

1500 KVA DIESEL GENERATOR

FEATURES & BENEFITS

- Maximum 1700 kVA, 380V, 1500 RPM
- Constant voltage AVR (Automatic Voltage Regulator)
- 24 Volt Electric Starter
- 1200 Litre Fuel Tank, 5 Hours @ 75% load
- Silent Version (± 80 dBa)
- 12 Cylinder, In-line, water-cooled, Turbo charged with aftercooler
- Three Phase Output
- DeepSea DSE6120 Digital Control Panel
- Low oil pressure system
- Low water cut out engine protection



 **Baudouin**

GENERAL DATA	
Model:	BPD1500S3-B
Prime Power (P.R.P):	1500 kVA
Stand-by Power (L.T.P):	1700 kVA
Amps:	2506 A
Power Factor / COS:	0.8
Frequency:	50 Hz
Voltage:	380 V
Phases:	Three Phase
Engine Speed:	1500 RPM
Length:	6058 mm
Width:	2438 mm
Height:	2896 mm
Weight:	12800 kg's
Tank Capacity:	1200 l

ADDITIONAL	
Running Time:	5 Hours @ 75% load
Structure Type:	Silent
Noise Level (7m):	80 dBA
Auto Voltage Regulator:	Constant voltage AVR
ISO9001 Certified:	Yes
CE Certified:	Yes
Fuel Cons. @ 100% Load:	324
Fuel Cons. @ 75% Load:	234.2
Fuel Cons. @ 50% Load:	156.1

ENGINE DATA	
Brand:	Baudouin
Model:	12M33G1650/5
Type:	12 Cylinder, In-line, water-cooled, Turbo charged with aftercooler
Starting System:	24 Volt Electric Starter
Auto-Decompression:	Yes
Cubic Capacity (l):	39.2
Compression Ratio:	15:1
Rated Power (kW/RPM):	1350 / 1500
Fuel Type:	Diesel
Lube Oil:	15W40
Low Pressure Alert:	Yes
Low Fuel Cut Out:	Yes

CONTROL PANEL	
Model:	DeepSea DSE6120
Type:	Digital Control Panel
Analogue Inputs:	6
Mains Phase Voltage:	Yes
Mains Line Voltage:	Yes

ALTERNATOR	
Model:	DPC450F
Pole Number:	4
Excitation Mode:	Self Excitation

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011 397 7373

Pietermaritzburg
033 007 0812

Nelspruit
013 007 1753

Bloemfontein
051 001 1429

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* Specs subject to change without prior notice. * Measurements based on ISO8528-1 Standards * All rating at Sea Level, 25°C Ambient Temp.

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Ratings

RPM	Gross Engine Output		Net Engine Output	
	Data Centre Power (DCP)		Data Centre Power (DCP)	
	kWm	BHP	kWm	BHP
1500	1350	1810	1293	1734

1 kWm = 1,34102 BHP

Basic data

Engine model	12M33G1650/5
N° of Cylinders / Valves	12 / 48
Cylinders arrangement	At Vee
Bore x Stroke (mm)	150 x 185
Displacement (L)	39.2
Thermodynamic Cycle	Diesel 4 stroke
Mean Piston Speed (m/s)	9.25
BMEP (Bar)	29.59
Cooling System	Liquid (water + 50% antifreeze)
Injection System	Direct
Fuel System	High Pressure Common Rail
Aspiration	Turbocharged and Aftercooled
Compression ratio	15 : 1
Flywheel housing	SAE 0
Flywheel	18"
N° of teeth on flywheel ring gear	194
Inertia of flywheel (kg•m ²)	7.18
Inertia of crankshaft (kg•m ²)	4.52
Emission standard	N/A
Overall Dimensions with radiator (Length x Width x Height) (mm)	3525×2241.5×2243
Engine dry weight without radiator and without radiator pipes (kg)	3590
Engine dry weight with radiator and radiator pipes (kg)	4575
Engine wet weight with radiator (includes oil, coolant) (kg)	5024

DPK-TDS-EN-12M33-0056-21-08-02 Moteurs Baudouin reserve the right to modify these specifications, without notice. Document not contractual.

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Air intake system

Air intake temperature rise (°C)	≤ 5
Air intake restriction clean filter (mBar)	≤ 30
Air intake restriction dirty filter (mBar)	≤ 65
Recommended air flow @ DCP (m³/min)	91.9
Min. diameter of intake pipe (mm)	160

Aftercooling system

Aftercooler system type	Air to Air
Max. intake temperature @ 25°C ambient temperature (°C)	55
Max. difference between intake temperature and ambient temperature (°C)	30
Max. intake pressure drop of aftercooler (mBar)	120

Lubrication system

Oil capacity Low / High (L)	117 / 155
Oil pressure in normal condition idle speed (Bar)	≥ 2
Oil pressure in normal condition at 1500 Rpm @ DCP (Bar)	4 - 6.5
Lowest oil pressure alarm (shutdown) (Bar)	2
Max. oil temperature (°C)	105
Oil flow at 1500 Rpm (L/min)	≥ 392
Oil fuel consumption ratio based on engine fuel consumption data	≤ 0.3 %
Total system capacity (including filters) (L)	160

Heat balance test data (with ambient temperature 27.0 °C)

Total heat dissipation @ DCP (kJ/s)	2242.1
- Heat Rejection to Jacket Water @ DCP (kJ/s)	548.3
- Heat Rejection to AfterCooler @ DCP (kJ/s)	326.7
- Radiated Heat to Ambient @ DCP (kJ/s)	176.8
- Heat Rejected to Exhaust @ DCP (kJ/s)	1190.3

Exhaust system

Max. exhaust back pressure (mBar)	75
Max. exhaust temperature before turbocharger (°C)	700
Max. exhaust temperature after turbocharger (°C)	550
Exhaust flow @ DCP (m³/min)	318.5
Min. diameter of exhaust pipe (mm)	220
Max. bending moment of exhaust gas exit flange (Nm)	10

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Cooling system with standard radiator version 2021

System designed for ambient temperature up to (°C) ¹	50
Radiator type	Mechanical
Fan type	Belt driven pusher
Min. inside diameter of coolant outlet pipe (mm)	84
Coolant capacity of radiator and pipes (L)	220
Coolant alarm (shutdown) temperature (°C)	103
Thermostat opening temperature / full open temperature (°C)	80 / 92
Max. additional restriction for external cooling circuit (Bar)	0,44
Coolant capacity of the engine (L)	83
Cooling fan airflow (m³/min)	2100
Fan absorbed power (kW)	55
Additional restriction (for reference) - Duct allowance (Pa)	100

Fuel system

Governor	ECU
Governor steady state speed stability at constant load (ISO 8528-5 Class G3) ²	≤ +/- 0.5 %
Max. restriction at fuel inlet (Bar)	0.5
Max. pressure at fuel inlet (Bar)	0.5
Max. fuel return restriction (Bar)	0.2
Max. fuel inlet temperature (°C)	50
Fuel supply flow (L/hr)	1900
Min. internal diameter of inlet pipe (mm)	19
Min. internal diameter of return pipe (mm)	19

Electrical system

Electrical system voltage (negative to ground) (Vdc)	24
Starter power (kW)	2 x 8.5
Battery charger current (A)	55
Battery charger absorbed power (kW)	1,6
Max. electric resistance of starting circuit (Ω)	0.008
Min. sectional area of wire (mm²)	95
Min. cold start temperature without auxiliary starting device (°C) ³	- 5
Min. cold start temperature with auxiliary starting device (°C) ³	- 10

¹ The indicated value is based on the AOT value of 50°C for an engine tested at 100% of the DCP Power, reflecting temperature in an open condition, without an enclosure or container, without any airflow obstruction in the front of the radiator, without air recirculation, with free exhaust gas exit and with the engine thermostatic valve in its full open condition, without a closing plate present. The reference air restriction is equal to 50Pa. For the equivalent ATB (Air-to-Boil) performance in a customer or project basis, please consult Baudouin Application Engineering.

² This refers only to the frequency response of the engine and should not be confused with the performance class of the Generator Set, which is subject to additional contributing factors such as alternator selection and control settings.

³ Engines used in emergency standby application or applications that require immediate start under load, they must be equipped with coolant heaters. Baudouin recommend heaters installation to be executed by providing constant coolant circulation across all the engine components. Two heaters are required for V-type engines, one per each side.

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Noise

Diesel engine noise (Acoustic power level) (dB(A))	121.2
Noise - upper side (dB(A))	102.9
Noise - right side (view from flywheel) (dB(A))	104.8
Noise - left side (view from flywheel) (dB(A))	103.6
Noise – front (radiator) side (dB(A))	103.5
Noise – rear (flywheel) side (dB(A))	106

Notes :

- Noise test made at 100% of the power, at 1 mt. distance, on engine without radiator, without cooling fan and without silencer.
- Noise test refers to GB/T 1859 norm : "Reciprocating internal combustion engines. Measurement of emitted airborne noise. Engineering method and survey method".

Fuel consumption

Rating	gr/kWh	L/hr
100% DCP	201,6	324
75% DCP	194,3	234,2
50% DCP	194,3	156,1
25% DCP	209	84
Fuel consumption tolerance + 3 %		

Ratings definitions

Data Centre Power (DCP)

Data Centre Power is defined as being the maximum power which a generating set is capable of delivering while supplying a variable or continuous electrical load and during unlimited run hours. Depending on the sites to supply and the availability of reliable utility, the generating set manufacturer is responsible to define what power level he is able to supply to fulfil that requirement including hardware or software or maintenance plan adaptation.

Note : The engine driven alternating current generating set is a reliable source of power for the data centre and it can be also used to back up a reliable utility. Prolonged operation at load in parallel with a utility is not permitted.

Uptime Compliant

This engine rating is compliant with Uptime certified installations

- All ratings are based on operating conditions under ISO 8528-1:2018, ISO 3046, DIN6271. Performance tolerance of $\pm 5\%$.
- Test conditions : 100 kPa, 25°C air inlet temperature, relative humidity of 30%, with fuel density 0.84 kg/L. Derating may be required for conditions outside these; please contact the factory for details.
- 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.

DSE6110/20 MKII

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

DSE6120 MKII



DSE6110 MKII



KEY FEATURES

- Large back-lit text display
- Multiple display languages
- Heated display option available
- DSENet® expansion compatible
- Data logging facility
- Fully configurable via PC using USB communication
- Front panel configuration
- Efficient power save mode
- 3 phase generator sensing
- 3 phase mains (utility) sensing (DSE6120 MKII only)
- Generator/load power monitoring (kW, kV A, kV Ar, pf)
- Accumulated power monitoring (kW h, kVA h, kVAR h)
- Generator/load current monitoring and protection
- Generator overload protection (kW)
- Breaker control via fascia buttons
- Fuel and start outputs, configurable when using CAN
- 4 configurable DC outputs
- 4 configurable analogue/digital inputs
- Support for 0 to 10 V &

- 4 to 20 mA oil pressure sensors
- 6 configurable digital inputs
- Configurable staged loading outputs
- CAN, MPU 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
- Fuel pump control
- Real time clock
- 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 and LED alarm indication
- Customisable information screens
- Configurable event log (100)
- Tier 4 ECO engine support including exhaust fluids & filters

- J1939-75 instrumentation output, configurable CAN instrumentation and alarms
- Start on low battery
- Enhanced alarm functionality
- Low load alarm

KEY BENEFITS

- Automatically transfers between mains (utility) and generator (DSE6120 MKII only)
- Increased input and output expansion capability via DSENet®
- User-friendly set-up and button layout for ease of use
- Multiple parameters are monitored simultaneously which are clearly displayed on a large back-lit text display via multiple languages
- The module can be configured to suit a wide range of applications
- Uses DSE Configuration Suite PC Software for simplified configuration
- Licence-free PC software
- IP65 rating (with optional gasket) offers increased resistance to water ingress

SPECIFICATIONS

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

100 mA at 12 V, 105 mA at 24 V

MAXIMUM STANDBY CURRENT

60 mA at 12 V, 55 mA at 24 V

MAXIMUM SLEEP CURRENT

40 mA at 12 V, 35 mA at 24 V

GENERATOR & MAINS (UTILITY)

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

INPUTS

DIGITAL INPUTS A to F
Negative switching

ANALOGUE INPUT A

Configurable as:
Negative switching digital input
0 V to 10 V
4 mA to 20 mA
0 Ω to 240 Ω

ANALOGUE INPUTS B TO D

Configurable as:
Negative switching digital input
0 Ω to 480 Ω

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, E & F

2 A DC at supply voltage

DIMENSIONS

OVERALL
216 mm x 158 mm x 43 mm
8.5" x 6.2" x 1.5"

PANEL CUT-OUT

184 mm x 137 mm
7.2" x 5.3"

MAXIMUM PANEL THICKNESS

8 mm
0.3"

STORAGE TEMPERATURE RANGE

-40 °C to +85 °C
-40 °F to +185 °F

OPERATING TEMPERATURE RANGE

NON HEATED DISPLAY VARIANT
-30 °C to +70 °C
-22 °F to +158 °F

HEATED DISPLAY VARIANT

-40 °C to +70 °C
-40 °F to +158 °F

RELATED MATERIALS

TITLE

DSE6110/20 MKII Installation Instructions
DSE6110/20 MKII Operator Manual
DSE6110/20 MKII Configuration Suite PC Manual

PART NO.

053-173
057-226
057-224

OPTIONAL PARTS

PART

IP65 Gasket

PART NUMBER

020-521

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DSE6110/20 MKII

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

The DSE6110 MKII Auto Start Control Module and the DSE6120 MKII Auto Mains (Utility) Failure Control Module are suitable for a wide variety of single gen-set applications.

Monitoring engine speed, oil pressure, coolant temperature, frequency, voltage, current, power and fuel level, the modules give comprehensive engine and alternator protection. This is indicated on a large back-lit LCD text display via an array of warning, electrical trip and shutdown alarms in multiple languages.

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

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

Using the DSE Configuration Suite PC Software the controller is easy to use and configure which allows alteration of operating parameters, sequences, timers and alarms.

AVAILABLE VARIANTS

6110-03	Auto Start with real time clock
6120-03	Auto Mains Failure with real time clock

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

