

C55D6 | INDUSTRIAL RANGE POWERED BY CUMMINS



POWER DEFINITION

PRP: Prime Power is available for an unlimited number of annual operating hours in variable load applications, in accordance with ISO 8528-1.

ESP: The standby power rating is applicable for supplying emergency power in variable load applications in accordance with ISO 8528-1. Overload is not allowed.

TERMS OF USE

According to the standard, the nominal power assigned by the genset is given for 25 °C Air Inlet Temperature, of a barometric pressure of 100 kPa (100 m A.S.L.), and 30 % relative humidity. For particular conditions in your installation, refer to the derating table.

TERMS OF USE

For the generating sets used indoors, where the acoustic pressure levels depend on the installation conditions, it is not possible to specify the ambient noise level in the exploitation and maintenance instructions.

You will also find in our exploitation and maintenance instructions a warning concerning the air noise dangers and the need to implement appropriated preventive measures.

SERVICE		PRP	EPS
POWER	kVA	50	55
POWER	kW	40	44
RATED SPEED	r.p.m	1800	
STANDARD VOLTAGE	V	220/127	
AVAILABLE VOLTAGES	V	208/120 · 240/138	
RATED AT POWER FACTOR	Cos Phi	0,8	

Generator Specification



WATER-COOLED



THREE PHASE



60 HZ

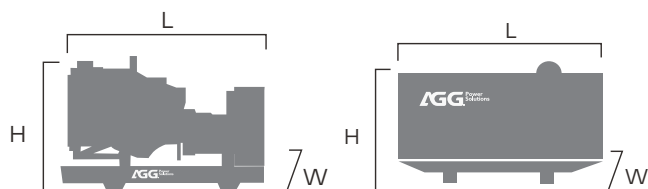


DIESEL



STACKABLE CANOPY

Weight And Dimensions



Dimension		Open	Silent
Length[L]	mm	1800	2450
Width[W]	mm	990	955
Height[H]	mm	1465	1250
Net Weight	Kg	963	1100
Fuel Tank	L	140	70



Engine Specifications

General Engine Data		
Engine brand	CUMMINS	
Engine ref.	4BT3.9G2	
Engine type	4-stroke diesel	
Governor type	Electronic	
Injection	Direct	
Aspiration	Turbocharged	
Number of cylinders and arrangement	4-L	
Bore and stroke	mm	102*120
Displacement	L	3.9
Cooling system	Water-cooled	

General Engine Data		
Lube oil consumption with full load	0.5%-1% of fuel consumption	
Compression Ratio	18.0:1	
Engine oil capacity	L	10.9
Total coolant capacity	L	19
Air Filter	Type	Dry
Fuel		
Consumption @ 100% load ESP	L/H	11.7
Consumption @ 100% load PRP	L/H	10.7
Consumption @ 75% load PRP	L/H	8.4
Consumption @ 50% load PRP	L/H	6.2



- Diesel engine
- 4-stroke cycle
- Water-cooled
- 12V electrical system
- Water separator filter
- Dry air filter
- Radiator with pusher fan
- Electronic governor
- Hot parts protection
- Moving parts protection
- Water jacked heater (Optional)
- Radiator water level sensor (Optional)
- Oil heater (Optional)
- Heavy duty air filter (Optional)

Alternator Specifications

Alternator Specifications	
Number of phase	3
Power factor (Cos Phi)	0.8
Poles	4
Winding Connections (standard)	Star-serie
Insulation	H class
Enclosure(according IEC-34-5)	IP23

Alternator Specifications	
Excitation system	Self-excited, brushless
Voltage regulator	AVR (Electronic)
No. of bearings	Single bearing
Coupling system	Flexible disc
Coating type	Standard (Vacuum impregnation)



- Self-excited and self-regulated
- IP23 protection
- H class insulation
- Alternator pre-heater (Optional)
- Winding temp. measuring instrument (Optional)
- PMG/AREP/MAUX (Optional)

Application Data

Fuel system

Fuel oil specifications	Diesel	
Standard fuel tank capacity (Open)	L	140
Standard fuel tank capacity (Silent)	L	70

Air system

Intake air flow	L/s	54
Cooling air flow	L/s	1.384

Exhaust system

Maximum exhaust temperature	°C	373
Exhaust gas flow	L/s	107
Maximum allowed back pressure	kPa	10

Starting System

Starting power	kW	3.7
Recommended batter	Ah	60
Number of Batteries		2
Auxiliary voltage	Vdc	24V

Genset version

- Steel chasis
- Emergency stop button
- Anti-vibration shock absorbers
- Trailer type (Optional)
- Chassis with integrated fuel tank
- Fuel level gauge
- High mechanical strength
- Epoxy polyester powder coating
- Fuel tank drain plug
- Steel residential silencer - 20dbA attenuation
- Battery charger
- Stackable canopy design

This document is not contractual - The AGG company reserves the right to modify any of the characteristics stated in this document without notice, in a constant effort to improve the quality of its products. *ISO 8528. .

AGG Power gensets are compliant with ISO 9001 and CE standard, which include the following directives:

·2006/42/EC Machinery safety.

·2006/95/EC Low voltage

·EN 60204-1: 2006+A1: 2009, EN ISO 12100: 2010, EN ISO 13849-1: 2008, EN 12601 : 2010

Standard reference Conditions

Ambient conditions of reference according to ISO 8528-1:2018 normative: 1000 mbar, 25°C, 30% relative humidity.

Weights and dimensions based on standard products. Illustrations may include optional equipment.

Technical data described in this catalogue correspond to the available information at the moment of printing.



Generator Engine Performance Data

DONGFENG CUMMINS ENGINE Co.,LTD

Xiangfan, Hubei Province, China
http://www.dcec.com.cn

Basic Engine Model:

4BT3.9-G2

FR92540
FR93763

FR92540 @ 1500 RPM &1800RPM
FR93763 @ 1500 RPM &1800RPM

Configuration
D382057GX02

CPL Code
CPL: 3115

Revision
2013/6/15

Compression Ratio: **18.0:1**
Bore: **102 mm**
Stroke: **120 mm**
Emission Certification:
Governor Regulation: **≤5%**

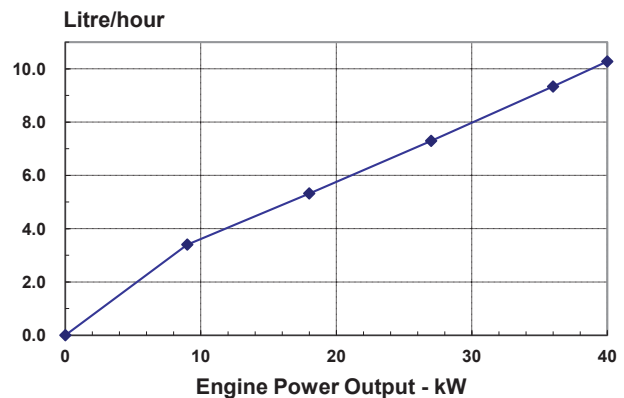
Aspiration: **Turbocharger**
Displacement: **3.9 L**
No. of Cylinders: **4**
Fuel System: **BYC A/Electronic Governor**

All data is based on the engine operating with fuel system, water pump, and 14.8 in H₂O (3.7 kPa) inlet air restriction with 5.98 in (152mm) inner diameter, and with 2.95 in Hg (10 kPa) exhaust restriction with 4.02 in (102 mm) inner diameter; not included are alternator, fan, optional equipment and driven components. Coolant flows and heat rejection data based on coolants as 50% ethylene glycol/50% water. All data is subject to change without notice.

Engine Speed	Standby Power		Prime Power		Continuous Power	
RPM	kW	HP	kW	HP	kW	HP
1500	40	54	36	48		
1800	44	59	40	54		

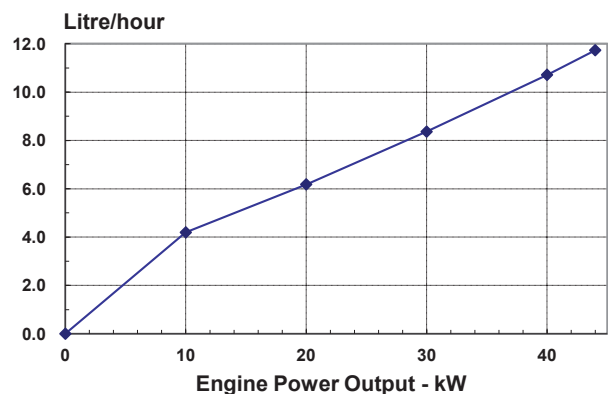
Engine Performance Data @ 1500 RPM

OUTPUT POWER			FUEL CONSUMPTION	
%	kW	HP	g/kW.h	L/h
STANDBY POWER				
100	40	54	212	10.3
PRIME POWER				
100	36	48	214	9.3
75	27	36	223	7.3
50	18	24	244	5.3
25	9	12	312	3.4
CONTINUOUS POWER				



Engine Performance Data @ 1800 RPM

OUTPUT POWER			FUEL CONSUMPTION	
%	kW	HP	g/kW.h	L/h
STANDBY POWER				
100	44	59	220	11.7
PRIME POWER				
100	40	54	221	10.7
75	30	40.5	230	8.4
50	20	27	255	6.2
25	10	13.5	346	4.2
CONTINUOUS POWER				



Curves shown above represent gross engine performance capabilities obtained and corrected in accordance with GB/T18297 conditions of 100kPa (29.61 in. Hg) barometric pressure, 25°C (77°F) inlet air temperature, and 1 kPa (0.30 in. Hg) water vapor pressure with No.0 diesel fuel.

GENERAL ENGINE DATA

Approximate Engine Weight (wet).....	-kg	321
Mass Moment of Inertia of Rotating Components (No Flywheel).....	-kg·m ²	0.143
Center of Gravity from Rear Face of Block.....	-mm	373
Center of Gravity above Crankshaft Centerline.....	-mm	163
Engine Idle Speed.....	-RPM	950-1050
Fire Order.....		1-3-4-2

ENGINE MOUNTING

Maximum (Static) Bending Moment at Rear Face of Block.....	-N.m	1356
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EXHAUST SYSTEM

Maximum Back Pressure.....	-kPa	10
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AIR INTAKE SYSTEM

Maximum Intake Air Restriction with Heavy Duty Air Cleaner		
— Dirty Element.....	-kPa	6.2
— Clean Element.....	-kPa	3.7

LUBRICATION SYSTEM

Engine Oil Pressure for Engine Protection Devices:		
— Idle Speed(Minimum).....	-kPa	207
— Governed Speed(Maximum).....	-kPa	345
Maximum Oil Temperature.....	- °C	121
Minimum Required Lube System Capacity - Sump plus Filters.....	-litre	10.9

FUEL SYSTEM

Type Injection System.....	BYC A Direct Injection
Maximum Restriction at Lift Pump.....	-kPa 13.6
Maximum Fuel Inlet Temperature.....	-°C 70
Total Drain Flow (constant for all loads).....	-litre/hr 30

COOLING SYSTEM

Coolant Capacity - Engine Only.....	-litre	7.2
Maximum Coolant Friction Head External to Engine..	-1800 rpm..... -kPa	35
	-1500 rpm..... -kPa	28
Maximum Static Head of Coolant Above Engine Crank Centerline.....	-m	14
Standard Thermostat (Modulating) Range.....	-°C	83 - 95
Minimum Pressure Cap.....	-kPa	69
Maximum Top Tank Temperature for Standby / Prime Power.....	-°C	104 / 100

ELECTRICAL SYSTEM

Cranking Motor (Heavy Duty, Positive Engagement).....	-volt	12V	24V
Battery Charging System, Negative Ground.....	-ampere	63	40
Maximum Allowable Resistance of Cranking Circuit.....	-ohm	0.00075	0.002
Minimum Recommended Battery Capacity			
—Cold Soak @ 0 to 32-F (-18 to 0-C).....	-0°F CCA	625	312

EMISSIONS

Gaseous Emissions per GB 20891-2007, at 1500rpm:

—Weight-Specific NOx.....	g/kW.h
—Weight-Specific HC.....	g/kW.h
—Weight-Specific CO.....	g/kW.h
—Weight-Specific Particulates.....	g/kW.h

Gaseous Emissions per GB 20891-2007, at 1800rpm:

—Weight-Specific NOx.....	g/kW.h
—Weight-Specific HC.....	g/kW.h
—Weight-Specific CO.....	g/kW.h
—Weight-Specific Particulates.....	g/kW.h

Fuel Rating Option used for these Data: **FR92540 FR93763**

Governed Engine Speed.....	-rpm
Engine Idle Speed.....	-rpm
Gross Engine Power Output.....	-kW
Piston Speed.....	-m/s
Friction Horsepower.....	-kW
Engine Water Flow to Engine:.....	-litre/sec.
Intake Air Flow.....	-litre/sec.
Exhaust Gas Flow.....	-litre/sec.
Exhaust Gas Temperature.....	-°C
Radiated Heat to Ambient.....	-kW
Heat Rejection to Coolant.....	-kW
Heat Rejection to Fuel.....	-kW

STANDBY POWER		PRIME POWER	
1800	1500	1800	1500
950-1050	950-1050	950-1050	950-1050
44	40	40	36
7.2	6.0	7.2	6.0
8.2	8.2	8.2	8.2
2.8	2.2	2.8	2.2
54.3	44.9	53.1	43.6
107	108	101	101
373	487	350	463
TBD	TBD	TBD	TBD
35	29	32	25.9
TBD	TBD	TBD	TBD

ALL DATA CERTIFIED WITHIN 5%

TBD = To Be Decided

N/A = Not Applicable

N.A. = Not Available

All data is subject to change without notice, sorry for inform.

Dongfeng Cummins Engine Co., Ltd.

POWER RATING APPLICATION GUIDELINES FOR GENERATOR DRIVE ENGINES

These guidelines have been formulated to ensure proper application of generator drive engines in A.C. generator set installations. Generator drive engines are not designed for and shall not be used in variable speed D.C. generator set applications.

STANDBY POWER RATING is applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. Under no condition is an engine allowed to operate in parallel with the public utility at the Standby Power rating.

This rating should be applied where reliable utility power is available. A standby rated engine should be sized for a maximum of an 80% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Standby Power rating. Standby ratings should never be applied except in true emergency power outages. Negotiated power outages contracted with a utility company are not considered an emergency.

CONTINUOUS POWER RATING is applicable for supplying utility power at a constant 100% load for an unlimited number of hours per year. No overload capability is available for this rating.

PRIME POWER RATING is applicable for supplying electric power in lieu of commercially purchased power. Prime Power applications must be in the form of one of the following two categories:

UNLIMITED TIME RUNNING PRIME POWER

Prime Power is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours.

The total operating time at 100% Prime Power shall not exceed 500 hours per year.

A 10% overload capability is available for a period of 1 hour within a 12 hour period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

LIMITED TIME RUNNING PRIME POWER

Prime Power is available for a limited number of hours in a non-variable load application. It is intended for use in situations where power outages are contracted, such as in utility power curtailment. Engines may be operated in parallel to the public utility up to 750 hours per year at power levels never to exceed the Prime Power rating. The customer should be aware, however, that the life of any engine will be reduced by this constant high load operation. Any operation exceeding 750 hours per year at the Prime Power rating should use the Continuous Power rating.

Reference Standards:

BS-5514 and DIN-6271 standards are based on ISO-3046.

Operation At Elevated Temperature And Altitude:

The engine may be operated at:

1800 RPM up to 5,000 ft. (1525 m) and 104° F (40° C) without power deration.

For sustained operation above these conditions, derate by 4% per 1,000 ft (300 m), and 1% per 10° F (2% per 11° C).

ELECTRICAL DATA

32kW - 75kW

KI 224 range

Application and Standards

KI 224 4 pole alternators are designed for different applications: prime,stand-by,telcom,rental,etc.
Comply with standards of IEC60034,NEMA MG1-32,IS08528,CSA C22.2-100,VDE 0530,GB755

Electrical Features

H class insulation
Special-treated winding is optional to meet the needs of harsh environment
12 leads, achieve a variety of voltage output
2/3 winding pitch, effective control of harmonics.
High efficiency and strong motor start ability
Variety of excitation and voltage regulation system to meet different loads.



Mechanical Features

Be protected to IP23, and IP44 is optional
Both single bearing and double bearing configurations are available
Sealed for life bearings
Blackening coupling disc
The rotors are dynamically balanced according to ISO 1940. A half-key balanced for double bearing

Common Data

Insulation	H	Voltage Regulation	±1%	THD	No load<1.5%
Altitude	<=1000m	Leads	12	TIF	<50
Protection	IP23	Winding pitch	2/3	THF	<2%

Overspeed **2250rpm** **AVR** **SX460 (Standard) / SX440 (Optional)**

Rating

H Class		50Hz / 1500RPM / 40℃ / PF0.8					60Hz / 1800RPM / 40℃ / PF0.8				
Voltage		Cont.		Standby		Efficiency	Cont.		Standby		Efficiency
KI 224CS	kVA	40	40	40	40	44	48	48	48	48	52.8
	kW	32	32	32	32	35.2	38.4	38.4	38.4	38.4	42.2
KI 224C	kVA	42.5	42.5	42.5	40	46.8	48	48	48	48	56.1
	kW	34	34	34	32	37.4	38.4	38.4	38.4	38.4	44.9
KI 224D	kVA	50	50	50	48	55	57.6	57.6	57.6	57.6	63
	kW	40	40	40	38.4	44	46.1	46.1	46.1	46.1	50.4
KI 224ES	kVA	56.3	56.3	56.3	54	61.9	64.8	64.8	64.8	64.8	70.5
	kW	45	45	45	43.2	49.5	51.8	51.8	51.8	51.8	56.4
KI 224E	kVA	62.5	62.5	62.5	60	68.8	72	72	72	72	79.2
	kW	50	50	50	48	55	57.6	57.6	57.6	57.6	63.4
KI 224FS	kVA	67.5	67.5	67.5	65	74.3	78	78	78	78	86.7
	kW	54	54	54	52	59.4	62.4	62.4	62.4	62.4	69.4
KI 224F	kVA	72.5	72.5	72.5	70	81.3	84	84	84	84	94.2
	kW	58	58	58	56	65	67.2	67.2	67.2	67.2	75.4
KI 224GS	kVA	80	80	80	76.3	87.5	91.5	91.5	91.5	91.5	100.5
	kW	64	64	64	61	70	73.2	73.2	73.2	73.2	80.4
KI 224G	kVA	85	85	85	79	93.8	94.8	94.8	94.8	94.8	100.5
	kW	68	68	68	63.2	75	75.8	75.8	75.8	75.8	106.5

DSE6010/20

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

FEATURES



The DSE6010 is an Auto Start Control Module and the DSE6020 is an Auto Mains (Utility) Failure Control Module suitable for a wide variety of single, diesel or gas, gen-set applications.

Monitoring speed, frequency, voltage, current, oil pressure, coolant temperature and fuel level, the modules will display warnings, shutdown and engine status information on the back-lit LCD screen and illuminated LED.

Both modules offer electronic (CAN) and non-electronic (magnetic pick-up/alternator sensing) engine versions and offer a number of flexible inputs, outputs and engine protections so the system can be easily adapted to suit a wide range of application demands.

The modules can be easily configured using the DSE Configuration Suite PC software. Selected front panel editing is also available.

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 @ +/-7.5 mm,
8 Hz to 500 Hz @ 2 gn

HUMIDITY

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

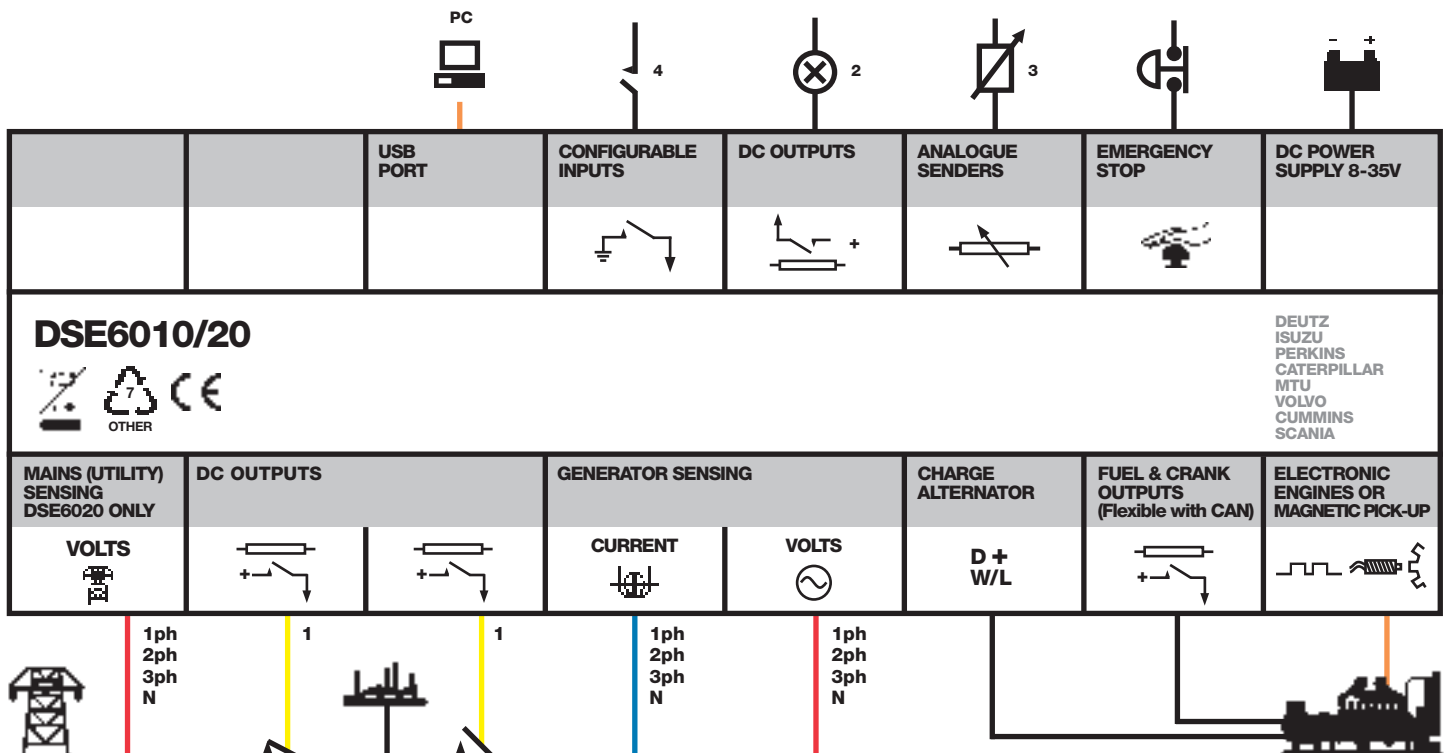
SHOCK

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



DSE6010/20

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

FEATURES



DSE6020

DSE6010



KEY FEATURES

- Back-lit icon LCD display
- Front panel editing
- LED and LCD alarm indication
- Power Save mode
- CAN and Magnetic Pick-up/Alt. versions available (specify on ordering)
- PC and front panel configuration
- 4 Digital inputs
- 3 Analogue inputs
- 6 Outputs (4 configurable on Magnetic Pick-up/Alt., 6 configurable on CAN version)
- Configurable timers and alarms
- Alternative configuration
- Event Log (5)
- Remote Start input
- 3 Phase generator monitoring

- Current monitoring and protection
- Power monitoring (kW, kV A, kV Ar)
- 3 Phase Mains (Utility) monitoring (DSE6020 only)
- Test button (DSE6020 only)
- Battery Voltage monitoring
- Engine pre-heat
- Hours counter
- Comprehensive shutdown or warning on fault condition

KEY BENEFITS

- Automatically transfers between mains (utility) and generator power (DSE6020 only)
- Hours counter provides accurate information for monitoring and maintenance periods
- User-friendly set-up and button

layout

- Multiple engine parameters are monitored simultaneously
- Module can be configured to suit individual applications
- Compatible with a wide range of CAN engines
- Uses DSE Configuration Suite PC software for simplified configuration
- IP65 rating (with optional gasket) offers increased resistance to water ingress
- Licence-free PC software

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

150 mA at 12 V, 80 mA at 24 V

MAXIMUM STANDBY CURRENT

50 mA at 12 V, 30 mA at 24 V

CHARGE FAIL/EXCITATION RANGE

0 V to 35 V

MAINS (UTILITY) DSE6020 ONLY VOLTAGE RANGE

15 V - 333 V AC (L-N)

FREQUENCY RANGE

3.5 Hz to 75 Hz

OUTPUTS

OUTPUT A (FUEL)

2 A DC at supply voltage

OUTPUT B (START)

2 A DC at supply voltage

AUXILIARY OUTPUTS C,D,E & F

2 A DC at supply voltage

GENERATOR

VOLTAGE RANGE

15 V - 333 V AC (L-N)

FREQUENCY RANGE

3.5 Hz to 75 Hz

MAGNETIC PICK UP

VOLTAGE RANGE

+/- 0.5 V to 70 V

DIMENSIONS

OVERALL

215 mm x 158 mm x 42 mm
8.5" x 6.2" x 1.6"

PANEL CUT-OUT

182 mm x 137 mm
7.2" x 5.4"

MAXIMUM PANEL THICKNESS

8 mm
0.3"

RELATED MATERIALS

TITLE

DSE6010 Installation Instructions
DSE6020 Installation Instructions
DSE6000 Operator Manual
DSE6000 Configuration Suite PC Manual

PART NO'S

053-076
053-077
057-112
057-114

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