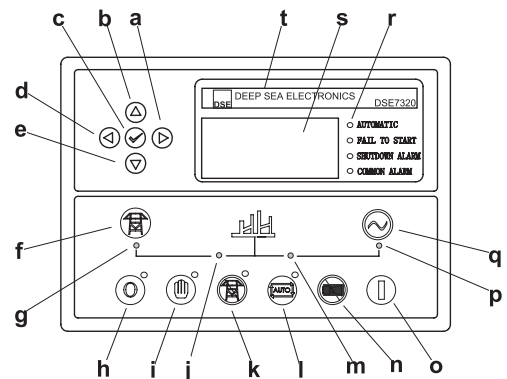
PLC-7420

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