



Generator	Generator Model	Engine Make	Engine Model	Alternator	Controller
Baudouin	EB 30	Baudouin	4M06G33/5	Suitable for Baudouin Genset	Deep Sea 4520
Prime Power KVA/KW	Standby Power KVA/KW	Fuel Consumption @ 70% L/H	Fuel Tank/Min	Oil Capacity/ Min	Dimensions
30/24	33/26	5.3	50L	9.5 L	59" x 24" x 46"

**Standby:** Standby power standby duty, operation under variable load, without overload.

**Prime Power:** Prime Power Continuous duty operation, under variable load, 10% overloads permissible 1/12hr.

## FEATURES

- o Rugged Engine
- o Control System
- o Advanve digital control system
- o Anti vibrating isolators
- o 18 Months warranty
- o low fuel consumption
- o Heavy duty febricated steel base frame

## BENIFITS

- o Safe; Eco Friendly
- o Long Service, Life Economical
- o Smart; occupies little space
- o Practical design; Easy to operate
- o People oriented, Safety foremost
- o High standard quality guaranteed

# ENGINE TECHNICAL DATA

ENGINE MODEL: 4M06G33/5

Speed	Gross Engine Output		
	COP	PRP	ESP
RPM	Kwm	Kwm	Kwm
1500	28.8	30	33

## Rating definitions

	Continues Power (COP)	Prime Power (PRP)	Standby Power (ESP)
Annual Working time	Unlimited	Unlimited	≤200h
Mean Engine load factor	100%	≤70% per 250 h	≤80% per 24 h
Time at full load	Unlimited	≤500 h per year	≤25 h per year
Overload Capacity	No	1 h per 12 h (10% overload) ≤25 h per year	No

- 1) The power ratings are in accordance with ISO 3046.
- 2) Test conditions: 100 kPa, 25 °C air inlet temperature, relative humidity of 30%, with fuel density 0.84 kg/L.
- 3) The engine maybe operated at : up to 1000m and 30°C without power deration. For sustained operation above these conditions, de-rate by 3% per 300m, and 2% per 11°C.
- 4) Power output curves are based on the engine operating with fuel system, water pump and lubricating oil pump; not included are battery charging alternator, fan and optional equipment.

## BASIC DATA

Engine Model	4M06G33/5
No. of Cylinders/Valued	4/8
Bore x Stroke (mm)	89 x 92
Displacement (L)	2.3
Fuel System	Mechanical Pump
Aspiration	Turbocharged
Compression Ratio	17.5:1
Emission Standard	/
Dimension (L x W x H)	1063 x 615 x 818
Weight (Kg)	298
Fly Wheel	10/11.5"
Front/Rear	7
Left/Right	7
Permitted altitude limit (m)	1,500

## PERFORMANCE DATA

IDLE Speed (rpm)		850±20		
MAX Speed Limit		1575		
Mean Piston Speed (m/s)		4.6		
BMEP (Mpa)		0.869		
Friction Power (Kw)		/		
Fan Power (Kw)		0.8		
Load Factor @	Power (Kw)	Fuel Consumption g/(KW.h)	Fuel Consumption (L/H)	
10 %	3.0	427.9	1.5	
25%	7.6	269.2	2.4	
30%	9.0	252.5	2.7	
40%	12.0	232.9	3.3	
50%	15.1	221.9	4.0	
60%	18.1	216.0	4.7	
70%	21.1	212.1	5.3	
75%	24.0	212.6	6.1	
80%	27.0	211.1	6.8	
90 %	28.2	211.3	7.1	
100 %	30.1	211.7	7.6	

## AIR INTAKE SYSTEM

Air intake resistance (KPA)	Clean Filter	3.5
	Dirty Filter	≤6
Needed air flow (kg/h)	Rated Power	138
	Standby Power	143
Air filter efficiency	≥99.5%	

## EXHAUST SYSTEM

Permitted Max. exhaust back pressure (kPa)	8
Max. exhaust temperature (°C)	≤500
Exhaust flow (kg/h) Rated Power	144
Exhaust flow (kg/h) Standby Power	149.7

## ELECTRIC SYSTEM

Electric system voltage(V)	12
Starter power/voltage (kW/V)	3/12
Alternator power/voltage (kW/V)	0.35/14
Permitted Max. electric resistance of the starting circuit (Ω)	0.004
Recommended Min. sectional area of wire (mm²)	50
The lowest cold starting temperature (°C) Without auxiliary starting device	-5
The lowest cold starting temperature (°C) With auxiliary starting device	-15

## LUBRICATION SYSTEM

Volume of oil pan (L)	9.5
Oil pressure in normal condition(kPa) Idle speed	≥100
Oil pressure in normal condition(kPa) Rated Power	200-500
Lowest oil pressure alarm valve/highest alarm valve (kPa)	80/850
Temperature range in main oil passage under rated working condition (°C)	85~115
Max. oil pressure while engine starts (kPa)	750
Opening pressure of main oil passage pressure limiting valve (kPa)	500-550
Oil flow (L/min)	22
Oil fuel consumption ratio	≤0.4%

## FUEL SYSTEM

Governor	Electronic Governor
Steady speed droop	≤5%
Max. fuel supply resistance of the fuel pump inlet at rated working condition (kPa)	70
Max. fuel return resistance (kPa)	/
Permitted Max. fuel inlet temperature (°C)	50
Min. pressure of fuel pump (kPa)	200
Recommended min. diameter of return pipe (mm)	5.5

## COOLING SYSTEM

Water pump Transmission speed ratio	1.26
Permitted Min. coolant temperature when engine working (°C)	50
Coolant fill rate (L/min)	2
Max. time to fill (min)	3
Recommended Min. inside diameter of outlet water pipe(mm)	inlet pipe $\phi 30$ , outlet pipe $\phi 32$
Min. pressure at water pump inlet without degassing device or with some degassing device (kPa)	30
Min. pressure at water pump inlet with full degassing device (kPa)	/
Max. degassing time(min)	/
Coolant capacity of engine (L)	5
Coolant capacity of radiator (L)	6.7
Water alarm temperature (°C)	98 $\pm$ 2
Thermostat opening temp./ full open temp. (°C)	(72 $\pm$ 2)/82
Permitted Min. pressure in cooling system	15
Permitted Max. external resistance (at rated speed)	50

## ALTERNATOR TECHNICAL DATA



Insulation System	Class H
Winding Pitch	2/3 to Minimize Harmonics effects
Number of Poles	4
Number of Bearings	Single Bearing
RPM	1500 RPM
Power Factor	0.8/1
Regulation	$\pm 1\%$
Frequency	50 Hz
Voltage Range	380-415 / 220-240
IP Rating (Protection)	Ip23



# DSE4510/20

## AUTO START AND AUTO MAINS FAILURE CONTROL MODULES

### FEATURES



The DSE4510 Auto Start Control Module and the DSE4520 Auto Mains (Utility) Failure Control Module are suitable for a wide variety of single gen-set applications.

Whilst maintaining functions included within higher end controllers, such as generator or load power monitoring, the DSE45xx range of especially compact controllers provide the user with the ultimate size to feature ratio.

Monitoring engine speed, oil pressure, coolant temperature, frequency, voltage, current, power and fuel level, the modules will give comprehensive engine and alternator protection. This will be indicated on the largest back-lit LCD icon display in its class via an array of warning, electrical trip and shutdown alarms.

Electronic J1939 (CAN) and non-electronic (alternator sensing) engine support for diesel, gas and petrol engines all in one variant. With a number of flexible inputs, outputs and protections, the module can be easily adapted to suit a wide range of applications.

Through USB Communication both modules can be easily configured using the DSE Configuration Suite PC Software or can be fully configured through the module's front panel editor.

All DSE products are supported by the DSE global technical support team which gives our customers and end users access to 24 hour system help and advice.

### \*AVAILABLE VARIANTS

4510-03	Auto start with real time clock
4510-04	Auto start with real time clock & heated display
4520-03	Auto Mains Failure with real time clock
4520-04	Auto Mains Failure with real time clock & heated display

### ENVIRONMENTAL TESTING STANDARDS

#### ELECTRO-MAGNETIC COMPATIBILITY

BS EN 61000-6-2  
EMC Generic Immunity Standard for the Industrial Environment  
BS EN 61000-6-4  
EMC Generic Emission Standard for the Industrial Environment

#### ELECTRICAL SAFETY

BS EN 60950  
Safety of Information Technology Equipment, including Electrical Business Equipment

#### TEMPERATURE

BS EN 60068-2-1  
Ab/Ae Cold Test -30 °C  
BS EN 60068-2-2  
Bb/Be Dry Heat +70 °C

#### VIBRATION

BS EN 60068-2-6  
Ten sweeps in each of three major axes  
5 Hz to 8 Hz at +/-7.5 mm,  
8 Hz to 500 Hz at 2 GN

#### HUMIDITY

BS EN 60068-2-30  
Db Damp Heat Cyclic 20/55 °C at 95% RH 48 Hours  
BS EN 60068-2-78  
Cab Damp Heat Static 40 °C at 93% RH 48 Hours

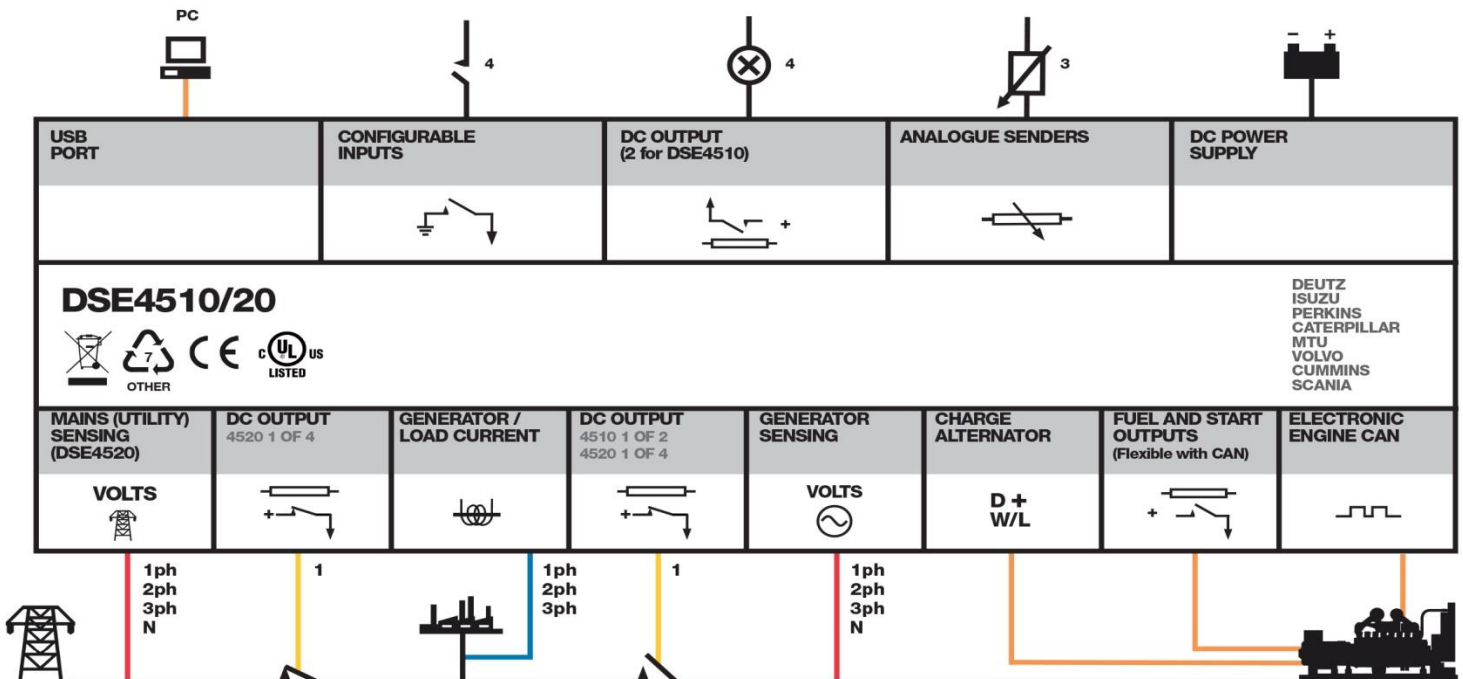
#### SHOCK

BS EN 60068-2-27  
Three shocks in each of three major axes  
15 GN in 11 ms

#### DEGREES OF PROTECTION PROVIDED BY ENCLOSURES

BS EN 60529  
IP65 - Front of module when installed into the control panel with the optional sealing gasket.

### COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF GEN-SET APPLICATIONS



# DSE4510/20

## AUTO START AND AUTO MAINS FAILURE CONTROL MODULES

### FEATURES



DSE4520

DSE4510



### KEY BENEFITS

- Ultimate size to feature ratio
- Automatically transfers between mains (utility) and generator (DSE4520 only)
- Hours counter provides accurate information for monitoring and maintenance periods
- User-friendly set-up and button layout for ease of use
- Multiple parameters are monitored simultaneously
- The module can be configured to suit a wide range of applications
- Compatible with a wide range of CAN engines, including tier 4 engine support
- Licence-free PC software
- IP65 rating (with optional gasket) offers increased resistance to water ingress

### KEY FEATURES

- Largest back-lit icon display in its class
- Heated display option
- Real time clock provides accurate event logging
- Fully configurable via the fascia or PC using USB communication
- Extremely efficient power save mode
- 3 phase generator sensing
- 3 phase mains (utility) sensing (DSE4520 only)
- Compatible with 600 V ph - ph nominal systems
- Generator/load power monitoring (kW, kV A, kV Ar, pf)
- Generator overload protection (kW)
- Generator/load current monitoring and protection
- Fuel and start outputs (configurable when using CAN)
- 4 configurable DC outputs (2 for DSE4510)
- 3 configurable analogue/digital inputs
- 4 configurable digital inputs
- Configurable staged loading outputs
- CAN and alternator speed sensing in one variant
- 3 engine maintenance alarms
- Engine speed protection
- Engine hours counter
- Engine pre-heat
- Engine run-time scheduler
- Engine idle control for starting & stopping
- Battery voltage monitoring
- Start on low battery voltage
- Configurable remote start input
- 1 alternative configuration
- Comprehensive warning, electrical trip or shutdown protection upon fault condition
- LCD alarm indication
- Event log (50)

### SPECIFICATION

**DC SUPPLY**  
**CONTINUOUS VOLTAGE RATING**  
8 V to 35 V Continuous

**CRANKING DROPOUTS**  
Able to survive 0 V for 50 ms, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries. LEDs and backlight will not be maintained during cranking.

**MAXIMUM OPERATING CURRENT**  
85 mA at 12 V, 96 mA at 24 V

**MAXIMUM STANDBY CURRENT**  
51 mA at 12 V, 47 mA at 24 V

**MAXIMUM SLEEP CURRENT**  
35 mA at 12 V, 32 mA at 24 V

**MAXIMUM DEEP SLEEP CURRENT**  
<10 uA at 12 V, <10 uA at 24 V

**MAINS (UTILITY) DSE4520 ONLY**  
**VOLTAGE RANGE**  
15 V to 415 V AC (Ph to N)  
26 V to 719 V AC (Ph to Ph)

**FREQUENCY RANGE**  
3.5 Hz to 75 Hz

**OUTPUTS**  
**OUTPUT A (FUEL)**  
10 A short term, 5 A continuous, at supply voltage

**OUTPUT B (START)**  
10 A short term, 5 A continuous, at supply voltage

**AUXILIARY OUTPUTS C & D**  
2 A DC at supply voltage

**AUXILIARY OUTPUTS E & F DSE4520**  
2 A DC at supply voltage

**GENERATOR**  
**VOLTAGE RANGE**  
15 V to 415 V AC (Ph to N)  
26 V to 719 V AC (Ph to Ph)

**FREQUENCY RANGE**  
3.5 Hz to 75 Hz

**DIMENSIONS**  
**OVERALL**  
140 mm x 113 mm x 43 mm  
5.5" x 4.4" x 1.7"

**PANEL CUT-OUT**  
118 mm x 92 mm  
4.6" x 3.6"

**MAXIMUM PANEL THICKNESS**  
8 mm  
0.3"

**STORAGE TEMPERATURE RANGE**

-40°C to +85°C

**OPERATING TEMPERATURE RANGE**

-30°C to +70°C

-40°C to +70°C (for heated display variant)

### OPTIONAL PARTS

PART	PART NUMBER
IP65 Gasket	020-282

### RELATED MATERIALS

#### TITLE

DSE4510/20 Installation Instructions

DSE4510/20 Operator Manual

DSE4510/20 Configuration Suite PC Manual

#### PART NO'S

053-157

057-171

057-172

#### DEEP SEA ELECTRONICS PLC UK

Highfield House, Hunmanby Industrial Estate, Hunmanby YO14 0PH

TELEPHONE +44 (0) 1723 890099 FACSIMILE +44 (0) 1723 893303

EMAIL sales@deepseapl.com WEBSITE www.deepseapl.com

#### DEEP SEA ELECTRONICS INC USA

3230 Williams Avenue, Rockford, IL 61101-2668 USA

TELEPHONE +1 (815) 316 8706 FACSIMILE +1 (815) 316 8708

EMAIL sales@deepseausa.com WEBSITE www.deepseausa.com

Deep Sea Electronics Plc maintains a policy of continuous development and reserves the right to change the details shown on this data sheet without prior notice. The contents are intended for guidance only.

Registered in England & Wales No.01319649  
VAT No.316923457

055-132/09/12 (5)

**Disclaimer: In line with continuous product development, we reserve the right to change specifications without notice.**

**enpower**  
engineering company  
INNOVATIVE POWER SOLUTIONS

#### LAHORE OFFICE:

55-N, Gulberg II, Lahore.

UAN-111-579-579

www.enpower.com.pk

**MOTEURS**  
**Baudouin**

Baudouin Engines company Limited