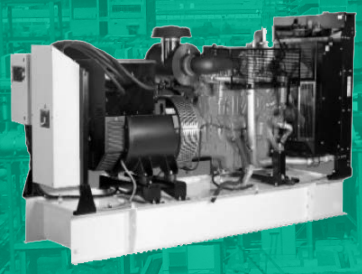
Model A+

50Hz/60Hz switchable

400kW @ 50Hz 400V
400kW @ 60Hz 480V



Open

Canopy

Container

FossilPower

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CAIGATETEX
ENERGY SOLUTIONS

Model A+

CAIGATETEX ENERGY SOLUTIONS

		Prime		Standby	
Genset model		**Model A+**		**Model A+**	
380 V	50Hz	500.0 kVA	400.0 kW	550.0 kVA	440.0 kW
400 V	50Hz	500.0 kVA	400.0 kW	550.0 kVA	440.0 kW
415 V	50Hz	500.0 kVA	400.0 kW	550.0 kVA	440.0 kW
Genset model		**Model A+**		**Model A+**	
380 V	60Hz	500.0 kVA	400.0 kW	550.0 kVA	440.0 kW
480 V	60Hz	500.0 kVA	400.0 kW	550.0 kVA	440.0 kW

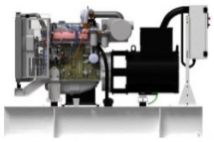
Ratings at 0.8pf

Prime: This rating is for the supply of continuous electrical power (at variable load) in lieu of commercially purchased power. There is no limitation on the annual hours of operation and 10% overload power can be supplied for one hour in twelve hours.

Standby: This rating is for the supply of continuous electrical power (at variable load) in the event of a utility power failure. No overload is permitted.

Engine	**Scania**	**DC13-072A**	**DC13-072A**
Number of cylinders		6 in-line	6 in-line
Cubic capacity	litre (cu inch)	12.7 (775.00)	12.7 (775.00)
Aspiration		Turbocharged	Turbocharged
Alternator		MeccAlte UK	MeccAlte UK
Frequency	Hz	50	60
Engine speed	rpm	1500	1800
Fuel consumption at full rating: Prime	litre /h (USgal /h)	98.94 (26.14)	102.10 (26.97)
Standby	litre /h (USgal /h)	110.68 (29.24)	114.02 (30.12)
Heat rejection to exhaust system (max)	kW (BTU /min)	344.00 (19578.76)	358.00 (20375.57)
Heat rejection to cooling system (max)	kW (BTU /min)	158.00 (8992.57)	166.00 (9447.89)
Total radiated heat (max)	kW (BTU /min)	39.00 (2219.69)	41.00 (2333.52)
Exhaust temperature (max)	deg C (deg F)	563.00 (1045.40)	557.00 (1034.60)
Radiator cooling air flow	cu m /min (cfm)	416.30 (14701.63)	710.18 (25080.01)
with max Restriction	mm (inch) H_2O	20.00 (0.79)	20.00 (0.79)
Combustion air flow (max)	cu m /min (cfm)	27.76 (980.17)	29.40 (1038.26)
Exhaust gas flow (max)	cu m /min (cfm)	86.60 (3058.28)	90.70 (3203.07)
with max allowable back pressure	mm (inch) H_2O	1000.00 (39.37)	1000.00 (39.37)

Note: Standard reference conditions: 25deg C (77deg F) air inlet temperature, 152.4m (500feet) above sea level, 60% relative humidity. All engine performance data based on the above mentioned maximum continuous ratings. Fuel consumption data at full load for diesel fuel with specific gravity of 0.85 and conforming to BS2869: 1998, class A2.

Model	**Dimensions: mm (inch)**	**Weight: (kg)**	**Fuel tank: (L)**
 Open	Length 3831 (150.8) Width 1120 (44.1) Height 2138 (84.2)	3250	940
Canopy	Length 5000 (196.9) Width 1600 (63.0) Height 2100 (82.7)	4850	1020
Container	Length 6060 (238.6) Width 2440 (90.1) Height 2590 (102.0)	6100	1020

Note: Above weights for Open/Canopy/Container are estimated figures, excluding fuel and options.

In line with our policy of continuous development, we reserve the right to change specification without notice.
Specification should be confirmed prior to purchase.
We have made every effort to provide accurate information. However we are not responsible for errors or omissions.

General information

Standard equipment

Scania Engine Management System, EMS
Unit injectors, PDE
Turbocharger
Fuel filter
Fuel pre-filter with water separator, for separate mounting
Oil filter, full flow
Centrifugal oil cleaner
Oil cooler, integrated in block
Oil filler, in valve cover
Deep front oil sump
Oil dipstick, in block
Magnetic drain plug for oil draining
Starter, 1-pole 6,0 kW (EMS controlled)
Alternator, 1-pole 100A (EMS controlled)
Flywheel, SAE 14
Silumin flywheel housing, SAE 1 flange
Front-mounted engine brackets
EGR system **- only DC13 071A**
Open crankcase ventilation
Operator's manual

For optional equipment, see 'Equipment list' at the end of this section.

Power Ratings

PRP, Prime power	For continuous operation at varying load. Max mean load factor of 70% of rated power over 24 h of operation. 1 hour/12 hours period of accumulated peak overload to 110%.
COP, Continuous operation	For continuous operation at a constant 80% load of rated PRP for an unlimited number of hours per year.
ESP, Maximum stand-by power	For operation under normal varying load during a power outage. Not overloadable. Max mean load factor of 70% of rated power over 24 h of operation. Not for applications intended for more than 200 h/year.

For more detailed information about power rating definitions see section 2.

Emission compliance

For detailed information about approved and certified engines, access SAIL at http://sail.scania.com to view or download the appropriate certificate.

Dual speed configuration

The engine speed can be switched between 1500 rpm (50 Hz) and 1800 rpm (60 Hz) via the Coordinator/EMS.
Note! that the default setting is 1500 rpm (50 Hz) from factory.
To manually change the nominal speed, see Electrical systems in the Installation manual or EMS CAN specifications on SAIL at http://sail.scania.com.

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Basic data

General

Configuration and number of cylinders	6 in-line	
Working principle	4-stroke	
Bore x stroke	130 x 160	mm
Displacement	12.7	dm^3
Compression ratio	16.3:1 (DC13 072A, DC13 073A)	
	17.3:1 (DC13 071A)	
Firing order	1 - 5 - 3 - 6 - 2 - 4	
Piston speed		
at 1500 rpm	8.0	m/s
at 1800 rpm	9.6	m/s
Pistons	Steel pistons	
Camshaft	High position alloy steel	
Connection rods	I-section press forgings of alloy steel	
Crankshaft	Alloy steel with hardened and polished bearing surfaces	
Rotation, seen from flywheel end	Counter clockwise	
Total moment of inertia with flywheel		
SAE 14	3.11	kgm^2
Number of teeth on flywheel ring gear	158	
Weight approx. (excl. oil and coolant)	1050	kg

Lubrication system

Oil capacity (deep front oil sump with ladder frame)		
min	39	dm^3
max	45	dm^3
Oil capacity (deep front oil sump without ladder frame)		
min	30	dm^3
max	36	dm^3
Oil consumption	<0.3	g/kWh
Oil change intervals	500	h
Oil grade		
engines run on low-sulphur fuel	ACEA E3, E4, E5 or E7	
engines not run on low-sulphur fuel	Total Base Number (TBN) at least 12 (ASTM 2896)	
Oil pressure		
normal	3-6	bar
minimum permitted at idle speed	0.7	bar
Oil temperature		
normal	90-110	°C
Oil cleaner	Centrifugal	
filtration	5-7	Micron
Oil filter	Paper/Full flow	
Oil cooler	Water cooled/Full flow	

Injection system

Type	Unit injectors, PDE
Governor	Scania Engine Management System, EMS
Fuel filter	Paper filter element, 10 micro
Fuel pre-filter with water separator	Paper filter element, 30 micro

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Cooling system

Coolant volume, excl. radiator	16	dm^3
Coolant temperature	90-95	°C
Number of thermostats	1	
Opening temperature	80/87	°C

Intake system

Permissible pressure drop in intake system with cleaned or new filter	30	mbar
Permissible pressure drop in intake system with blocked (dirty) filter	65	mbar

Electrical system, optional equipment

Type	1-pole, 24V, DC
Starter, standard equipment	1-pole, 24V, 6,0 kW
Alternator, standard equipment	1-pole, 28V, 100A

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Technical data

DC13 072A, 438-487 kW / 500-550 kVA (order ref 02-14)

Emission compliance	Fuel injection system
Fuel optimized, non-compliant	Unit injectors, PDE

	1500 rpm (50 Hz)		1800 rpm (60 Hz)		Unit
	PRP	ESP	PRP	ESP	
Gross power	438	480	445	487	kW
	500	550	500	550	kVA
Gross torque	2788	3056	2361	2584	
Spec. fuel consumption					
full load	192	196	195	199	g/kWh
3/4 load	183	183	187	188	g/kWh
1/2 load	184	183	190	187	g/kWh
Heat rejection					
to coolant	134	158	142	166	kW
to exhaust gas	309	344	320	358	kW
to charge air	89	104	96	112	kW
to surrounding air	35	39	36	41	kW
Air consumption	32	34	35	36	kg/min
Air temperature					
before charge air cooler	211	227	213	231	°C
after charge air cooler	50	50	50	50	°C
Pressure in intake manifold	2.4	2.6	2.1	2.2	Bar
Fall of pressure, charge air cooler	0.10	0.10	0.15	0.15	Bar
Exhaust flow	34	36	36	38	kg/min
Exhaust temperature	536	563	521	557	°C
Step load performance					
(According to class G2. See section 2 for more information.)	57	52	72	66	%
	257	257	328	328	kW

5

Cooling performance
Cooling package 1.3 m^2, fan Ø914, ratio 1:0.9

1500 rpm (50 Hz)						1800 rpm (60 Hz)					
PRP			ESP			PRP			ESP		
Air-on temp* (°C)	Airflow (kg/s)	Rest-riction (Pa)	Air-on temp* (°C)	Airflow (kg/s)	Rest-riction (Pa)	Air-on temp* (°C)	Airflow (kg/s)	Rest-riction (Pa)	Air-on temp* (°C)	Airflow (kg/s)	Rest-riction (Pa)
N/A	N/A	500	N/A	N/A	500	55	5.5	500	49	5.5	500
52	6	300	47	6	300	60	8.5	400	56	8.5	400
60	8.5	200	55	8.5	200	66	11	300	64	11	300
64	11.5	150	59	11.5	150	68	14	220	66	14	220

*Based on engine coolant temperature 105°C

Fan power losses (kW)

10	17

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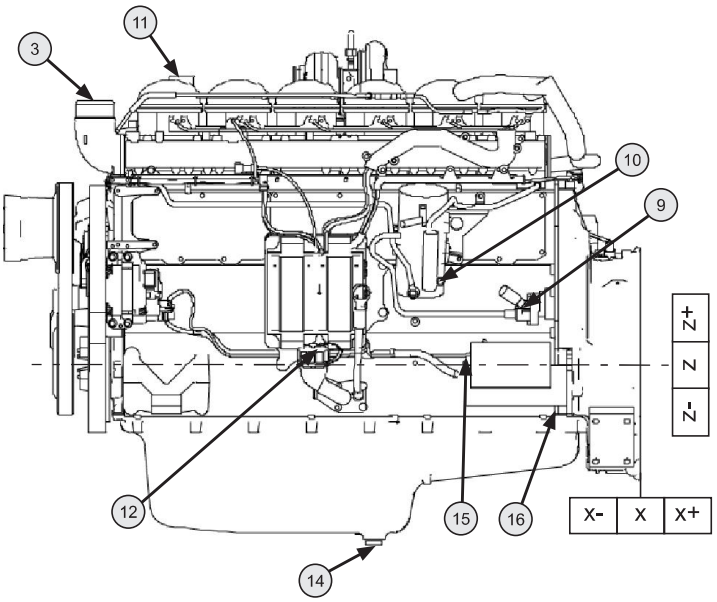
Basic dimensions

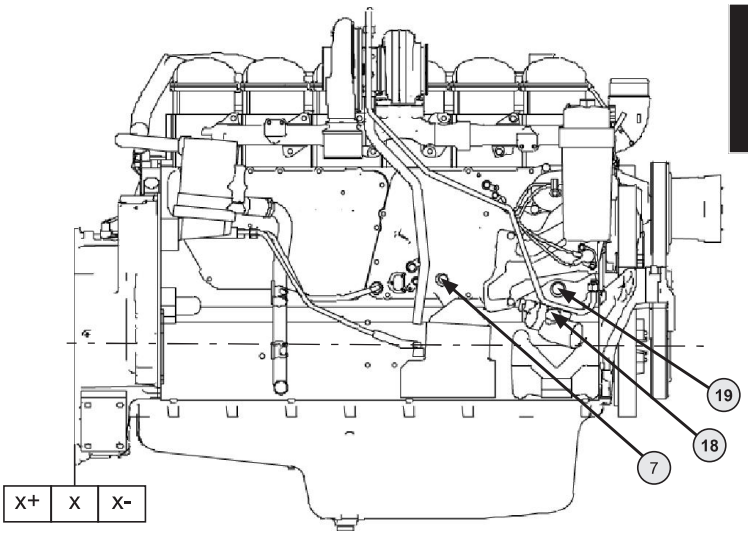
The basic dimensions are indicated with coordinates. The coordinate system is three dimensional and consists of three planes at straight angles to each other; x, y and z. The dimensions are indicated in mm from crankshaft centre.

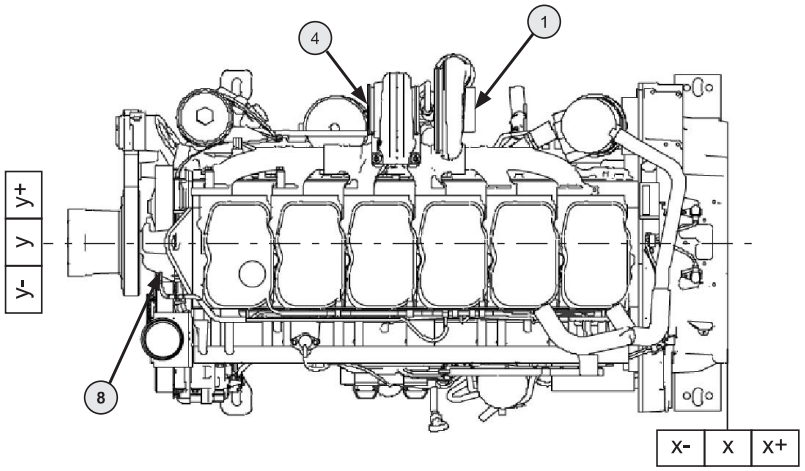
DC13 072/073A

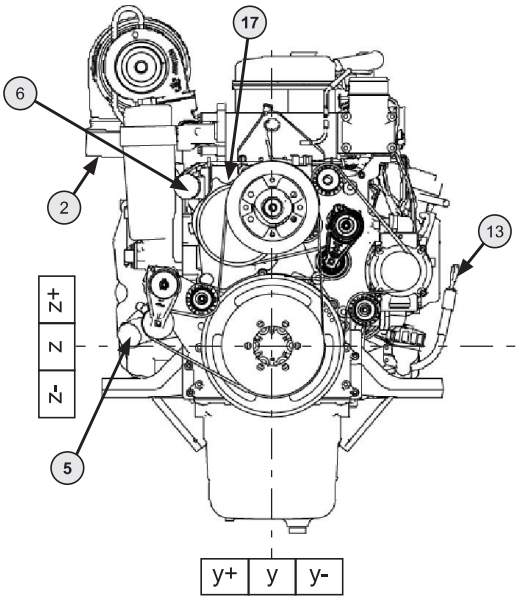
1 Air intake (Ø 101.6 mm)
2 Connection to charge air cooler
3 Connection from charge air cooler
4 Exhaust outlet
5 Coolant inlet (Ø 57 mm)
6 Coolant outlet (Ø 57 mm)
7 Coolant drain
8 Coolant bleed pipe (Ø 10 mm)
9 Fuel inlet (Ø 12 mm)
10 Fuel return (Ø 12 mm)
11 Oil filler, option
12 Oil filler
13 Oil dipstick
14 Oil drain plug
15 Battery connection + (M10)
16 Battery connection - (M10)
17 To cab heater (M18 x 1.5)
18 From cab heater (M18 x 1.5)
19 Static line (Ø 25 mm)

1	x	-581.4
	y	+304.6
	z	+647
2	x	-628.1
	y	+385.1
	z	+434
3	x	-1300.4
	y	-223.1
	z	+626
4	x	-827
	y	+304.6
	z	+647
5	x	-1176.7
	y	+330.7
	z	+24
6	x	-1269.8
	y	+197.3
	z	+370.6
9	x	-303
	y	-213.8
	z	-137.1
10	x	-483.9
	y	-375.4
	z	+195.7
11	x	-1094.2
	y	-67
	z	+682
14	x	-634.5
	y	-58
	z	-431







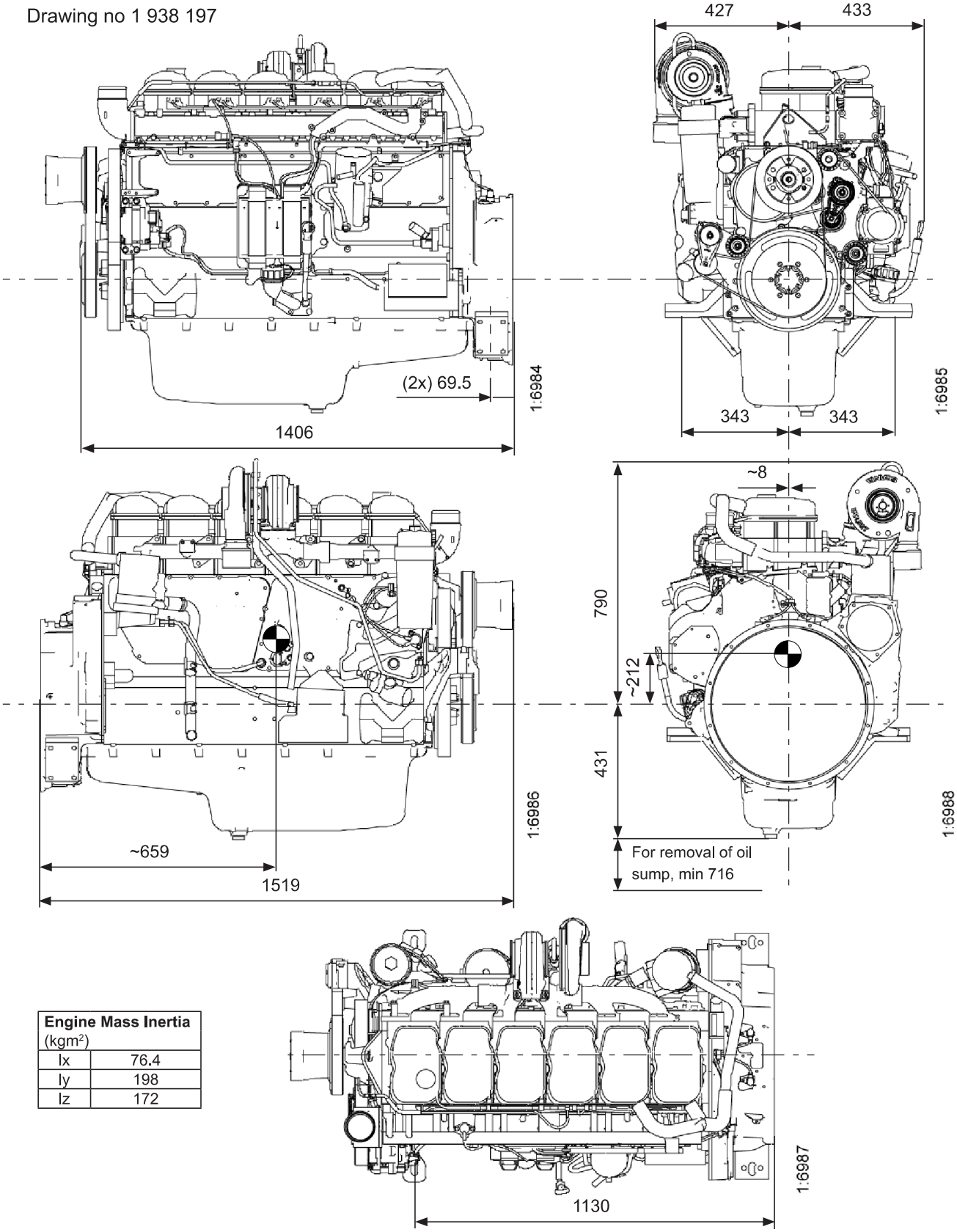


Dimensional drawings

All sketches are only intended as general sales information and must not be used for any installation purposes. The values for centre of gravity applies for engines with standard equipment including coolant. All dimensions are indicated in mm.

DC13 072/073A

Drawing no 1 938 197



Engine Mass Inertia (kgm²)	
Ix	76.4
Iy	198
Iz	172

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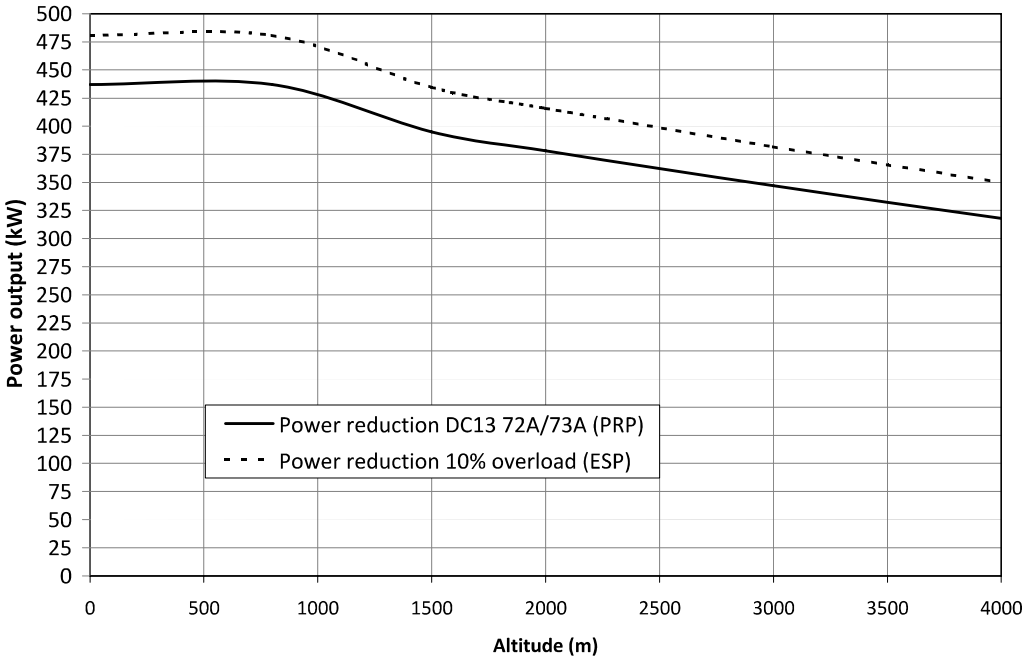
DC13 072/073A

The graph below shows the maximum power output for DC13 072/073A depending on altitude. Lower power outputs that do not reach the maximum power curve will have an output reduction due to air properties with approximately 1.5% per 1000 metres above sea water level.



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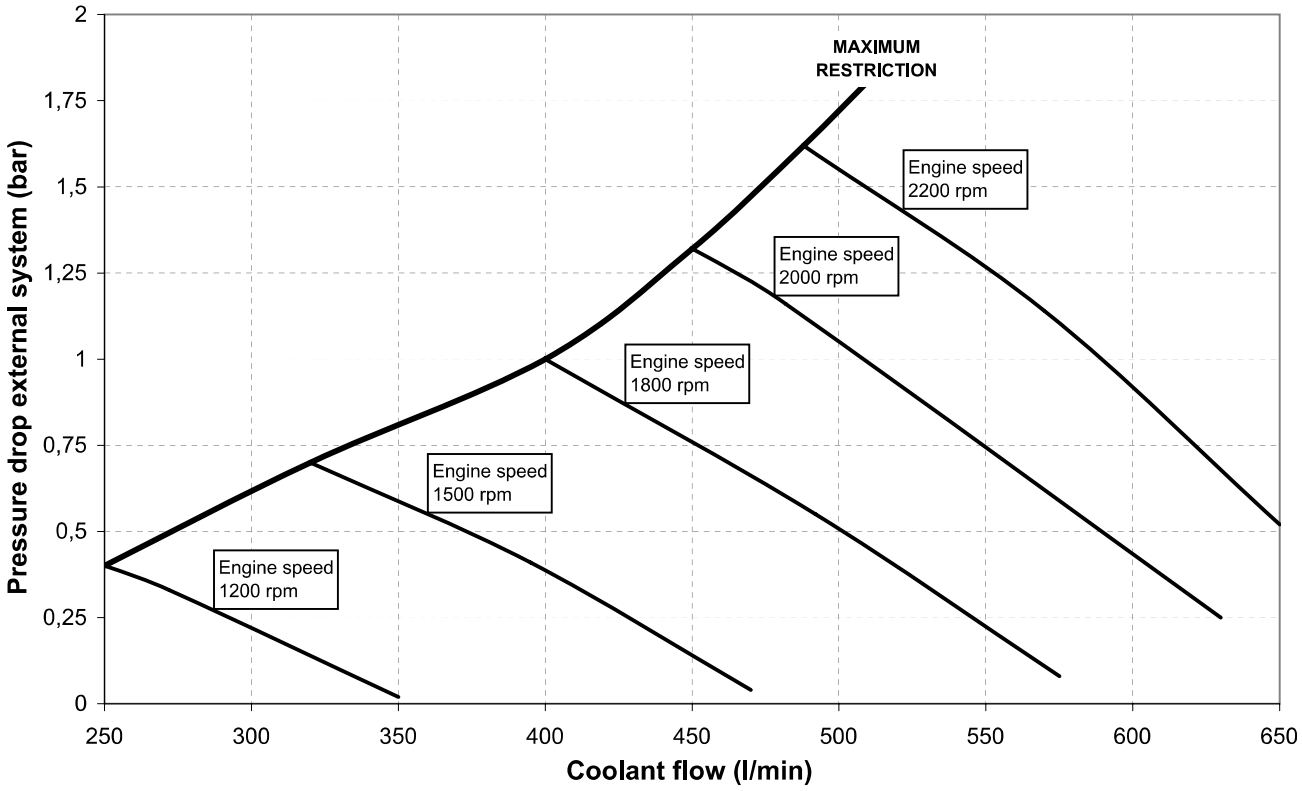
Coolant flow

The coolant flow depends on the pressure drop in the external system according to the graph below.
Valid for all DC13.



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Exhaust noise

The table below presents unsilened exhaust noise measured 1 m after the turbocharger at maximum power. Most important overall frequency range for exhaust noise is 50-500 Hz. Noise at higher frequencies is generally not induced by the engine gas pulsations but by the exhaust system itself, for example turbulent and whistle noise.

Engine size	Power (kW)	Engine speed (rpm)	Sound level (dB(A))	1/3 octave band (Hz)
D13	257-316	1500	115	80 + 160
		1800	117	100 + 200
	331-405	1500	118	80 + 160
		1800	120	100 + 200

Engine sound power level

The engine sound power level measurements are performed according to ISO 3744 with 10 microphones placed in a hemispherical pattern with the engine in the centre. There has been one exception concerning the radius of the hemisphere and that is that it has been limited by the dimensions of the test cell to 2 m, which is less than what is recommended in ISO 3744.

The sound power level measurements are made with the following test parameters:

Frequency range: 0-16384 Hz
Frequency resolution: 1 Hz
Engine speed: 1500 rpm and 1800 rpm

The results of the sound power level measurements are presented on the following pages in several 1/3 octave band charts in dB(A). The bar furthest to the right in every chart shows the total level of all 1/3 octave band in dB(A).

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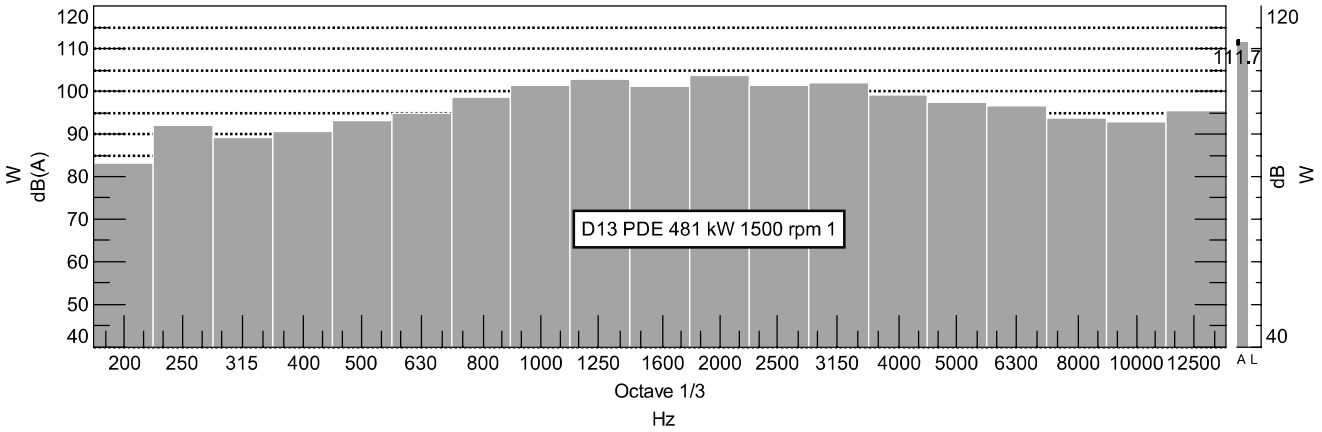
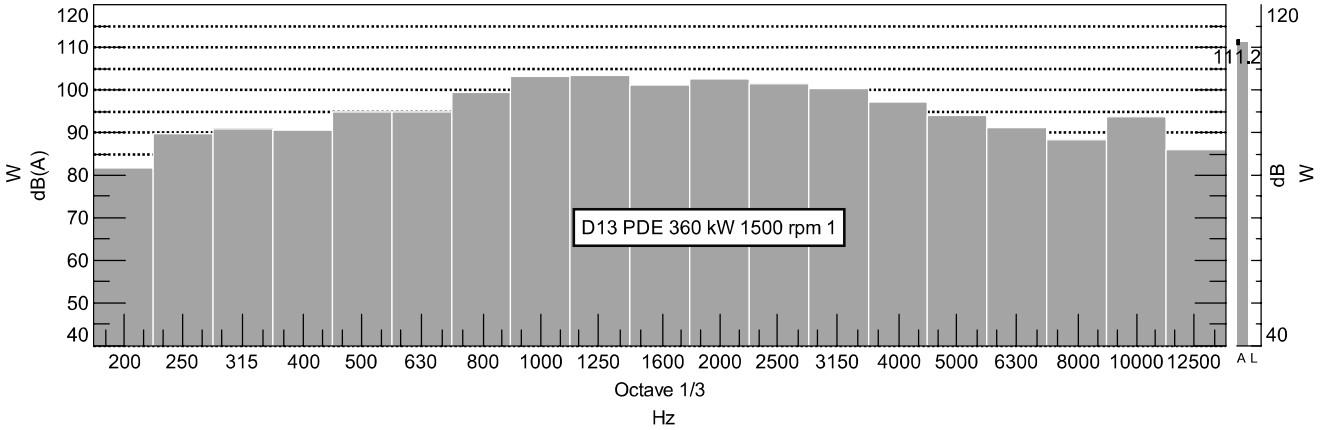
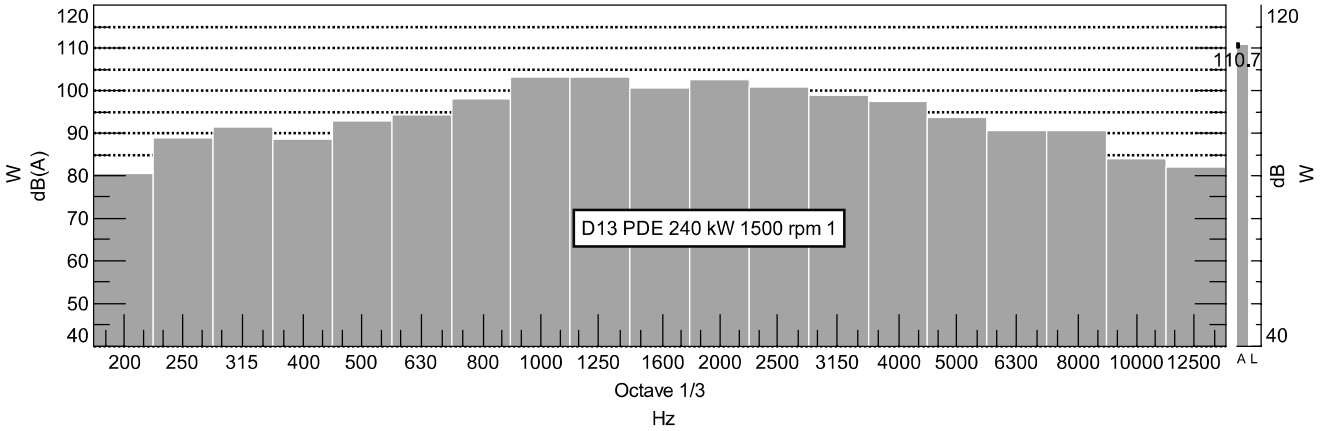
DC13 PDE, 1500 rpm







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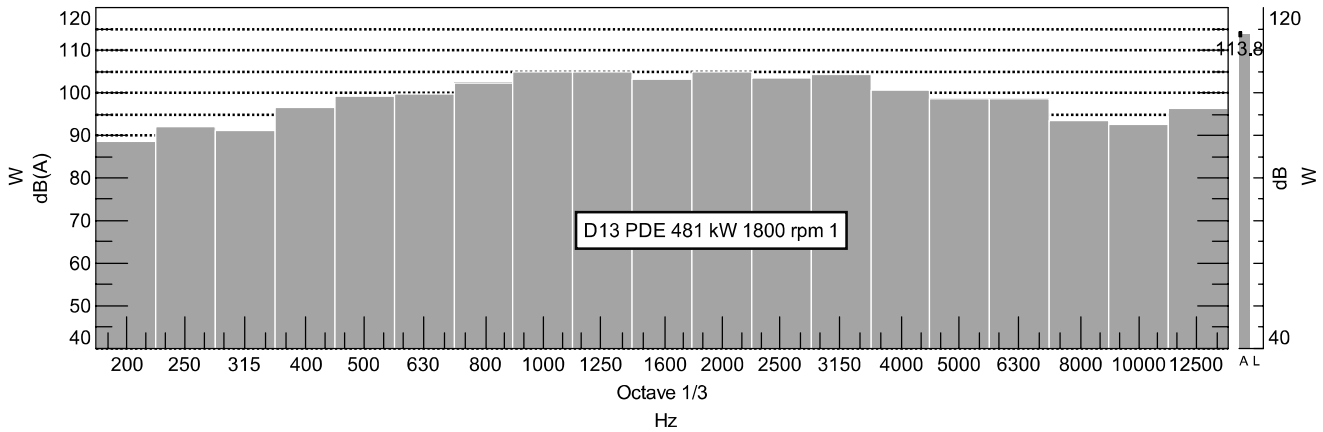
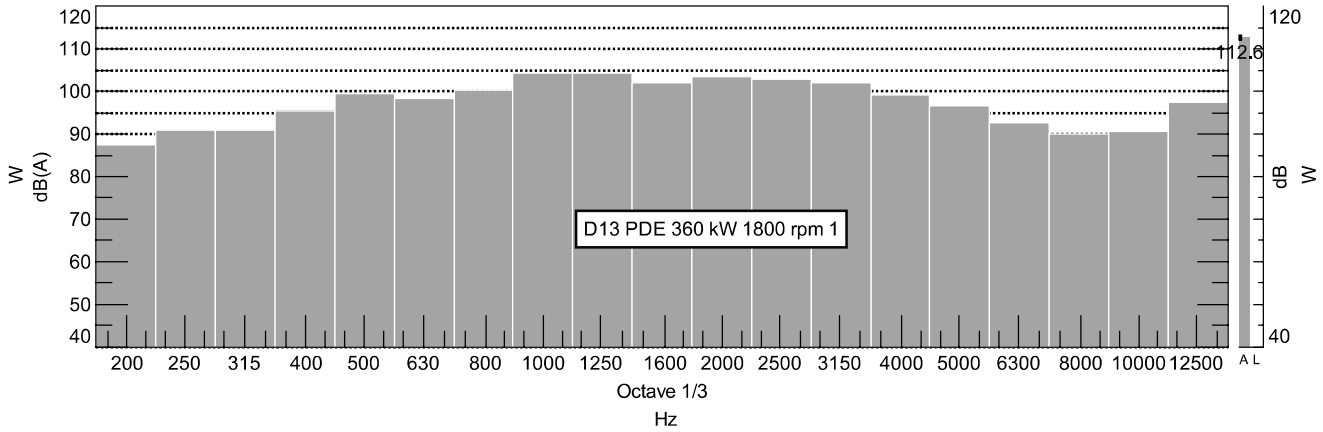
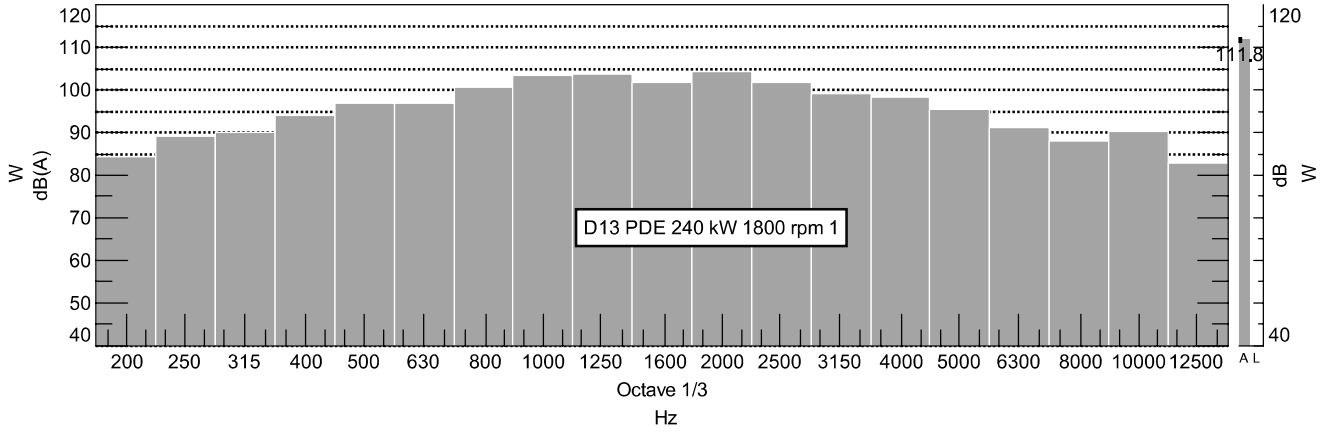
DC13 PDE, 1800 rpm







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ALTERNATOR MA5014C

Document : **DS024A/1**
issue 010 date 21/03/2014

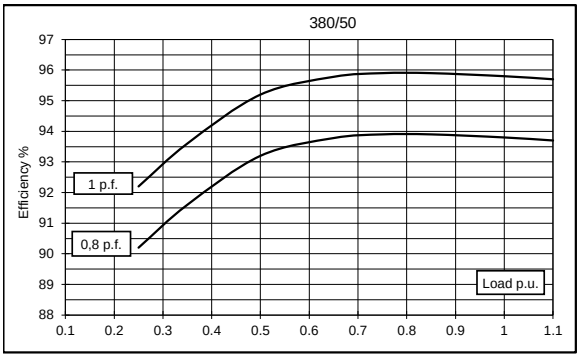
Electrical Characteristics										
Frequency		Hz	50				60			
Voltage (parallel star)		V	380	400	415	440	415	440	460	480
Rated power class H		kVA	500	500	500	460	540	580	600	600
		kW	400	400	400	368	432	464	480	480
Rated power class F		kVA	450	450	450	414	484	520	540	540
		kW	360	360	360	331	387	416	432	432
Regulation with		DER1	±0.5% with any power factor and speed variations between -5% +30%							
Insulation class			H							
Execution			Brushless							
Stator winding			12 ends (nameplate data : 800V-50Hz Series Star, 960V-60Hz Series Star)							
Rotor			with damping cage							
Efficiencies class H	4/4	%	94.4	94.6	94.5	94.2	95	95.3	95.5	95.6
(see graph. for details)	3/4	%	94.6	94.8	94.7	94.4	95.2	95.5	95.7	95.8
	2/4	%	93.7	93.9	93.7	93.4	93.9	94.5	94.7	94.9
	1/4	%	90.2	90.3	90.1	89.8	90.5	90.7	90.9	91.1
Reactances (f. l.cl. F)	Xd	%	322.0	250.0	167.0	105.0	430.0	370.0	322.0	250.0
	Xd'	%	21.8	21.0	19.4	18.1	23.5	22.9	21.8	21.0
	Xd"	%	12.1	11.4	10.2	9.7	14.1	13.4	12.1	11.4
	Xq	%	122.0	108	102.0	92.0	145.0	136.0	122.0	108
	Xq'	%	122.0	108	102.0	92.0	145.0	136.0	122.0	108
	Xq"	%	27.7	26.4	25.8	24.3	29.5	28.6	27.7	26.4
	X_2	%	18.4	16.7	15.7	13.8	20.2	19.4	18.4	16.7
	X_0	%	3.2	3.0	2.7	2.5	3.8	3.6	3.2	3.0
Short Circuit Ratio	Kcc		0.31	0.40	0.60	0.96	0.23	0.27	0.31	0.40
Time Constants	Td'	sec.	0.14							
	Td"	sec.	0.021							
	Tdo'	sec.	2.80							
	Tα	sec.	0.031							
Short Circuit Current Capacity		%	>300				>350			
Excitation at no load		Amp.	0.6	0.7	1	1.2	0.4	0.5	0.6	0.7
Excitation at full load		Amp.	3.6	3.5	3.9	4	3	3.1	3.2	3.4
Overload (long-term)		%	1 hour in a 6 hours period 110% rated load							
Overload per 20 sec.		%	300							
Stator Winding Resistance (20°C)		Ω	0.0106							
Rotor Winding Resistance (20°C)		Ω	5.176							
Exciter Resistance (20 °C)		Ω	Rotor : 0,317				Stator : 8,85			
Heat dissipation at f.l.cl.H		W	23729	22833	23280	22658	22737	22884	22618	22092
Telephone Interference			THF < 2%				TIF < 40			
Radio interference			EN61000-6-3, EN61000-6-1. For others standards apply to factory							
Waveform Distors.(THD) at f. load		LL/LN %	2,4 / 2,5							
Waveform Distors.(THD) at no load		LL/LN %	2,6 / 2,5							
Mechanical characteristics										
Protection			IP 23 (other protection on request)							
DE bearing			6322							
NDE bearing			6318.2RS							
Weight of wound stator assembly		kg	428							
Weight of wound rotor assembly		kg	274.6							
Weight of complete generator		kg	1171							
Maximun overspeed		rpm	2250							
Unbalanced magnetic pull at f.l.cl.F		kN/mm	6.5							
Cooling air requirement		m^3/min	54				64.8			
Inertia Constant (H)		sec.	0.175				0.210			
Noise level at 1m/7m		dB(A)	94 / 82				98 / 88			

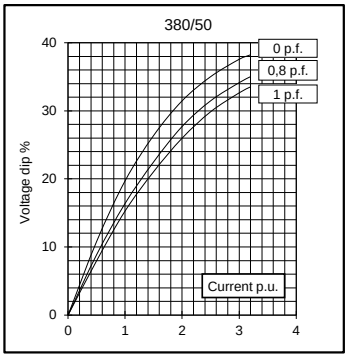
All technical data are to be considered as a reference and they can be modified without any notice.

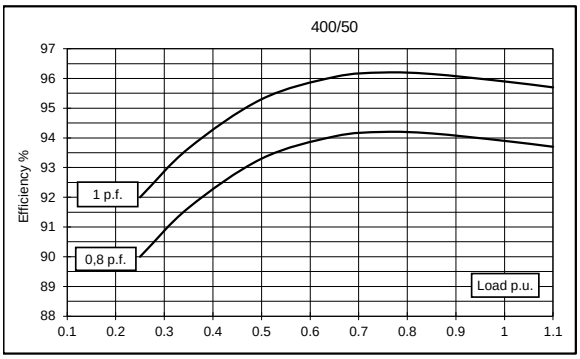
ALTERNATOR MA5014C

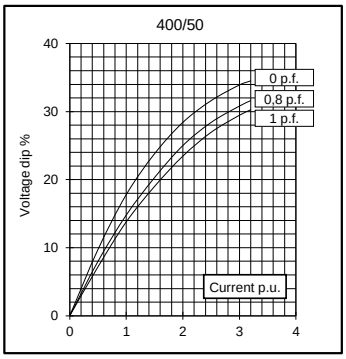
Document : **DS024A/2**
issue 010 date : 21/03/2014

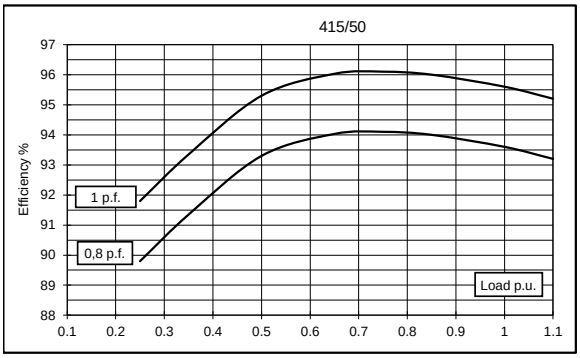
50 Hz

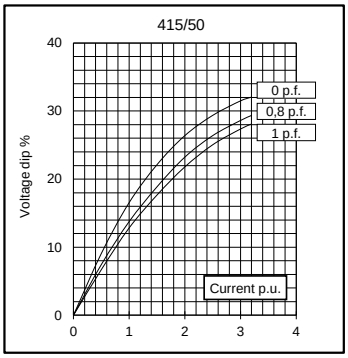


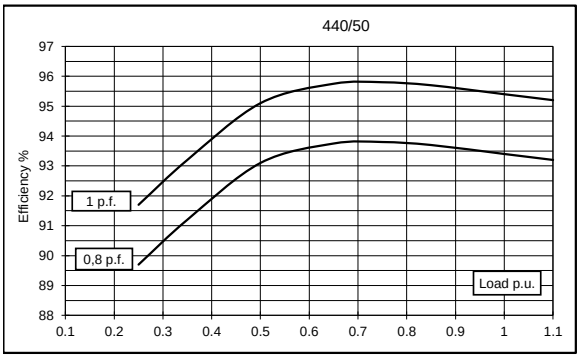


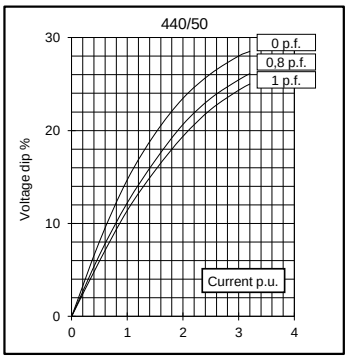


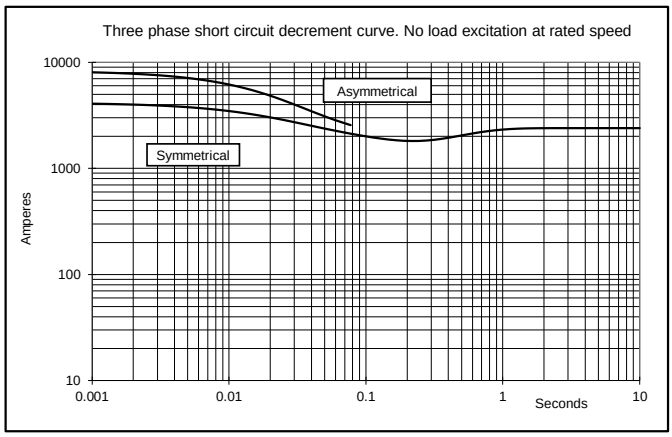










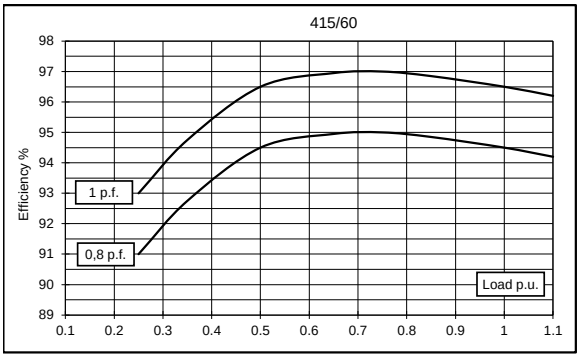


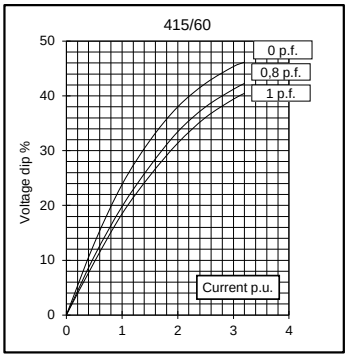
All technical data are to be considered as a reference and they can be modified without any notice.

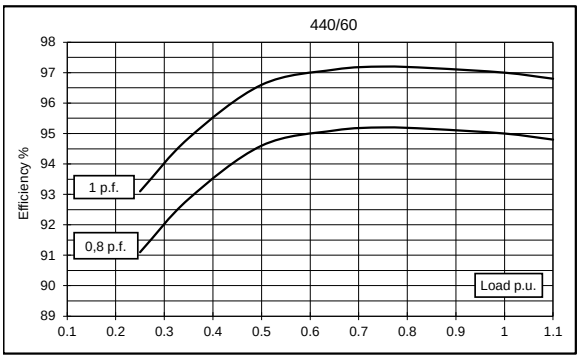
ALTERNATOR MA5014C

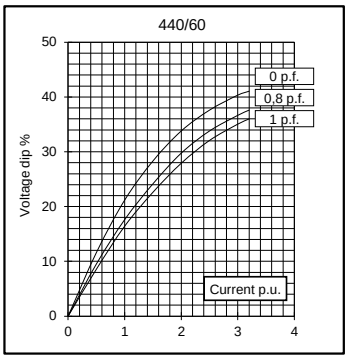
Document : **DS024A/3**
issue 010 date : 21/03/2014

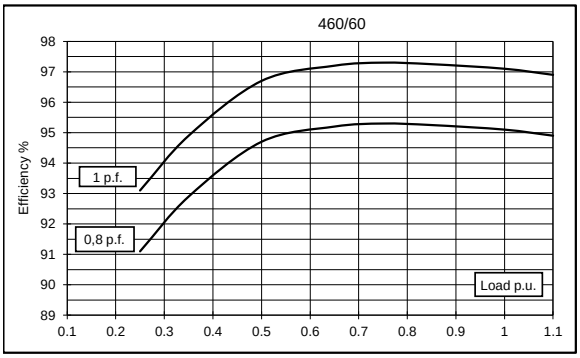
60 Hz

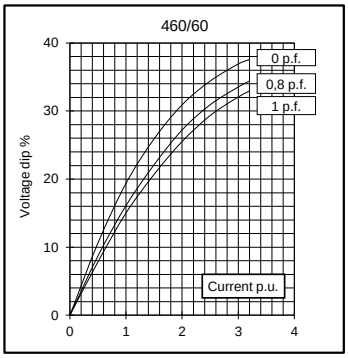


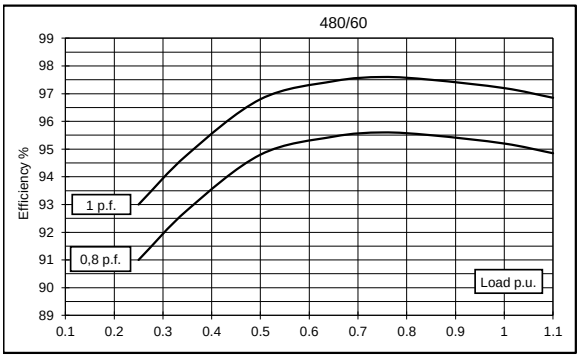


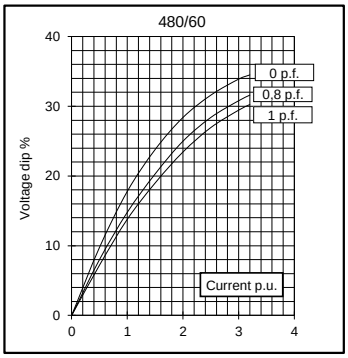


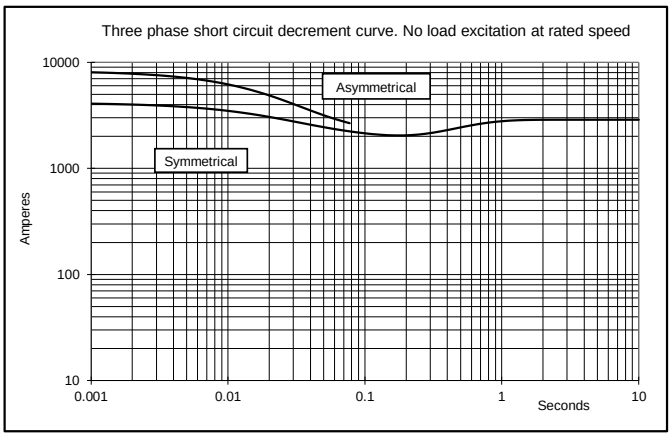












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DSEGenset®

DSE®

DSE7410/20 MKII

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

DSE7420 MKII

DSE7410 MKII

KEY FEATURES

- 4-Line back-lit LCD text display
- Multiple Display Languages
- Five key menu navigation
- LCD alarm indication
- Heated display option available
- Customisable power-up text and images
- DSENet expansion compatibility
- Data logging facility upto 20 parameters
- Internal PLC editor
- Protections disable feature
- Fully configurable via PC using USB, RS232, RS485 and ethernet communication
- Front panel configuration with multi-level PIN protection
- Power save mode
- 3 phase generator sensing and protection
- 3 phase mains (utility) sensing and protection (DSE7420 MKII only)
- Automatic load transfer control (DSE7420 MKII only)
- Generator current and power monitoring (kW, kvar, kVA, pf)
- Mains current and power monitoring (kW, kvar, kVA, pf) (DSE7420 MKII only)
- kW and kvar overload and reverse power alarms
- Over current protection
- Unbalanced load protection
- Independent earth fault protection
- Breaker control via fascia buttons
- Fuel and start outputs configurable when using CAN
- 6 configurable DC outputs
- 2 configurable volt-free relay outputs
- 6 configurable analogue/digital inputs
- Support for 0 V to 10 V & 4 mA to 20 mA sensors
- Support for 3 kΩ resistive sensors
- 8 configurable digital inputs
- Configurable 5 stage dummy load and load shedding outputs
- CAN, MPU and alternator frequency speed sensing in one variant
- Real time clock
- Manual and automatic fuel pump control
- Engine pre-heat and post-heat functions
- Engine run-time scheduler
- Engine idle control for starting & stopping
- Fuel usage monitor and low fuel level alarms
- Simultaneous use of RS232, RS485 & ethernet communication ports
- True dual mutual standby using RS232 or RS485 for accurate hours balancing.
- MODBUS RTU & TCP support with configurable MODBUS pages.
- SNMP GET, SET and TRAP support built in.
- Advanced SMS messaging (additional external modem required)
- Start & stop capability via SMS messaging
- 3 configurable maintenance alarms
- Compatible with a wide range of CAN engines, including tier 4 engine support
- J1939-75 support & CAN alarm ignore function
- Uses DSE Configuration Suite PC Software for simplified configuration
- Licence-free PC software
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- Modules can be integrated into building management systems (BMS) using MODBUS RTU & TCP
- Configurable CAN parameters to read and display CAN information from external CAN devices.

KEY BENEFITS

- Automatically transfers between mains (utility) and generator (DSE7420 MKII only) for convenience.
- 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 & displayed simultaneously for full visibility
- The module can be configured to suit a wide range of applications for user flexibility
- PLC editor allows user configurable functions to meet user specific application requirements.

RELATED MATERIALS

TITLE	PART NO.
DSE7410 MKII & DSE7420 MKII Installation Instructions	053-191
DSE7410 MKII & DSE7420 MKII Operator Manual	057-263
DSE7410 MKII & DSE7420 MKII Configuration Suite PC Manual	057-262

SPECIFICATIONS

DC SUPPLY

CONTINUOUS VOLTAGE RATING
8 V to 35 V Continuous
5 V for up to 1 minute

CRANKING DROPOUTS
Able to survive 0 V for 100 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
510 mA at 12 V, 240 mA at 24 V

MAXIMUM STANDBY CURRENT
330 mA at 12 V, 160 mA at 24 V

CHARGE FAIL/EXCITATION RANGE
0 V to 35 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

MAGNETIC PICKUP

VOLTAGE RANGE
+/- 0.5 V to 70 V

FREQUENCY RANGE
10,000 Hz (max)

INPUTS

DIGITAL INPUTS A TO H
Negative switching

ANALOGUE INPUTS A, B, E & F
Configurable as:
Negative switching digital input
0 V to 10 V sensor
4 mA to 20 mA sensor
Resistive sensor

ANALOGUE INPUTS C & D
Configurable as:
Negative switching digital input
Resistive sensor

OUTPUTS

OUTPUT A & B (FUEL & START)
15 A DC at supply voltage

OUTPUTS C & D
8 A AC at 250 V AC (Volt-free)

AUXILIARY OUTPUTS E, F, G, H, I & J
2 A DC at supply voltage

DIMENSIONS

OVERALL
245 mm x 184 mm x 51 mm
9.6” x 7.2” x 2.0”

PANEL CUT-OUT
220 mm x 160 mm
8.7” x 6.3”

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

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055-203/10/16 (1)

DSEGenset®

DSE®

DSE7410/20 MKII

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

The DSE7410 MKII is an Auto Start Control Module and the DSE7420 MKII is an Auto Mains (Utility) Failure Control Module suitable for a wide variety of single, diesel or gas, gen-set applications.

Monitoring an extensive number of engine parameters, the modules will display warnings, shutdown and engine status information on the back-lit LCD screen, illuminated LEDs, remote PC and via SMS text alerts (with external modem).

The DSE7420 MKII will also monitor the mains (utility) supply. The modules include USB, RS232, RS485 and Ethernet ports as well as dedicated DSENet® terminals for system expansion.

Both modules are compatible with electronic (CAN) and non-electronic (magnetic pick-up/alternator sensing) engines and offer an extensive number of flexible inputs, outputs and extensive engine protections so the system can be easily adapted to meet the most demanding industry requirements.

The extensive list of features includes enhanced event and performance monitoring, remote communications & PLC functionality.

Dual mutual standby is now available on both the DSE7410 MKII & DSE7420 MKII using RS232 or RS485 communications. This provides for a simpler and more convenient installation with more advanced features such as true hours balancing.

The modules also feature SNMP functionality for connection to SNMP systems.

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

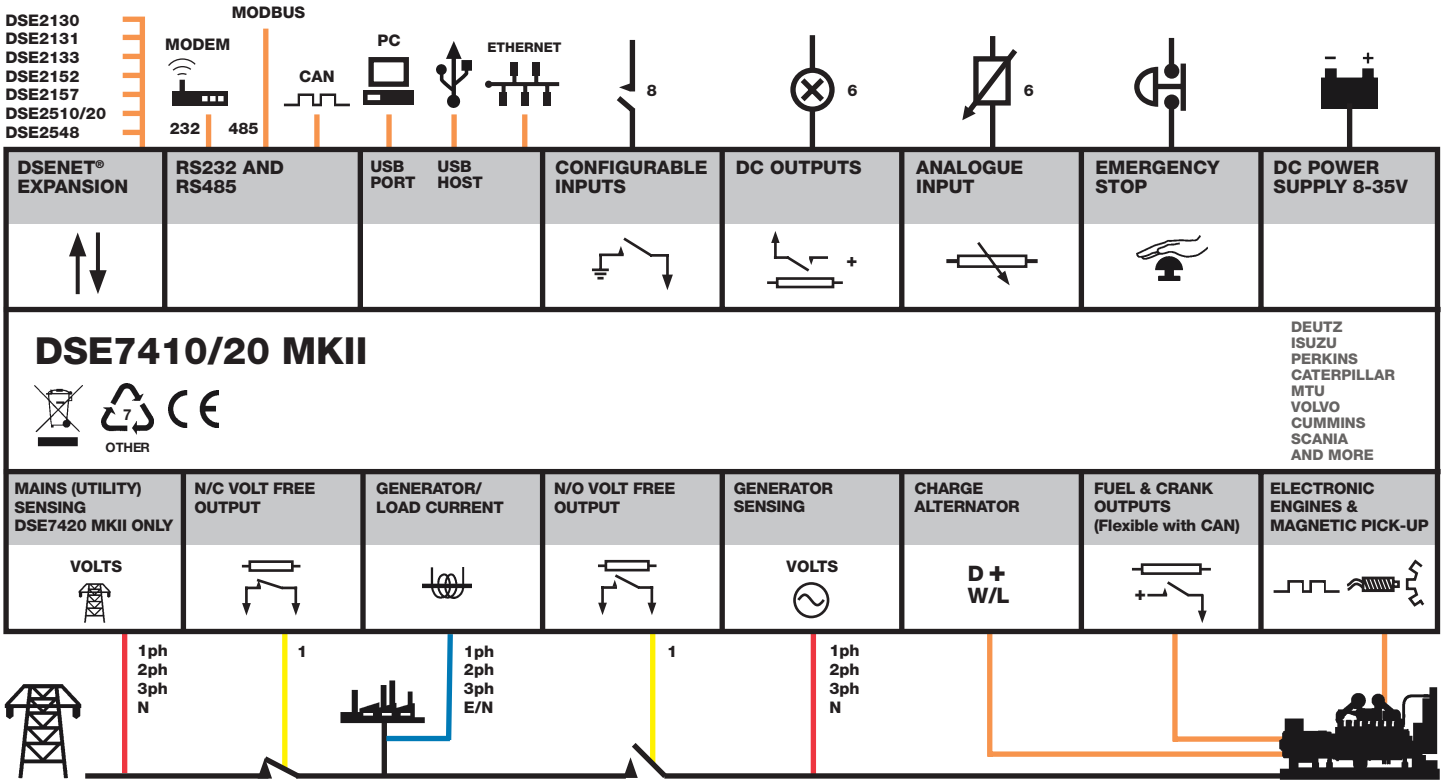
VIBRATION
BS EN 60068-2-6
Ten sweeps in each of three major axes
5 Hz to 8 Hz at +/-7.5 mm,
8 Hz to 500 Hz at 2 gn

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 supplied sealing gasket.

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



DSEGenset

DSE®

DSE8610

SYNCHRONISING AUTO START LOAD SHARE CONTROL MODULE

FEATURES

The DSE8610 is an easy to use Synchronising Auto Start Control Module suitable for use in a multi-generator loadshare system, designed to synchronise up to 32 generators including electronic and non-electronic engines.

The DSE8610 monitors the generator and indicates operational status and fault conditions, automatically starting or stopping the engine on load demand or fault condition.

System alarms are annunciated on the LCD screen (multiple language options available), illuminated LED and audible sounder.

The event log will record 250 events to facilitate easy maintenance. An extensive number of fixed and flexible monitoring, metering and protection features are included as well as comprehensive communication and system expansion options.

Using the DSE PC Configuration Suite Software allows easy alteration of the operational sequences, timers and alarms. With all communication ports capable of being active at the same time, the DSE8610 is ideal for a wide variety of demanding load share applications.

KEY LOAD SHARE FEATURES:

- Peak lopping/sharing (with DSExx60)
- Sequential set start
- Manual voltage/frequency adjustment
- R.O.C.O.F. and vector shift protection
- Generator load demand
- Automatic hours run balancing
- Mains (Utility) de-coupling
- Mains (Utility) de-coupling test mode
- Dead bus sensing
- Bus failure detection
- Direct governor and AVR control
- Volts and frequency matching
- kW and kV Ar load sharing
- Dead bus synchronising

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

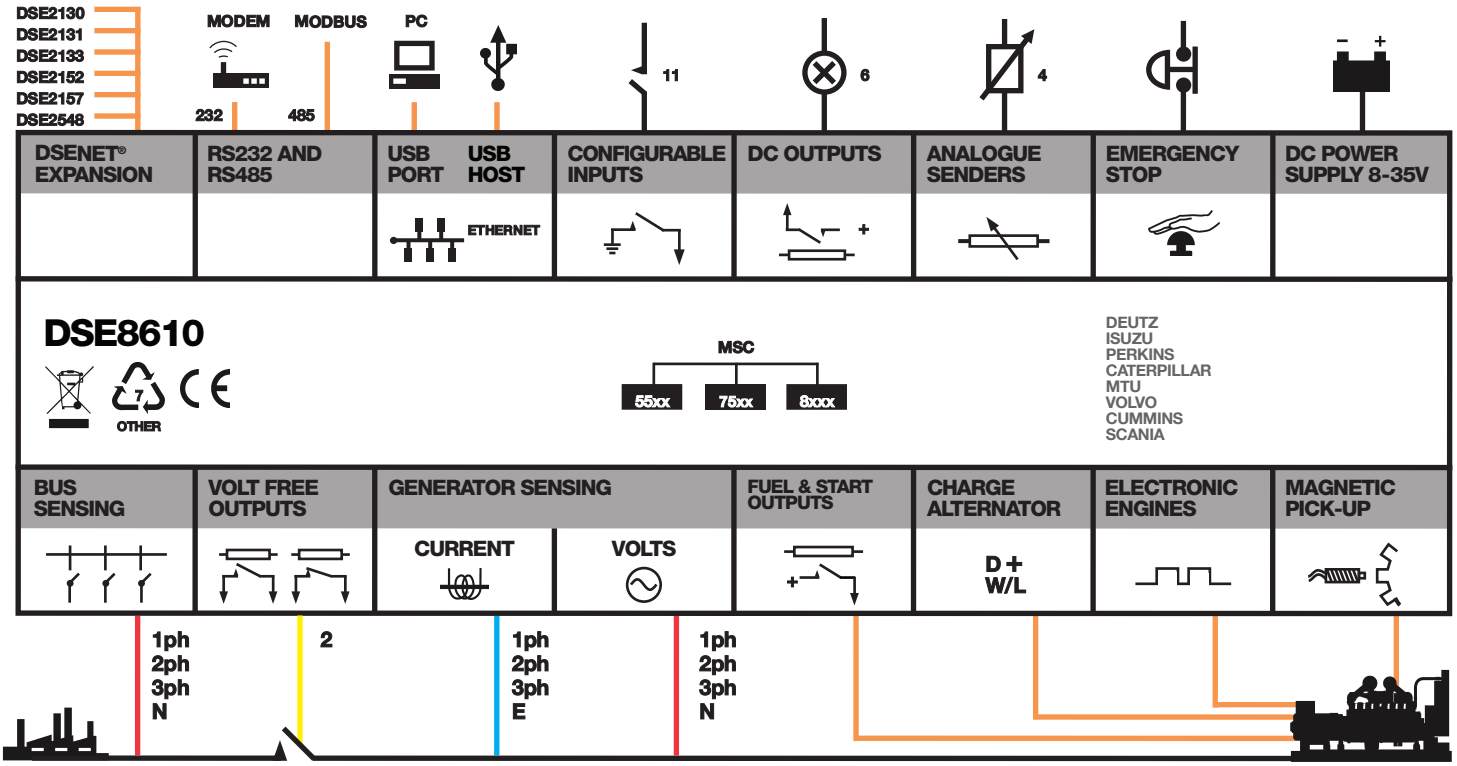
VIBRATION
BS EN 60068-2-6
Ten sweeps in each of three major axes
5Hz to 8Hz @ +/-7.5mm, 8Hz to 500Hz @ 2gn

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
15gn in 11mS

DEGREES OF PROTECTION PROVIDED BY ENCLOSURES
BS EN 60529
IP65 - Front of module when installed into the control panel with the supplied sealing gasket.

COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF LOAD SHARE APPLICATIONS



ISSUE 3

LISTED

IPC MEMBER
ASSOCIATION CONNECTING ELECTRONICS INDUSTRIES®

DSEGenset

DSE®

DSE8610

SYNCHRONISING AUTO START LOAD SHARE CONTROL MODULE

FEATURES

KEY FEATURES

- Comprehensive synchronising & loadsharing capabilities
- Built-in governor and AVR control
- Base load (kW export) functionality
- Positive & negative kVAr export control
- Mains (utility) de-coupling protection
- Generator power (kW, kV Ar, kV A & pf) monitoring
- Overload (kW & kV Ar) protection
- Reverse power (kW & kV Ar) protection
- Unbalanced load protection
- Independent earth fault protection
- Advanced integral PLC editor
- 11 Configurable inputs
- 8 Configurable outputs
- Configurable flexible sensor inputs
- DSENet® expansion compatibility
- User configurable RS232, RS485 and Ethernet communications
- Remote SCADA monitoring via various DSE software applications
- MODBUS RTU & TCP support
- User configurable MODBUS pages
- Advanced SMS control and fault messaging (additional GSM modem required)
- Easy access diagnostic pages including modem diagnostic pages
- Data logging and trending
- CAN, MPU and Frequency speed sensing
- Tier 4 CAN engine support
- "Protections disabled" feature
- Front panel editing with PIN protection
- Fully configurable using DSE Configuration Suite PC software via USB
- 4 Line back-lit LCD text display
- LED and LCD alarm indication
- Configurable display languages
- USB connectivity
- Customisable status screens
- Five key menu navigation
- 3 Configurable maintenance alarms
- Multiple date and time run scheduler
- Manual fuel pump control
- Fuel usage monitor and low fuel level protection
- Charge alternator failure protection
- Load switching (load shedding and dummy load control)
- Configurable event log (250)
- Backed up real time clock

KEY BENEFITS

- Compatible in load share systems containing DSE5500, DSE7500 and DSE8600 series. Contact DSE for further details
- 132 x 64 pixel ratio display for clarity
- Real-time clock provides accurate event logging
- Ethernet communication, provides builit in advanced remote monitoring.
- Can be integrated into building management systems (BMS) and programmable logic control (PLC)
- Increased input and output expansion capability via DSENet®
- Licence-free PC software
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- Advanced Internal PLC editor allows user configurable functions to meet specific application requirements.

EXPANSION DEVICES

- DSE124 CAN/MSC Extender
- DSE2130 Input Expansion Module
- DSE2131 Ratio-metric Input Expansion Module
- DSE2133 RTD & Thermo-couple Expansion Module
- DSE2152 Ratio-metric Output Expansion Module
- DSE2157 Output Expansion Module
- DSE2548 LED Expansion Module

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

MAXIMUM OPERATING CURRENT
460 mA at 12 V, 245 mA at 24 V

MAXIMUM STANDBY CURRENT
375 mA at 12 V, 200 mA at 24 V

CHARGE FAIL/EXCITATION RANGE
0 V to 35 V

OUTPUTS

OUTPUT A (FUEL)
15 A DC at supply voltage

OUTPUT B (START)
15 A DC at supply voltage

OUTPUTS C & D
8 A AC at 250 V AC (Volt free)

AUXILIARY OUTPUTS E,F,G,H,I & J
2 A DC at supply voltage

GENERATOR & BUS

VOLTAGE RANGE
15 V to 333 V AC (L-N)

FREQUENCY RANGE
3.5 Hz to 75 Hz

MAGNETIC PICK-UP

VOLTAGE RANGE
+/- 0.5 V to 70 V

FREQUENCY RANGE
10,000 Hz (max)

BUILT-IN GOVERNOR CONTROL

MINIMUM LOAD IMPEDANCE
1000Ω
Fully isolated

GAIN VOLTAGE
0 V to 10 V DC
Fully isolated

OFFSET VOLTAGE
+/- 10 V DC
Fully isolated

BUILT-IN AVR CONTROL

MINIMUM LOAD IMPEDANCE
1000Ω
Fully isolated

GAIN VOLTAGE
0 V to 10 V DC
Fully isolated

OFFSET VOLTAGE
+/- 10 V DC
Fully isolated

DIMENSIONS

OVERALL
240 mm x 181 mm x 42 mm
9.4" x 6.8" x 1.6"

PANEL CUTOUT
220 mm x 160 mm
8.7" x 6.3"

MAXIMUM PANEL THICKNESS
8 mm
0.3"

OPERATING TEMPERATURE RANGE
-30 °C to +70 °C

STORAGE TEMPERATURE RANGE
-40 °C to +85 °C

RELATED MATERIALS

TITLE	PART NO'S
DSE8610 Installation Instructions	053-069
DSE8610 Operator Manual	057-115
DSE8600 PC Configuration Suite Manual	057-119
DSE8660 Date Sheet	055-086

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055-083/03/12 (10)

DSEGenset

DSE

DSE8660

AUTO TRANSFER SWITCH & MAINS CONTROL MODULE

FEATURES

The DSE8660 is an easy-to-use single or multi-mains controller with automatic transfer switch capability. Designed to synchronise single or multiple DSE8610s and DSE8680s with single or multiple mains (utility) supplies, the DSE8660 will automatically control the change over from mains (utility) to generator supply or run generators in synchronisation with the mains (utility) to provide no-break, peak lopping and peak shaving power solutions.

The module can indicate operational status and fault conditions on the LCD screen (multiple languages available), by illuminated LED, audible sounder and SMS messaging.

Comprehensive communications are also available via RS232, RS485 & Ethernet for remote PC control and monitoring, and integration into building management systems.
The comprehensive event log will record up to 250 events to facilitate maintenance.

An extensive number of fixed and flexible monitoring and protection features are included. Easy alteration of the sequences, timers and alarms can be made using the DSE PC Configuration Suite Software. Selected configuration is also available via the module's front panel.

With all communication ports capable of being active at the same time, the DSE8xxx Series is ideal for a wide variety of demanding load share applications.

KEY LOAD SHARE FEATURES (WITH DSE8x10) :

- Peak lopping/shaving
- Sequential set start
- Manual voltage/frequency adjustment
- R.O.C.O.F. and vector shift protection
- Generator load demand
- Automatic hours run balancing
- Mains (Utility) de-coupling
- Mains (Utility) de-coupling test mode
- Bus failure detection
- Volts and frequency matching.
- kW & kV Ar load sharing

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

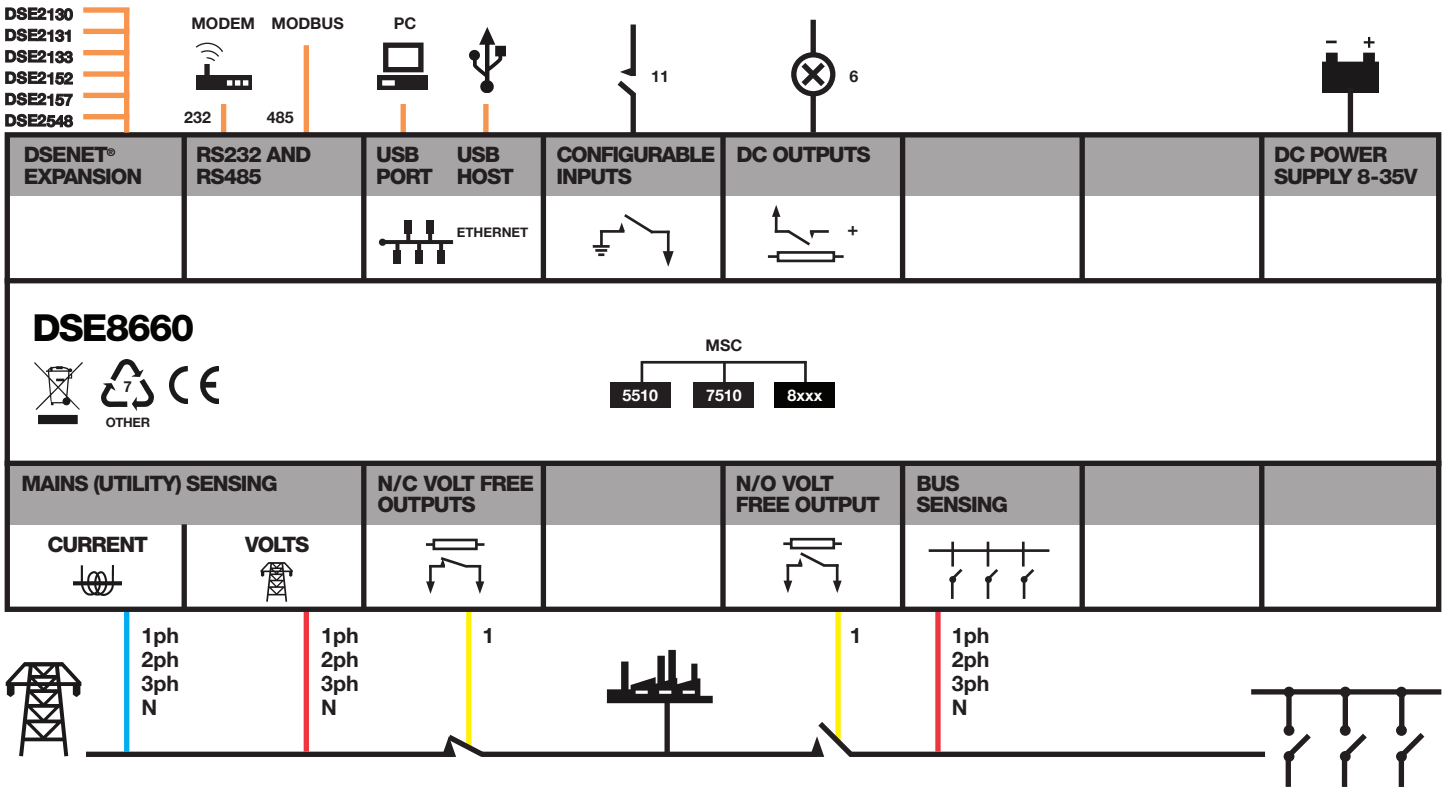
VIBRATION
BS EN 60068-2-6
Ten sweeps in each of three major axes
5Hz to 8Hz @ +/-7.5mm, 8Hz to 500Hz @ 2gn

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
15gn in 11mS

DEGREES OF PROTECTION PROVIDED BY ENCLOSURES
BS EN 60529
IP65 - Front of module when installed into the control panel with the supplied sealing gasket.

COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF LOAD SHARE APPLICATIONS



ISSUE 2

DSEGenset

DSE®

DSE8660
AUTO TRANSFER SWITCH & MAINS CONTROL MODULE

FEATURES

KEY FEATURES
- Mains (utility) failure detection
- Mains (utility) power monitoring (kW, kV Ar, kV A and pf)
- Comprehensive synchronising and loadsharing capabilities
- Base load (kW export) functionality
- Positive & negative kVAr export control
- Peak lopping & shaving functionality
- Mains (utility) kW export protection
- Mains (utility) de-coupling protection
- Advanced integral PLC editor
- User configurable RS232, RS485 & Ethernet communications
- MODBUS RTU & TCP support
- User configurable MODBUS pages
- Advanced SMS control and fault messaging (additional GSM modem required)
- DSENet expansion compatible
- Data logging and trending
- 4-Line back-lit LCD text display
- Multiple display languages
- Five key menu navigation
- Front panel editing with PIN protection
- Customisable status screens
- Configurable inputs (11)
- Configurable outputs (8)
- Configurable timers and alarms
- Multiple entry scheduler
- Configurable event log (250)
- Easy access diagnostic pages
- LED and LCD alarm indication
- USB connectivity
- Backed up real time clock
- Fully configurable via DSE Configuration Suite PC Software

KEY BENEFITS
- A single flexible solution for multiple applications
- Compatible with DSE5510, DSE7510 & DSE8x10 series of modules
- 132 x 64 pixel ratio display for clarity
- Real-time clock provides accurate event logging
- Ethernet communication provides built in advanced remote monitoring.
- Can be integrated into building management systems (BMS) and programmable logic control (PLC)
- Increased input and output expansion capability via DSENet®
- Licence-free PC software
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- Advanced Internal PLC editor allows user configurable functions to meet specific application requirements.

EXPANSION DEVICES
- DSE124 CAN/MSC Extender
- DSE2130 Input Expansion Module
- DSE2131 Ratiometric Input Expansion Module
- DSE2133 RTD & Thermocouple Expansion Module
- DSE2152 Analogue Output Expansion Module
- DSE2157 Output Expansion Module
- DSE2548 LED Expansion Module

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
340 mA at 12 V, 160 mA at 24 V

MAXIMUM STANDBY CURRENT
160 mA at 12 V, 80 mA at 24 V

MAINS (UTILITY)

VOLTAGE RANGE
15 V to 333 V AC (L-N)

FREQUENCY RANGE
3.5 Hz to 75 Hz

BUS

VOLTAGE RANGE
15 V to 333 V AC (L-N)

FREQUENCY RANGE
3.5 Hz to 75 Hz

OUTPUTS

OUTPUTS C & D
8 A at 250 V AC (Volt free)

AUXILIARY OUTPUTS E,F,G,H, I & J
2 A DC at supply voltage

DIMENSIONS

OVERALL
240 mm x 181 mm x 42 mm
9.4” x 7.1” x 1.6”

PANEL CUT-OUT
220 mm x 160 mm
8.7” x 6.3”

MAXIMUM PANEL THICKNESS
8 mm
0.3”

OPERATING TEMPERATURE RANGE
-30°C to +70°C

STORAGE TEMPERATURE RANGE
-40°C to +85°C

RELATED MATERIALS

TITLE	PART NO’S
DSE8660 Installation Instructions	053-070
DSE8660 Operator Manual	057-120
DSE8600 PC Configuration Suite Manual	057-119
DSE8610 Data Sheet	055-083
DSE8680 Data Sheet	055-091
DSE8700 Data Sheet	055-090
DSE8810 Data Sheet	055-116
DSE8860 Data Sheet	055-139

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

055-086/04/11 (5)

DSEGenset®

DSE8003 MKII

7” COLOUR MULTI-SET REMOTE OVERVIEW DISPLAY

KEY FEATURES

- Multiple modules (max 20) within the same load sharing system can be viewed on the 8003’s front screen.
- Touch-screen enabled.
- RS232, RS485 and Ethernet communications.
- Audible alarm.
- Front panel mounting.
- Protected front panel configuration.
- Remote monitoring.
- System monitoring.
- Enhanced graphical user interface.
- Powerful processor for fast operating response times.

KEY BENEFITS

- Compatible with DSE86XX MKII load share modules.
- Data communication link allows remote system management.
- 800 x 480 pixels for high screen resolution.

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

MAXIMUM OPERATING CURRENT
300 mA at 12V, 150 mA at 24V

OUTPUTS

ALARM OUTPUTS C & D
2 A DC at supply voltage

DIMENSIONS

OVERALL
310 mm x 160 mm x 40 mm
12.2” x 6.3” x 1.5”

PANEL CUTOUT
282 mm x 136 mm
11.1” x 5.3”

OPERATING TEMPERATURE RANGE
-30 °C to +70 °C
-22 °F to +158 °F

STORAGE TEMPERATURE RANGE
-40 °C to +85 °C
-40 °F to +185 °F

RELATED MATERIALS

TITLE	PART NO.
DSE8003 MKII Installation Instructions	053-231
DSE8005 SCADA Suite Manual	057-128
DSE8610 MKII Data Sheet	055-204
DSE8660 MKII Data Sheet	055-169

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055-251/10/18 (1§)

DSEGenset®

DSE®

DSE8003 MKII

7” COLOUR MULTI-SET REMOTE OVERVIEW DISPLAY

The DSE8003 MKII is designed for use with the DSE86xx MKII load share control modules, giving a choice of display options suitable for a wide variety of applications. One (1) DSE8003 MKII module can be connected to multiple compatible modules via a data communication link up to a maximum distance of 1.2 km in length, using RS485.

The DSE8003 MKII features completely re-designed screen layouts and icons to provide comprehensive large screen graphs, charts, metering, power display and engine status information in a clear image and text format.

The DSE8003 MKII also features an improved processor for improved operating response times.

ENVIRONMENTAL TESTING STANDARDS

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Db Damp Heat Cyclic 20/55°C @ 95% RH
48 Hours
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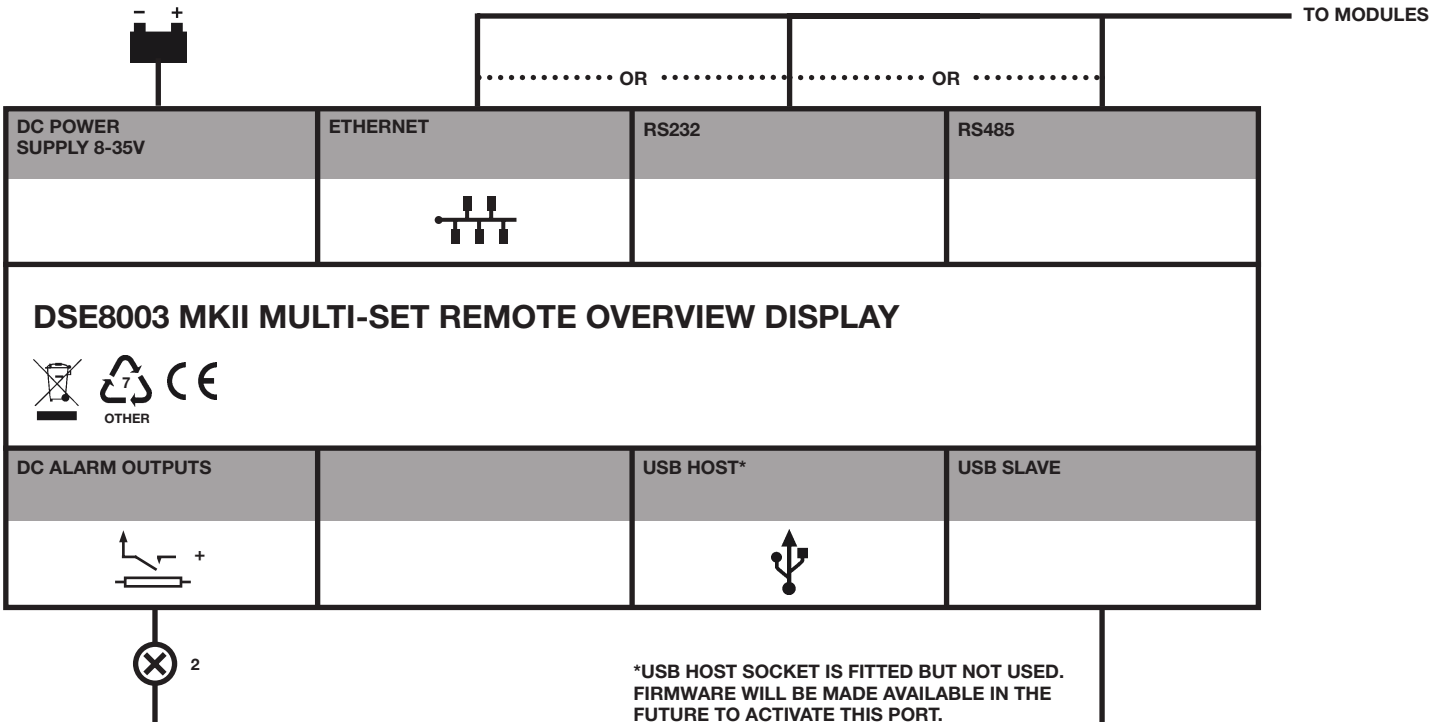
COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF LOAD SHARE APPLICATIONS