

## 45 KVA DIESEL GENERATOR

### FEATURES & BENEFITS

- Maximum 50 kVA, 380V, 1500 RPM
- Constant voltage AVR (Automatic Voltage Regulator)
- 12 Volt Electric Starter
- 100 Litre Fuel Tank, 12 Hours @ 75% load
- Silent Version ( $\pm 72$  dBA)
- Three cylinder, Turbocharged, Water cooled Diesel Engine
- Three Phase Output
- DeepSea DSE6120 Digital Control Panel
- Low oil pressure system
- Low water cut out engine protection



 Perkins

 DEEP SEA  
ELECTRONICS

 LEROY-SOMER

### GENERAL DATA

|                                |             |
|--------------------------------|-------------|
| <b>Model:</b>                  | BPD45S3-P   |
| <b>Prime Power (P.R.P):</b>    | 45 kVA      |
| <b>Stand-by Power (L.T.P):</b> | 50 kVA      |
| <b>Amps:</b>                   | 75.9 A      |
| <b>Power Factor / COS:</b>     | 0.8         |
| <b>Frequency:</b>              | 50 Hz       |
| <b>Voltage:</b>                | 380 V       |
| <b>Phases:</b>                 | Three Phase |
| <b>Engine Speed:</b>           | 1500 RPM    |
| <b>Length:</b>                 | 2200 mm     |
| <b>Width:</b>                  | 900 mm      |
| <b>Height:</b>                 | 1150 mm     |
| <b>Weight:</b>                 | 968 kg's    |
| <b>Tank Capacity:</b>          | 100 l       |

### ADDITIONAL

|                                |                      |
|--------------------------------|----------------------|
| <b>Running Time:</b>           | 12 Hours @ 75% load  |
| <b>Structure Type:</b>         | Silent               |
| <b>Noise Level (7m):</b>       | 72 dBA               |
| <b>Auto Voltage Regulator:</b> | Constant voltage AVR |
| <b>ISO9001 Certified:</b>      | Yes                  |
| <b>CE Certified:</b>           | Yes                  |
| <b>Fuel Cons. @ 100% Load:</b> | 10.7                 |
| <b>Fuel Cons. @ 75% Load:</b>  | 8.2                  |
| <b>Fuel Cons. @ 50% Load:</b>  | 5.7                  |

### ENGINE DATA

|                              |                                                                |
|------------------------------|----------------------------------------------------------------|
| <b>Brand:</b>                | Perkins                                                        |
| <b>Model:</b>                | 1103A-33TG1                                                    |
| <b>Type:</b>                 | Three cylinder,<br>Turbocharged, Water<br>cooled Diesel Engine |
| <b>Starting System:</b>      | 12 Volt Electric Starter                                       |
| <b>Auto-Decompression:</b>   | Yes                                                            |
| <b>Cubic Capacity (l):</b>   | 3.3                                                            |
| <b>Compression Ratio:</b>    | 17.25:1                                                        |
| <b>Rated Power (kW/RPM):</b> | 46 / 1500                                                      |
| <b>Fuel Type:</b>            | Diesel                                                         |
| <b>Lube Oil:</b>             | 15W40                                                          |
| <b>Low Pressure Alert:</b>   | Yes                                                            |
| <b>Low Fuel Cut Out:</b>     | Yes                                                            |

### CONTROL PANEL

|                             |                       |
|-----------------------------|-----------------------|
| <b>Model:</b>               | DeepSea DSE6120       |
| <b>Type:</b>                | Digital Control Panel |
| <b>Analogue Inputs:</b>     | 6                     |
| <b>Mains Phase Voltage:</b> | Yes                   |
| <b>Mains Line Voltage:</b>  | Yes                   |

### ALTERNATOR

|                         |                         |
|-------------------------|-------------------------|
| <b>Model:</b>           | Leroy Somer - TAL-A42-E |
| <b>Pole Number:</b>     | 4                       |
| <b>Excitation Mode:</b> | Self Excitation         |

Maputo, Moçambique

+258 85 176 3143

comercial@cobalt.co.mz

www.cobalt.co.mz

## Technical Data

### 1100 Series

Gen Set

### 1103A-33TG1

**45,6 kWm @ 1500 rev/min**

**53,9 kWm @ 1800 rev/min**

#### Basic technical data

|                             |                           |
|-----------------------------|---------------------------|
| Number of cylinders .....   | 3                         |
| Cylinder arrangement .....  | Vertical in-line          |
| Cycle .....                 | Four stroke               |
| Induction system .....      | Turbocharged              |
| Compression ratio .....     | 17.25 : 1                 |
| Bore .....                  | 105 mm (4.13 in)          |
| Stroke .....                | 127 mm (4.99 in)          |
| Cubic capacity .....        | 3.3 litres                |
| Direction of rotation ..... | Clockwise view from front |
| Firing order .....          | 1,2,3                     |
| Total weight (engine only)  |                           |
| -dry .....                  | 420 kg                    |
| -wet .....                  | 438 kg                    |

#### Overall dimensions

|                                            |                    |
|--------------------------------------------|--------------------|
| -height .....                              | 951 mm (37.44 in)  |
| -length .....                              | 1049 mm (41.29 in) |
| -width (including mounting brackets) ..... | 634 mm (24.96 in)  |

#### Moment of inertia (mk<sup>2</sup>)

|                        |                       |
|------------------------|-----------------------|
| Engine:                |                       |
| - longitudinal .....   | 25 kgm <sup>2</sup>   |
| - horizontal .....     | 42 kgm <sup>2</sup>   |
| - axial .....          | 25 kgm <sup>2</sup>   |
| Flywheel (polar) ..... | 1.14 kgm <sup>2</sup> |

#### Centre of gravity (wet)

|                                      |                  |
|--------------------------------------|------------------|
| - forward from rear of block .....   | 215 mm (8.46 in) |
| - above centre line of block .....   | 120 mm (4.72 in) |
| - offset of RHS of centre line ..... | 25 mm (0.98 in)  |

#### Performance

Steady state speed stability at constant load:

G2 .....

**Note:** All data based on operation to ISO 3046/1, BS 5514 and DIN 6271 standard reference conditions.

#### Test conditions

Air temperature .....

Barometric pressure .....

Relative humidity .....

#### Sound level

Overall sound pressure level (cooling pack and air cleaner fitted):

- at 1500 rev/min .....

- at 1800 rev/min .....

Sound pressure level from the mean of 4 microphones at the front, left, right and above the engine. Exhaust was piped away out of the test cell.

If the engine is to operate in ambient conditions other than those of the test conditions, suitable adjustments must be made for these changes. For full details, contact Perkins Technical Service Department.

## General installation

| Designation                                  | Units              | Type of Operation and Application |                 |                 |                 |
|----------------------------------------------|--------------------|-----------------------------------|-----------------|-----------------|-----------------|
|                                              |                    | Prime                             | Stand-by        | Prime           | Stand-by        |
|                                              |                    | 50 Hz                             | 50 Hz           | 60 Hz           | 60 Hz           |
| Gross engine power                           | kWm                | 42,2                              | 46,5            | 50,5            | 55,6            |
| Brake mean effective pressure                | kPa (lbf/in²)      | 1023 (148.3)                      | 1128 (163.6)    | 1020 (147.9)    | 1124 (163.0)    |
| Mean piston speed                            | m/s (ft/s)         | 6,35 (20.8)                       | 6,35 (20.8)     | 7,62 (25.0)     | 7,62 (25.0)     |
| ElectropaK net engine power                  | kWm                | 41,3                              | 45,6            | 48,8            | 53,9            |
| Engine coolant flow 35 kPa restriction       | l/min (UK gal/min) | 125,5<br>(27.6)                   | 125,5<br>(27.6) | 151,0<br>(33.2) | 151,0<br>(33.2) |
| Combustion air flow                          | m³/min (ft³/min)   | 2,9 (102.4)                       | 3,1 (109.4)     | 3,7 (130.6)     | 3,9 (137.7)     |
| Exhaust gas flow (max)                       | m³/min (ft³/min)   | 7,0 (247.2)                       | 7,7 (271.9)     | 8,8 (310.7)     | 9,5 (335.4)     |
| Exhaust gas temperature (max) in manifold    | °C (°F)            | 492 (917.6)                       | 537 (999.6)     | 510 (950.0)     | 551 (1023.8)    |
| Cooling fan air flow                         | m³/min (ft³/min)   | 53,0 (1871.6)                     | 53,0 (1871.6)   | 70,0 (2472.0)   | 70,0 (2472.0)   |
| Overall thermal efficiency                   | %                  | 39,8                              | 38,7            | 39,3            | 39,1            |
| Typical genset electrical unit (0.8 pf 25° C | kWe                | 36,0                              | 39,7            | 42,5            | 46,9            |
|                                              | kVA                | 45,0                              | 49,6            | 53,1            | 58,7            |
| Assumed alternator efficiency                | %                  | 87%                               |                 |                 |                 |
| Energy balance                               |                    |                                   |                 |                 |                 |
| Power in fuel (Fuel heat of combustion)      | kW (Btu/min)       | 106,0 (6033.4)                    | 120,0 (6830.3)  | 129,0 (7342.6)  | 142,0 (8082.5)  |
| Power output (gross)                         | kW (Btu/min)       | 42,2 (2402.0)                     | 46,5 (2646.7)   | 50,5 (2874.4)   | 55,6 (3164.7)   |
| Power to cooling fan                         | kW (Btu/min)       | 0,9 (51.2)                        | 0,9 (51.2)      | 1,7 (96.7)      | 1,7 (96.7)      |
| Power output (net)                           | kW (Btu/min)       | 41,3 (2350.7)                     | 45,6 (2595.5)   | 49,0 (2789.0)   | 53,9 (3067.9)   |
| Power to coolant and lubricating oil         | kW (Btu/min)       | 26,0 (1479.9)                     | 30,0 (1707.5)   | 31,0 (1764.5)   | 34,0 (1935.2)   |
| Power to exhaust                             | kW (Btu/min)       | 30,0 (1707.5)                     | 35,0 (1992.1)   | 39,0 (2219.8)   | 43,0 (2447.5)   |
| Power to radiation                           | kW (Btu/min)       | 7,0 (398.4)                       | 8,0 (455.3)     | 8,0 (455.3)     | 9,0 (512.2)     |

**Caution:** The airflows shown in this table will provide acceptable cooling for an open power unit operating in ambient temperatures of up to 53 °C (127 °F) or 46 °C (114.8 °F) if a canopy is fitted. If the power unit is to be enclosed totally, a cooling test should be done to check that the engine cooling is acceptable. If there is insufficient cooling, contact Perkins Technical Service Department.

## Cooling system

### Radiator

- face area ..... 0.276 m<sup>2</sup> (2.97 ft<sup>2</sup>)
- rows and materials ..... single row aluminium
- matrix density and material ..... Aluminium 12.5 fins/inch
- width of matrix ..... 526 mm (20.7 in)
- height of matrix ..... 524 mm (20.6 in)
- pressure cap setting ..... 107 kPa

### Fan

- diameter ..... 457 mm (18 in)
- drive ratio 0.85 : ..... 1
- number of blades ..... 7
- material ..... Composite
- type ..... Pusher

### Coolant

- Total system capacity
- with radiator ..... 10.2 l (21.5 pt)
  - without radiator ..... 4.4 l (9.2 pt)
- Maximum top tank temperature ..... 110 °C (230 °F)
- Thermostat operating range ..... 82 - 93 °C (180 - 199 °F)
- Recommended coolant: 50 % ethylene glycol with a corrosion inhibitor (BS 658 : 1992 or MOD AL39) and 50% clean fresh water.

## Electrical system

- Type ..... Negative ground
- Alternator voltage ..... V
- Alternator output ..... 65 amps
- Starter motor voltage ..... V
- Starter motor power ..... 3 kW
- Number of teeth on flywheel ..... 126
- Pull in current of starter motor solenoid ..... 60 amps
- Hold in current of starter motor solenoid ..... 15 amps
- Engine stop solenoid ..... V
- Stop solenoid (minimum)
- pull in current ..... 10 amps
  - hold in current ..... 10 amps

### Cold start recommendations

- Minimum cranking speed ..... 105 rev/min

### Starter specification

| Starter motor type | Minimum starting temperature | Lubricating oil viscosity SAE / battery type - values in CCA |         |         |         |
|--------------------|------------------------------|--------------------------------------------------------------|---------|---------|---------|
| 12 volt<br>3.0 kW  | °C (°F)                      | 15W/40                                                       | 10W/40  | 5W/40   | 5W/30   |
|                    | -10 (14)                     | 1 x 660                                                      |         |         |         |
|                    | -15 (5) *                    |                                                              | 1 x 660 |         |         |
|                    | -20 (-4) *                   |                                                              |         | 1 x 660 |         |
|                    | -25 (-13) *                  |                                                              |         |         | 2 x 570 |

\* - Glow plug start aid fitted.

**Note:** CCA - Cold Cracking Amps to SAEJ537.

### Notes:

- Battery capacity is defined by the 20 hour rate
- If a change to a low viscosity oil is made, the cranking torque necessary at lower ambient temperatures is much reduced. The starting equipment has been selected to take advantage of this. It is important to change 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 ..... 10 kPa
  - 1800 rev/min ..... 15 kPa
- Exhaust outlet size ..... 56 mm (2.2 in)

## Fuel System

- Type of injection ..... Direct
- Fuel injection pump ..... Rotary
- Fuel atomiser ..... Multi-hole
- Nozzel opening pressure ..... 29,0 MPa (290 bar)

### Fuel lift pump

- Type ..... Electrical
- flow/hour ..... 120 - 150 l/h (211 - 264 pt/m)
- pressure ..... 30 - 75 kPa (4.4 - 10.9 psi)
- Maximum suction head:
- 1500 rev/min ..... 20 kPa

### Governor type

- Electronic governor ..... Woodward LCS2
- Mechanical and electronic governor speed control to ..... SO 8528, G2

### Fuel specification

| Fuel Specification                     | European RF75-T-96 / DIN EN590 / BS2869 class A2 |
|----------------------------------------|--------------------------------------------------|
| Density (kg/l @ 15 °C)                 | 0,835 - 0,845                                    |
| Viscosity (mm <sup>2</sup> /s @ 40 °C) | 2,5 - 3,5                                        |
| Sulphur content (%)                    | 0,1 - 0,2                                        |
| Cetane number                          | 45 - 50                                          |

### Fuel consumption litres/hour (UK gals/hr)

| Power rating |            |            |           |           |           |
|--------------|------------|------------|-----------|-----------|-----------|
| Speed        | 110%       | 100%       | 75%       | 50%       | 25%       |
| 1500         | 12,0 (2.6) | 10,7 (2.3) | 8,2 (1.8) | 5,7 (1.2) | 3,4 (0.7) |
| 1800         | 14,3 (3.1) | 12,9 (2.8) | 9,9 (2.1) | 7,1 (1.5) | 4,3 (0.9) |

## Induction system

### Maximum air intake restriction

- clean filter ..... 5 kPa
- dirty filter ..... 8 kPa
- air filter type ..... Dry

## Lubrication system

### Lubricating oil capacity

- Total system ..... 8,3 l (17.5 pt)
- Sump minimum ..... 6,2 l (13.1 pt)
- Sump maximum ..... 7.8 l (16.4 pt)

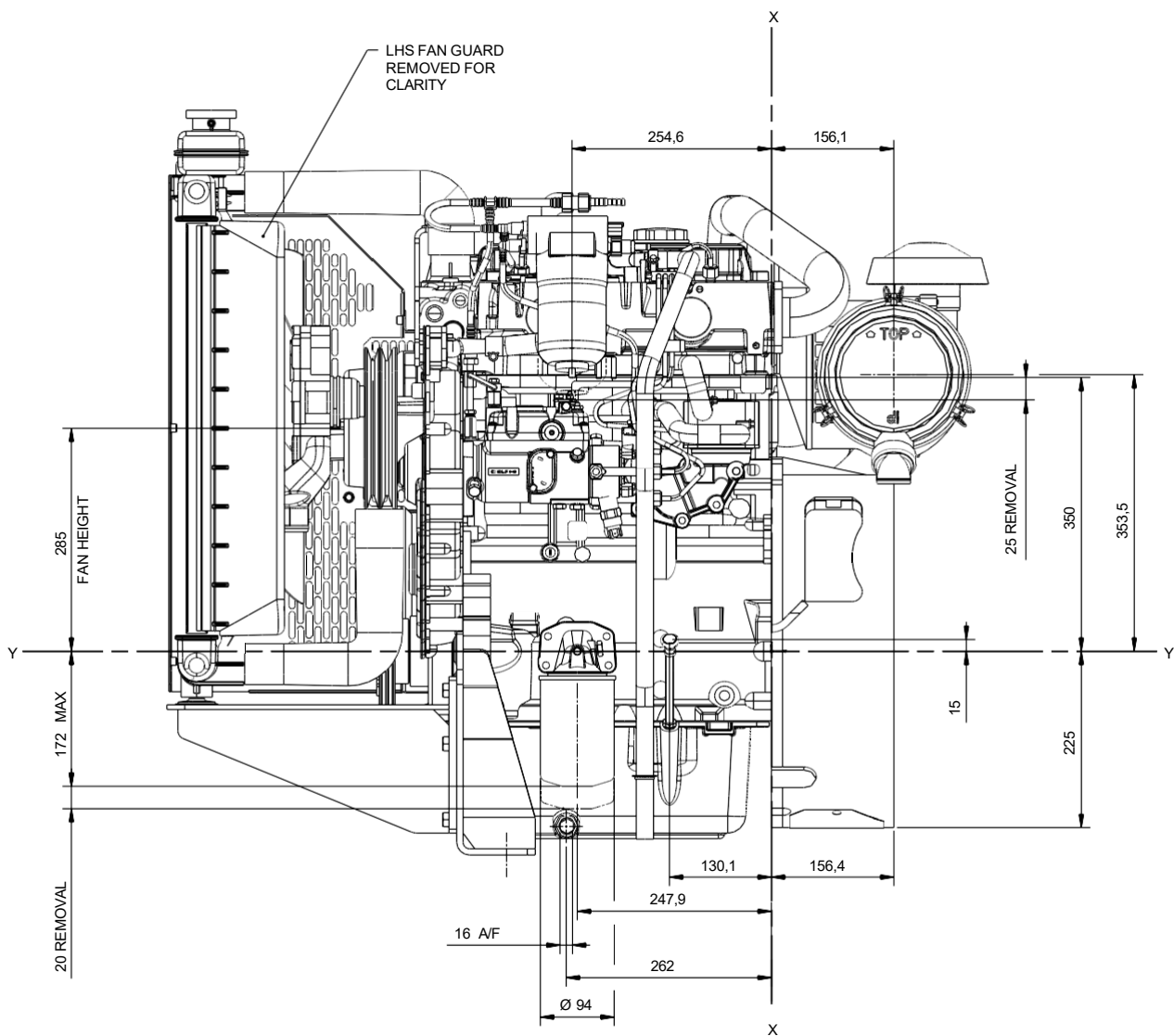
Maximum engine operating angles:

- front up, front down, right side or left side ..... 25°

### Lubricating oil pressure

- relief valve opens ..... 415 - 470 kPa
  - at maximum no-load speed ..... 276 - 414 kPa
- Max continuous oil temperature ..... 125 °C (257 °F)
- Oil consumption at full load as a % of fuel consumption ..... 0.15%

1103A-33TG1 ElectropaK - left view



6 - M8 X 1,25  
THREAD INSERT

BETWEEN HEADER PLATES

524,2

634

Z

185,5

135,5

$\varnothing 8$

298

674,5

691

951,3

Y

OVERCORE

526,2

285

13

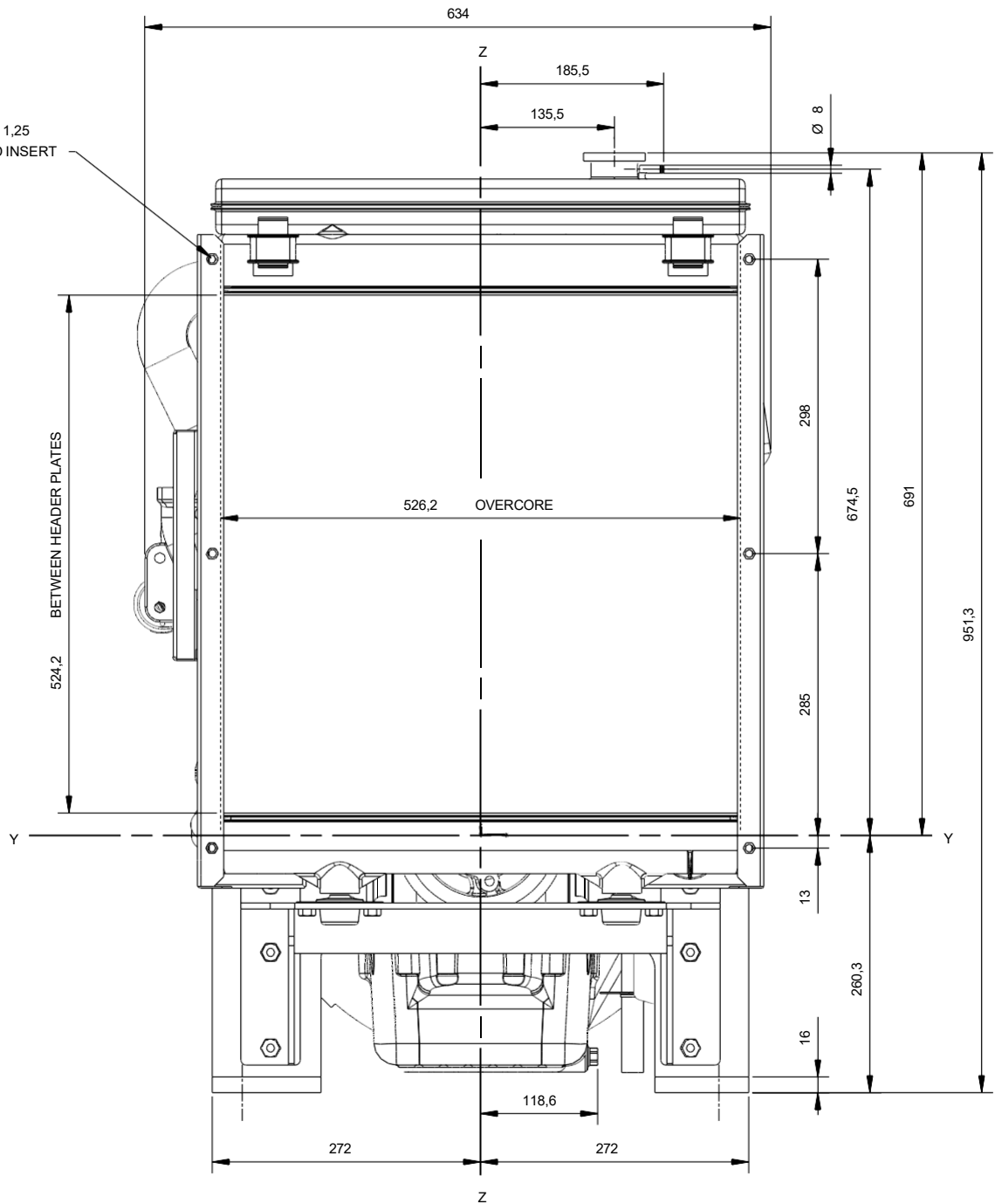
260,3

16

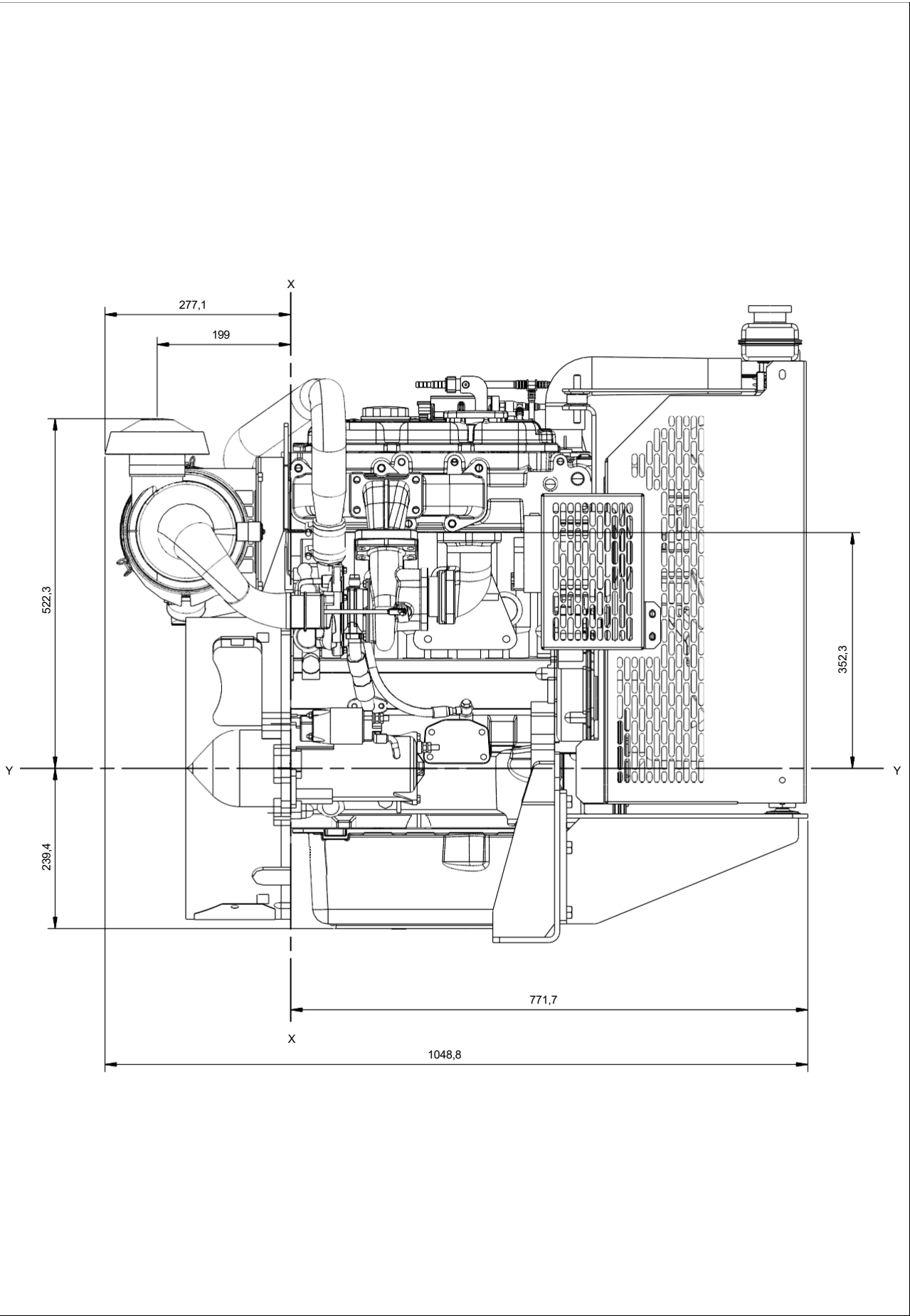
118,6

272

Z



1103A-33TG1 ElectropaK - right view

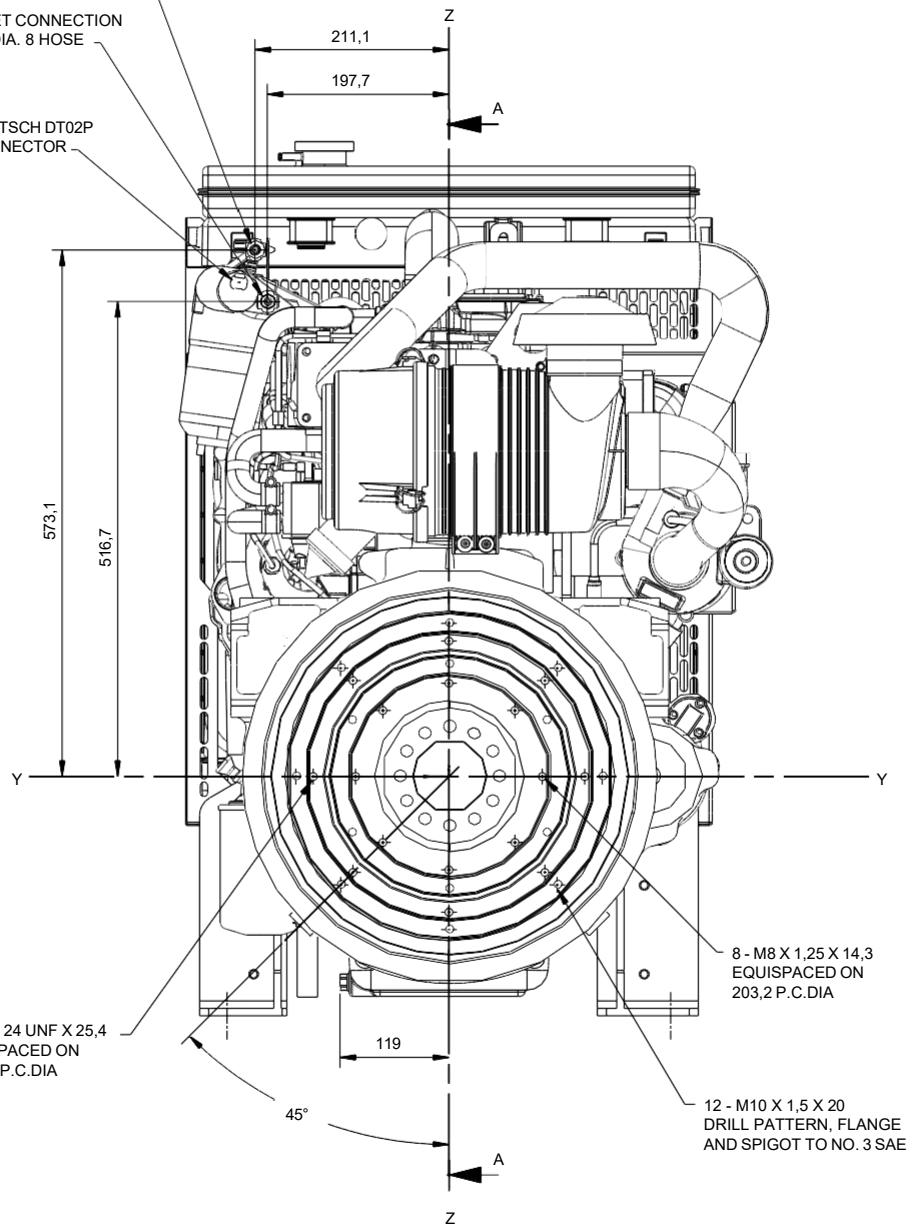


# 1103A-33TG1 Electropak - rear view

FUEL RETURN CONNECTION TO  
SUIT DIA. 8 OR DIA. 10 HOSE.

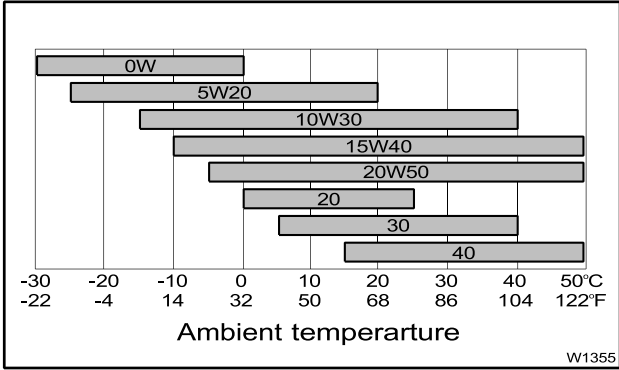
FUEL INLET CONNECTION  
TO SUIT DIA. 8 HOSE

DEUTSCH DT02P  
CONNECTOR



**Recommended SAE viscosity**

A single or multigrade oil must be used which conforms to API-CG4 / CH4, see illustration below:



**Mountings**

Maximum static bending moment  
at rear face of block ..... 791 Nm (583 lb/ft)

**Load Acceptance**

| Intital load appliaction when engine reaches rated speed<br>(15 seconds max after engine starts to crank) |             |                  |                  |
|-----------------------------------------------------------------------------------------------------------|-------------|------------------|------------------|
|                                                                                                           | Units       | 1500 rev/<br>min | 1800 rev/<br>min |
| Prime Power                                                                                               | %           | 90               | 90               |
| Load                                                                                                      | kWm/<br>kWe | 38,0<br>(32.3)   | 45,5<br>(38.2)   |
| Transient frequency deviation                                                                             | %           | < 10             | < 10             |
| Frequency recovery                                                                                        | seconds     | < 5              | < 5              |

The above complies with requirements of classification 3 & 4 of ISO 8528-12 and G2 operating limits stated in ISO 8528-5. The above figures were obtained under the test conditions as follows:

Engine block temperature ..... 105 °C  
Alternator efficiency ..... 87%  
Minimum ambient temperature..... 10 °C

**Isochronous governing:**

- typical alternator inertia.....0.364 kgm²

All tests were conducted using an engine installed and services to Perkins Engines Company Limited recommendations

**The information given in this document is for guidance only.**

**@Perkins®**

**Perkins Engines Company Limited**

Peterborough PE1 5NA United Kingdom  
Telephone +44 (0) 1733 583000  
Fax +44 (0) 1733 582240  
www.perkins.com

All information in the document is substantially correct at the time of printing but may be subsequently altered by the company.

Distributed by

# 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  $\Omega$  to 240  $\Omega$

#### ANALOGUE INPUTS B TO D

Configurable as:  
Negative switching digital input  
0  $\Omega$  to 480  $\Omega$

#### 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

### OPTIONAL PARTS

| PART        | PART NUMBER |
|-------------|-------------|
| IP65 Gasket | 020-521     |

### RELATED MATERIALS

| TITLE                                         | PART NO. |
|-----------------------------------------------|----------|
| DSE6110/20 MKII Installation Instructions     | 053-173  |
| DSE6110/20 MKII Operator Manual               | 057-226  |
| DSE6110/20 MKII Configuration Suite PC Manual | 057-224  |

### 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 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.

### 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

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

# 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

