WHOLESALE DIESEL GENERATORS
A DIVISION OF NORTH STAR LOGISTICS LLC
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www.Wholesale-Generators.com

135KW Perkins Diesel Generator

Perkins Engine | Customizable Options | EPA Tier 3

General

Model	WDG-135-PER
Fuel Type	Diesel
Prime Rating	122 kW / 152 kVA
Standby Rating	135 kW / 169 kVA
Frequency	60 Hz
Voltage	Any voltage can be customized
Phase	Single Phase or Three Phase
Enclosure Type	Silent, Weatherproof
Engine Brand	Perkins
Alternator Brand	Stamford
Controller Model	Deep Sea DSE 7320/7310

Engine Data

Engine Model	Perkins 1106A-70TAG2
Configuration	6 cylinder, in-line
Aspiration	Turbocharged & Aftercooled
Bore x Stroke (in.)	4.1 x 5.3 (in.)
Rated Speed (RPM)	1800
Displacement (L)	7.0
Compression Ratio	18.2:1
Cooling Method	Water cooled
Governor	Electronic

Alternator Data

Alternator Model	Stamford UCI274F
Type	Self-excited, Brushless
Power Factor	0.8
Voltage Regulation	AVR
Insulation System	Class H
Protection Level	IP23

Size & Dimensions

Dimensions (L x W x H)	118 x 43 x 70 (in.)
Net Weight (lbs.)	3,700

Other Customization

- ☐ Open type without enclosure
- ☐ Silent type with enclosure
  - Options for:
    - Painted
    - Stainless Steel
    - Aluminum (MOQ required)

1106A-70TAG2

149.1 kWm (Gross) @ 1500 rpm
167.9 kWm (Gross) @ 1800 rpm

ElectropaK

1100 Series

Basic technical data

Number of cylinders	6
Cylinder arrangement	Inline
Cycle	4 stroke
Induction system	Turbocharged and air charge cooled
Combustion system	Direct injection diesel
Compression ratio	18.2:1
Bore	105 mm
Stroke	135 mm
Cubic capacity	7.01 litres
Direction of rotation	Anticlockwise when viewed from flywheel
Firing order	1, 5, 3, 6, 2, 4
Estimated total weight (dry)	743 kg
Estimated total weight (wet)	777 kg

Overall dimensions, ElectropaK

Height	1092 mm
Length (air cleaner fitted)	1706 mm
Width	756 mm

Moments of inertia

Engine rotational components	0.27 kgm²
Flywheel	1.2 kgm² (SAE3)

Centre of gravity, ElectropaK

Forward from rear of block (wet)	476 mm
Above crankshaft centre line (wet)	176 mm
Offset to RHS of crankshaft centre line (wet)	16 mm

Performance

Speed variation at constant load	± 0.75%
Cyclic irregularity at standby power	0.028
All ratings within	± 5%

Note: All data based on operation to ISO 3046-1:2002 standard reference conditions.

Sound level

Average sound pressure level for prime power @ 1 m . . . TBA dB(A)

Test conditions

Air temperature	25°C
Barometric pressure	100 kPa
Relative humidity	31.5%
Air inlet restriction at maximum power	3 kPa (maximum)
Exhaust back pressure at maximum power	6 kPa (maximum)
Fuel temperature	40°C

Note: 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.

Publication No. TPD2016E3, November 2016.

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General installation

General Installation	Units	Prime	Standby	Prime	Standby
		50 Hz		60 Hz	
Gross engine power	kW	136	149.1	152.6	167.9
Gross BMEP	kPa	1552.1	1701.6	1451.3	1596.8
Mean piston speed	metres/s	6.8		8.1	
ElectropaK nett engine power	kW	131	144.1	144.6	159.9
Engine coolant flow (against 35 kPa restriction)	litres/min	142		170	
Combustion air flow (at STP)	m³/min	9.95	10.58	14.09	14.65
Exhaust gas flow (maximum)	m³/min	23.86	25.34	30.41	31.99
Exhaust gas temperature (maximum) in manifold (after turbocharger)	°C	471		419	
Nett engine thermal efficiency	%	39.7	39.7	38.2	38.6
Typical genset electrical output (0.8pf 25°C)	kWe	120	132	132	146.5
	kVA	150	165	165.6	183.1
Regenerative power (estimated)	kW	6.7		7.6	
Assumed alternator efficiency	%	91.6		91.6	

Rating definitions

Prime power

Unlimited hours usage, with an average load factor of 80% over each 24 hour period. A 10% overload is available for 1 hour in every 12 hours operation.

Standby power

Limited to 500 hours annual usage, with an average load factor of 80% of the published standby power rating over each 24 hour period. Up to 300 hours of annual usage may be run continuously. No overload is permitted on standby power.

Energy balance

Designation	Units	Prime	Standby	Prime	Standby
		50 Hz		60 Hz	
Heat in fuel	kW	330.2	363.1	379.0	414.1
Power to cooling fan	kW	5.0		8.0	
Power to coolant and lubricating oil	kW	69.1	75.7	73.5	80.0
Power to exhaust	kW	96.6	105.6	111.8	120.0
Energy to charge coolers	kW	17.5	20.5	29.7	33.8
Power to radiation	kW	11	12.2	11.4	12.4

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Cooling system

Cooling pack

Overall weight (wet) . . . . . 45 kg
Overall face area . . . . . 469,200 mm²
Width . . . . . 684 mm
Height . . . . . 690 mm

Radiator

Face area . . . . . 303,600 mm²
Number of rows and materials . . . . . 4 rows, Aluminium
Matrix density and material . . . . . 11.3 fins per inch, Aluminium
Width of matrix . . . . . 440 mm
Height of matrix . . . . . 690 mm
Pressure cap setting (minimum) . . . . . 110 kPa

Charge cooler

Face area . . . . . 151,800 mm²
Number of rows and materials . . . . . 2 rows, Aluminium
Matrix density and material . . . . . 10 fins per inch, Aluminium
Width of matrix . . . . . 220 mm
Height of matrix . . . . . 690 mm

Fan

Diameter . . . . . 635 mm
Drive ratio 1.25:1
Number of blades 7
Material . . . . . Nylon
Type . . . . . Pusher
Air flow @ 1500 rpm . . . . . 222 m³/min
Power @ 1500 rpm . . . . . 4.5 kW
Air flow @ 1800 rpm . . . . . 282 m³/min
Power @ 1800 rpm . . . . . 8 kW

Coolant

Total system capacity . . . . . 20.5 litres
System drawdown capacity 10%
Engine capacity . . . . . 9.5 litres
Maximum top tank temperature . . . . . 110°C
Temperature rise across engine
(maximum rating dependent) . . . . . 6°C - 12°C
Maximum permissible external system resistance . . . . . 35 kPa
Thermostat operation range . . . . . 82°C to 93°C
Shutdown switch setting . . . . . 118°C
Coolant pump method of drive . . . . . Gear
Recommended coolant immersion heater rating (minimum) . . . . 0.75 kW
Recommended coolant . . . . . BS6580 - 1992, ASTM D3306 and ELC coolants to 1E1966

Duct allowance

Maximum additional restriction (duct allowance to cooling airflow and resultant minimum air flow) - Standby power

Description	rpm	kPa	m³/min
Duct allowance with inhibited coolant at 53°C			
Minimum air flow	1500	0.125	204
	1800	0.12	258
Duct allowance with inhibited coolant at 46°C			
Minimum air flow	1500	0.2	184
	1800	0.2	228

Electrical system

Alternator 8SI
Alternator voltage . . . . . 12 volts
Alternator output . . . . . 65 amps
Starter . . . . . AZF
Starter motor voltage . . . . . 12 volts
Starter motor power . . . . . 4.2 kW
Number of teeth on the flywheel 126
Pull-in and hold-in current of starter motor solenoid
@ 25°C maximum [1] . . . . . 12 volts 68 amps
Hold-in current of starter motor solenoid
@ 25°C maximum [1] . . . . . 12 volts 20 amps
Engine stop method . . . . . Solenoid

[1] All leads to rated at 10 amps minimum

Cold start recommendations

Minimum required cranking speed over TDC . . . . . 60 rpm

	5 to -10°C	-10 to -20°C	-20 to -25°C
Oil	15W40	10W40	5W40
Starter	AZF		
Battery	2 x 1200 CCA		
Cranking current	960		
Aids	None	Glowplugs	
Minimum mean cranking speed	130 rpm	100 rpm	100 rpm

Note: Battery capacity is defined by the 20 hour rate.

Note: If a change to a low viscosity oil is made, the cranking torque necessary at low ambient temperatures is much reduced. The starting equipment has been selected to take advantage of this. It is important to change to the appropriate multigrade oil in anticipation of operating in low ambient temperatures.

Exhaust system

Maximum back pressure - 1500 rpm . . . . . 6.0 kPa
Exhaust outlet, internal diameter . . . . . 72 mm

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Fuel system

Injection components

Injector ... Mechanical
Fuel pump .. DP210G

Fuel priming

Priming pump type ... Manual
Maximum priming time ... 90 seconds

Fuel feed

Maximum fuel flow ... 3 litres/minute
Maximum suction head at engine fuel pump inlet ... 50 kPA
Maximum static pressure head ... 50 kPa
Fuel temperature at engine fuel pump inlet ... 85°C
Tolerance on fuel consumption ... ± 5%

Fuel specification

Fuel standard ... Various (contact Perkins Technical Department)

Fuel consumption

Load	Type of operation and application			
	g/kWh		litres/hour	
	50 Hz	60 Hz	50 Hz	60 Hz
110% Prime power	197.6	204.5	35.2	40.7
Prime power	198.6	206.9	32.3	37.5
75% Prime power	198.8	212.1	24.2	28.8
50% Prime power	203.2	203.6	16.5	18.5
25% Prime power	226.9	237.5	9.2	10.8

Induction system

Maximum air intake restriction

Clean filter ... 3 kPa
Dirty filter ... 5 kPa
Air filter type ... paper element

Lubrication system

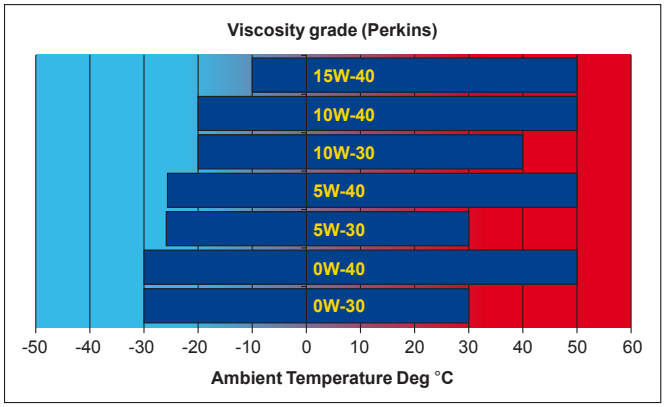
Maximum total system oil capacity ... 18.0 litres
Minimum oil capacity in sump ... 12.5 litres
Maximum oil capacity in sump ... 16.1 litres
Maximum engine operating angles -
Front up, front down, right side, left side ... 25°
Sump drain plug tapping size ... 3/4 - 16 UNF
Shutdown switch setting (where fitted)

Lubricating oil

Relief valve opening pressure ... 460 kPa
Pressure at maximum speed ... 520 kPa
Maximum continuous oil temperature (in rail) ... 125°C
Oil consumption at full load (% of fuel) ... < 0.1

Recommended SAE viscosity

A multigrade oil must be used which conforms to API CH4 or CI4 ACEA E5 must be used, see illustration below:



Mountings

Maximum static bending moment at rear face of block ... 1130 Nm
Maximum permissible overhung load
on the flywheel ... Calculated on request
Maximum bending moment at rear of flywheel housing ... ± 3000 in Shock Nm

Load acceptance

The data below complies with the requirements of classification 3 and 4 of ISO 8528-12 and G2 operating limits stated in ISO 8528-5.

Initial load application: When engine reaches rated speed (15 seconds maximum after engine starts to crank).

Description	Units	50 Hz	60 Hz
% of prime power	%	85	90
Load	kWe	103	135
Transient frequency deviation	%	< 10	< 10
Frequency recovery time	Seconds	1.4	1.3

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Product Specifications for 1106A-70TAG

Total Power Range

Gross Mechanical Output	140-204 kWm
Typical Electrical Output	150-220 kVA (120-176 kWe)
Rated Speed	1500/1800 rpm

Emission Standards

Emissions	Fuel Optimised

50 Hz Typical Electrical Output

Prime	150.0-200 kVA
Standby	165.0-220 kVA

60 Hz Typical Electrical Output

Prime	132.0-156.8 kWe
Standby	146.5-173 kWe

General

Number of Cylinders	6 vertical inline
Bore	105 mm
Stroke	135 mm
Displacement	7.01 l
Compression Ratio	16:1-18.2:1
Aspiration	Turbocharged aftercooled

Combustion System	Direct injection
Rotation from Flywheel End	Anti-clockwise
Cooling System	Liquid
Aftertreatment	-
Typical Alternator Efficiency	91-92%
Switchable	Yes

ElectropaK Dimensions

Length	1706 mm
Width	756 mm
Height	1092 mm
Dry Weight	743 kg

Disclaimer

Note 1	*Final dimensions dependent on selected options

Definitions

Prime Power	Unlimited hours usage, with an average load factor of 80% over each 24 hour period. A 10% overload is available for 1 hour in every 12 hours operation.
Standby Power	Limited to 500 hours annual usage, with an average load factor of 80% of the published standby power rating over each 24 hour period. Up to 300 hours of annual usage may be run continuously. No overload is permitted on standby power.

1106A-70TAG Standard Equipment

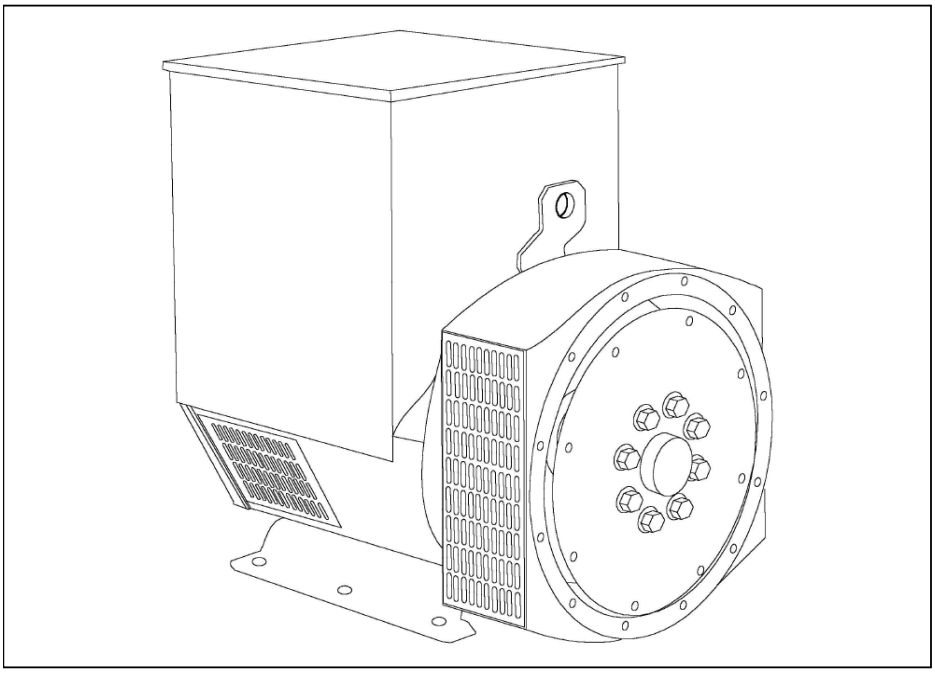
Air inlet system

Air cleaner and brackets
Exhaust manifold
Induction manifold

STAMFORD®

UCI274F - Winding 311

Technical Data Sheet



SPECIFICATIONS & OPTIONS

STANDARDS

Stamford industrial generators meet the requirements of BS EN 60034 and the relevant section of other international standards such as BS5000, VDE 0530, NEMA MG1-32, IEC34, CSA C22.2-100, AS1359.
Other standards and certifications can be considered on request.

VOLTAGE REGULATORS

SX460 AVR - OBSOLETE

With this self excited control system the main stator supplies power via the Automatic Voltage Regulator (AVR) to the exciter stator. The high efficiency semiconductors of the AVR ensure positive build-up from initial low levels of residual voltage.
The exciter rotor output is fed to the main rotor through a three phase full wave bridge rectifier. This rectifier is protected by a surge suppressor against surges caused, for example, by short circuit.

AS440 AVR - STANDARD

With this self-excited system the main stator provides power via the AVR to the exciter stator. The high efficiency semi-conductors of the AVR ensure positive build-up from initial low levels of residual voltage.
The exciter rotor output is fed to the main rotor through a three-phase full-wave bridge rectifier. The rectifier is protected by a surge suppressor against surges caused, for example, by short circuit or out-of-phase paralleling.
The AS440 will support a range of electronic accessories, including a 'droop' Current Transformer (CT) to permit parallel operation with other ac generators.

MX341 AVR

This sophisticated AVR is incorporated into the Stamford Permanent Magnet Generator (PMG) control system.
The PMG provides power via the AVR to the main exciter, giving a source of constant excitation power independent of generator output. The main exciter output is then fed to the main rotor, through a full wave bridge, protected by a surge suppressor. The AVR has in-built protection against sustained over-excitation, caused by internal or external faults. This de-excites the machine after a minimum of 5 seconds.
An engine relief load acceptance feature can enable full load to be applied to the generator in a single step.
If three-phase sensing is required with the PMG system the MX321 AVR must be used.
We recommend three-phase sensing for applications with greatly unbalanced or highly non-linear loads.

MX321 AVR

The most sophisticated of all our AVRs combines all the features of the MX341 with, additionally, three-phase rms sensing, for improved regulation and performance.
Over voltage protection is built-in and short circuit current level adjustments is an optional facility.

WINDINGS & ELECTRICAL PERFORMANCE

All generator stators are wound to 2/3 pitch. This eliminates triplen (3rd, 9th, 15th …) harmonics on the voltage waveform and is found to be the optimum design for trouble-free supply of non-linear loads. The 2/3 pitch design avoids excessive neutral currents sometimes seen with higher winding pitches, when in parallel with the mains. A fully connected damper winding reduces oscillations during paralleling. This winding, with the 2/3 pitch and carefully selected pole and tooth designs, ensures very low waveform distortion.

TERMINALS & TERMINAL BOX

Standard generators are 3-phase reconnectable with 12 ends brought out to the terminals, which are mounted on a cover at the non-drive end of the generator. A sheet steel terminal box contains the AVR and provides ample space for the customers' wiring and gland arrangements. It has removable panels for easy access.

SHAFT & KEYS

All generator rotors are dynamically balanced to better than BS6861:Part 1 Grade 2.5 for minimum vibration in operation.
Two bearing generators are balanced with a half key.

INSULATION/IMPREGNATION

The insulation system is class 'H'.
All wound components are impregnated with materials and processes designed specifically to provide the high build required for static windings and the high mechanical strength required for rotating components.

QUALITY ASSURANCE

Generators are manufactured using production procedures having a quality assurance level to BS EN ISO 9001.

The stated voltage regulation may not be maintained in the presence of certain radio transmitted signals. Any change in performance will fall within the limits of Criteria 'B' of EN 61000-6-2:2001. At no time will the steady-state voltage regulation exceed 2%.

DE RATES

All values tabulated on page 8 are subject to the following reductions

5% when air inlet filters are fitted.
3% for every 500 metres by which the operating altitude exceeds 1000 metres above mean sea level.
3% for every 5°C by which the operational ambient temperature exceeds 40°C.
Note: Requirement for operating in an ambient exceeding 60°C must be referred to the factory.

NB Continuous development of our products entitles us to change specification details without notice, therefore they must not be regarded as binding.

Front cover drawing typical of product range.

UCI274F

STAMFORD

WINDING 311

CONTROL SYSTEM	SEPARATELY EXCITED BY P.M.G.		
A.V.R.	MX321	MX341	
VOLTAGE REGULATION	± 0.5 %	± 1.0 %	With 4% ENGINE GOVERNING
SUSTAINED SHORT CIRCUIT	REFER TO SHORT CIRCUIT DECREMENT CURVES (page 7)		

CONTROL SYSTEM	SELF EXCITED		
A.V.R.	SX460	AS440	
VOLTAGE REGULATION	± 1.0 %	± 1.0 %	With 4% ENGINE GOVERNING
SUSTAINED SHORT CIRCUIT	SERIES 4 CONTROL DOES NOT SUSTAIN A SHORT CIRCUIT CURRENT		

INSULATION SYSTEM	CLASS H							
PROTECTION	IP23							
RATED POWER FACTOR	0.8							
STATOR WINDING	DOUBLE LAYER CONCENTRIC							
WINDING PITCH	TWO THIRDS							
WINDING LEADS	12							
STATOR WDG. RESISTANCE	0.024 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED							
ROTOR WDG. RESISTANCE	1.52 Ohms at 22°C							
EXCITER STATOR RESISTANCE	20 Ohms at 22°C							
EXCITER ROTOR RESISTANCE	0.091 Ohms PER PHASE AT 22°C							
R.F.I. SUPPRESSION	BS EN 61000-6-2 & BS EN 61000-6-4,VDE 0875G, VDE 0875N. refer to factory for others							
WAVEFORM DISTORTION	NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%							
MAXIMUM OVERSPEED	2250 Rev/Min							
BEARING DRIVE END	BALL. 6315-2RS (ISO)							
BEARING NON-DRIVE END	BALL. 6310-2RS (ISO)							
	1 BEARING				2 BEARING			
WEIGHT COMP. GENERATOR	530 kg				545 kg			
WEIGHT WOUND STATOR	200 kg				200 kg			
WEIGHT WOUND ROTOR	188.67 kg				177.71 kg			
WR² INERTIA	1.555 kgm²				1.5044 kgm²			
SHIPPING WEIGHTS in a crate	563 kg				577 kg			
PACKING CRATE SIZE	123 x 67 x 103(cm)				123 x 67 x 103(cm)			
	50 Hz				60 Hz			
TELEPHONE INTERFERENCE	THF<2%				TIF<50			
COOLING AIR	0.514 m³/sec 1090 cfm				0.617 m³/sec 1308 cfm			
VOLTAGE SERIES STAR	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
VOLTAGE PARALLEL STAR	190/110	200/115	208/120	220/127	208/120	220/127	230/133	240/138
VOLTAGE SERIES DELTA	220/110	230/115	240/120	254/127	240/120	254/127	266/133	277/138
kVA BASE RATING FOR REACTANCE VALUES	160	160	160	N/A	181.3	190	190	206.3
Xd DIR. AXIS SYNCHRONOUS	2.24	2.02	1.88	-	2.53	2.37	2.17	2.16
X'd DIR. AXIS TRANSIENT	0.19	0.17	0.16	-	0.21	0.20	0.18	0.18
X"d DIR. AXIS SUBTRANSIENT	0.13	0.12	0.11	-	0.14	0.13	0.12	0.12
Xq QUAD. AXIS REACTANCE	1.38	1.25	1.16	-	1.53	1.43	1.31	1.31
X"q QUAD. AXIS SUBTRANSIENT	0.17	0.15	0.14	-	0.20	0.19	0.17	0.17
X_L LEAKAGE REACTANCE	0.07	0.06	0.06	-	0.09	0.08	0.08	0.08
X_2 NEGATIVE SEQUENCE	0.14	0.13	0.12	-	0.16	0.15	0.14	0.14
X_0 ZERO SEQUENCE	0.08	0.08	0.07	-	0.10	0.09	0.09	0.09
REACTANCES ARE SATURATED	VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED							
T'd TRANSIENT TIME CONST.	0.035 s							
T"d SUB-TRANSTIME CONST.	0.011 s							
T'do O.C. FIELD TIME CONST.	0.9 s							
Ta ARMATURE TIME CONST.	0.009 s							
SHORT CIRCUIT RATIO	1/Xd							

UCI274F

STAMFORD

Winding 311 / 0.8 Power Factor

RATINGS

	Class - Temp Rise	Cont. F - 105/40°C				Cont. H - 125/40°C				Standby - 150/40°C				Standby - 163/27°C			
50 Hz	Series Star (V)	380	400	415	440	380	400	415	440	380	400	415	440	380	400	415	440
	Parallel Star (V)	190	200	208	220	190	200	208	220	190	200	208	220	190	200	208	220
	Series Delta (V)	220	230	240	254	220	230	240	254	220	230	240	254	220	230	240	254
	kVA	145.0	145.0	145.0	N/A	160.0	160.0	160.0	N/A	170.0	170.0	170.0	N/A	175.0	175.0	175.0	N/A
	kW	116.0	116.0	116.0	N/A	128.0	128.0	128.0	N/A	136.0	136.0	136.0	N/A	140.0	140.0	140.0	N/A
	Efficiency (%)	92.3	92.6	92.8	N/A	92.0	92.3	92.5	N/A	91.7	92.1	92.3	N/A	91.6	92.0	92.2	N/A
	kW Input	125.7	125.3	125.0	N/A	139.1	138.7	138.4	N/A	148.3	147.7	147.3	N/A	152.8	152.2	151.8	N/A

60 Hz	Series Star (V)	416	440	460	480	416	440	460	480	416	440	460	480	416	440	460	480
	Parallel Star (V)	208	220	230	240	208	220	230	240	208	220	230	240	208	220	230	240
	Series Delta (V)	240	254	266	277	240	254	266	277	240	254	266	277	240	254	266	277
	kVA	162.5	172.5	172.5	187.5	181.3	190.0	190.0	206.3	187.5	200.0	200.0	212.5	192.5	206.3	206.3	218.8
	kW	130.0	138.0	138.0	150.0	145.0	152.0	152.0	165.0	150.0	160.0	160.0	170.0	154.0	165.0	165.0	175.0
	Efficiency (%)	92.5	92.7	92.9	92.9	92.1	92.4	92.7	92.7	92.0	92.2	92.5	92.6	91.9	92.1	92.4	92.5
	kW Input	140.5	148.9	148.5	161.5	157.5	164.5	164.0	178.0	163.0	173.5	173.0	183.6	167.6	179.2	178.6	189.2

DIMENSIONS

Dimensional and Torsional Drawing
For dimensional and torsional information please refer to the alternator General Arrangement and rotor drawings available on our website (http://stamford-avk.com/)

DSEGenset®

DSE7310/20 MKII

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

KEY FEATURES

- Configurable power-up mode
- MPU fail delay
- Enhanced graphical user interface
- Drag & drop advanced PLC editor
- MSC ID within PLC GenComm override
- 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
- Internal PLC editor
- Protections disable feature
- Fully configurable via PC using USB, RS232 & RS485 communication
- Front panel configuration with PIN protection
- Power save mode
- 3 phase generator sensing and protection
- 3 phase mains (utility) sensing and protection (DSE7320 MKII only)
- Automatic load transfer control (DSE7320 MKII only)
- Generator current and power monitoring (kW, kvar, kVA, pf)
- Mains current and power monitoring (kW, kvar, kVA, pf) (DSE7320 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
- 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 and RS485 communication ports
- True dual mutual standby using RS232 or RS485 for accurate engine hours balancing.
- MODBUS RTU support with configurable MODBUS pages.
- 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
- 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

KEY BENEFITS

- Automatically transfers between mains (utility) and generator (DSE7320 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.

SPECIFICATIONS

DC SUPPLY

CONTINUOUS VOLTAGE RATING
8 V to 35 V Continuous
5 V for upto 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 & F
Configurable as:
Negative switching digital input
0 V to 10 V sensor
4 mA to 20 mA sensor
Resistive sensor

ANALOGUE INPUTS B, C, D & E
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
-30°C to +70°C
-22 °F to +158 °F

HEATED DISPLAY VARIANT
-40 °C to +70 °C
-40 °F to +158 °F

RELATED MATERIALS

TITLE	PART NO.
DSE7310 MKII & DSE7320 MKII Installation Instructions	053-181
DSE7310 MKII & DSE7320 MKII Operator Manual	057-253
DSE7310 MKII & DSE7320 MKII Configuration Suite PC Manual	057-243

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

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

055-203/12/20 (2)

DSEGenset®

DSE7310/20 MKII

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

The DSE7310 MKII is an Auto Start Control Module and the DSE7320 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 DSE7320 MKII will also monitor the mains (utility) supply. The modules include USB, RS232 and RS485 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 DSE7310 MKII & DSE7320 MKII using RS232 or RS485 communications. This provides for a simpler and more convenient installation with more advanced features such as true engine hours balancing.

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

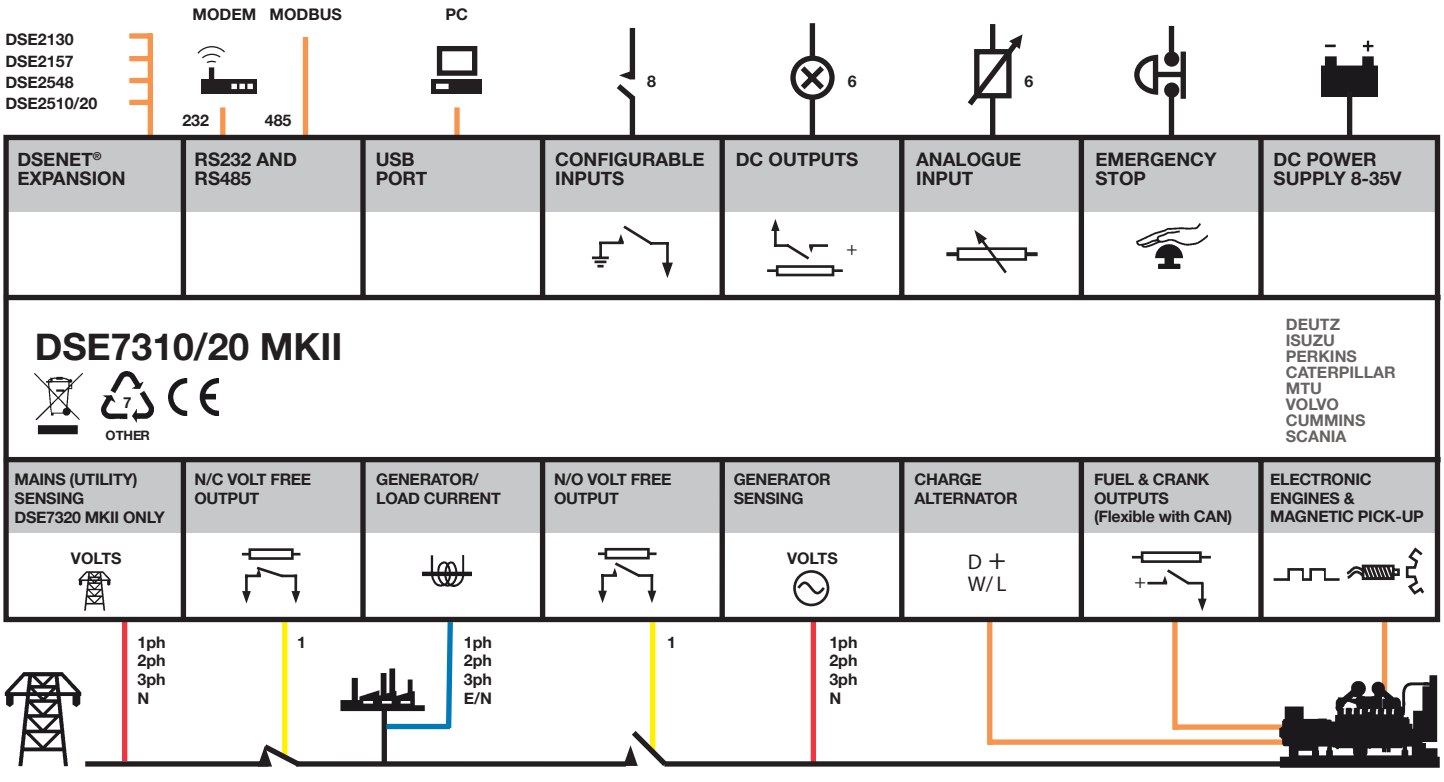
VIBRATION
BS EN 60068-2-6
Ten sweeps in each of three major axes
5 Hz to 8 Hz at +/-7.5 mm,
8 Hz to 500 Hz at 2 gn

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



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