

Generator Technical Data Sheet

Sentinel P400DC

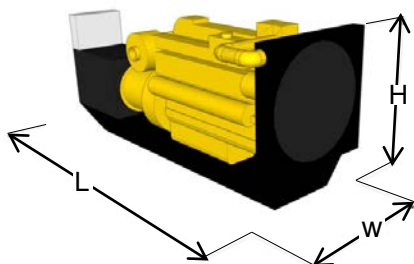


Engine	Alternator
Cummins	Stamford
NTAA855G7A	HCI444F

Standard Features	
<ul style="list-style-type: none"> ➤ Water cooled Cummins Diesel engine ➤ Single bearing Stamford alternator ➤ Radiator with pressure cap and drain point ➤ Fully guarded engine-driven fan ➤ Fully welded steel skid base with fork lift pockets ➤ Integral fuel tank with filler cap and gauge ➤ Heavy duty rubber anti-vibration mountings ➤ 12/24V starter battery and connecting cables ➤ Separate engine-driven battery charging alternator 	<ul style="list-style-type: none"> ➤ Spin on oil and fuel filters and dry type air filter element ➤ Industrial silencer (15dBA reduction) supplied loose on open units ➤ Auto Start control system with digital instrumentation ➤ Main line circuit breaker ➤ Factory Test Certificate ➤ Operation & Maintenance Manual ➤ Wide range of optional extra features available

50Hz	3 Phase	Power Factor Cos Φ 0.8	Emissions Certification N/A
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Ratings	Prime Power		Standby Power		
Voltage	kVA	kWe	kVA	kWe	Amps
415/240	400	320	440	352	556
400/230	400	320	440	352	577
380/220	400	320	440	352	607



Overall Dimensions & Weights – Open Set

Length (L) = 3300mm
Width (W) = 1400mm
Height (H) = 2000mm

Dry Weight (inc oil) = 3500kg

Typical Open Generator Sound Pressure Level @ 1m d(B)A

Overall d(B)A	63 Hz	125Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000Hz
102	TBA	TBA	TBA	TBA	TBA	TBA	TBA	TBA

Definition of Ratings & Reference Conditions

Prime Power (PRP): Applicable for supplying power to varying for unlimited hours. PRP is in accordance with ISO8528. A 10% overload is available for 1hr in every 12hours operation in accordance with ISO3046

Standby Power (ESP): Applicable for supplying power to a varying load for the duration of a power outage of a reliable utility source. ESP is in accordance ISO8528. No overload is available.

Standard Reference Conditions: Air temperature 25°C (77°F), barometric pressure 99kPa, [110m(361ft) altitude], 30% relative humidity.

The above ratings may be subject to derate at different operating conditions.

All power ratings and reference conditions in accordance with ISO 8528-1 and ISO 3046-1.

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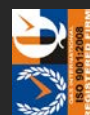
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All designs and specifications are subject to revision without notice

400KVA Prime
440KVA Standby

SEN400DC



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Engine & Cooling System			Cummins NTAA855G7A	
Performance		SI Units	Prime	Standby
	Engine Speed	RPM	1500	
	Gross Power	kWm	336	407
	Fan Power	kWm	15	15
	Net Power	KWm	351	392
	Emissions Certification		N/A	
General	Altitude Capability	m	500	500
	Cylinders/Type		6Cyl – In Line	
	Aspiration/Charge Cooling		Turbo-charged & Charged Air Cooled	
	Governing/Engine Management		Electronic	
	Bore/Stroke	mm	140/152	
	Compression Ratio		14.5/1	
Fuel	Fuel Consumption at 100% Power	litres/h	88	98
	Fuel Consumption at 75% Power	litres/h	66	73.5
	Fuel Consumption at 50% Power	litres/h	44	49
	Standard Fuel Tank Capacity	litres	526	
Air	Combustion Air Flow	m³/s	0.549	0.549
Exhaust	Exhaust Gas Flow	m³/s	1.24	1.24
	Exhaust Gas Temperature	°C	470	490
Cooling	Radiator Cooling Air Flow	m³/s	14.26	
	Max Restriction to Cooling Air Flow	Pa	180	
	Max Radiator Air-On Temperature	°C	35	
	Maximum Coolant Temperature	°C	105	
	Total Coolant Capacity	Litres	60.6	
Oil	Total Oil Capacity incl Filters	Litres	38.6	
	Typical Oil Consumption (>250hrs Operation)	Litres/hr	1.9	
Elec	Electrical System Voltage	V	24	
	Battery Type		Lead Acid	

Alternator			Newage Stamford HCI444F	
Generator Data		SI Units	Prime	Standby
	Manufacturer		Newage Stamford	
	Model (may vary with voltage)		HCI444F	HCI444F
	Operating Temperature	°C	40	27
	Coupling / No. of Bearings		Single	
	Phase / Poles / Pitch		3-Phase / 4-Pole / 2/3rds	
	Power Factor		Cos Φ = 0.8	
	Excitation		Self Exciting	
	Insulation System		Class H	
	Temperature Rise		Class H	
	Voltage Regulation		± 1.0%	

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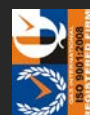
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STANDARD CONTROL SYSTEM

The standard control system for generators above 200KVA is the SEN7320, based on the Deep Sea Electronics DSE7320 Digital Auto Start controller. The SEN7320 module is designed to monitor, control and protect the generator as well as having the capability to monitor the incoming utility supply and controlling the mains/generator load breakers.

The control panel is located on the right hand side of the baseplate (looking from the alternator) and is secured to a steel frame, the frame is the support for both the SEN6020 controller and the set rated 3pole fixed pattern circuit breaker.

The DSE6020 is a microprocessor controlled module with an LCD, 4line 64 x 132 pixel display, it can automatically switch between mains (Utility) and generator power. The user friendly set-up and push button layout makes setting up the unit quick and easy. The unit also has the facility to show the date and time of up to 50 event logs.



The DSE7320 has the following Protection and Instrumentation:

Instrumentation Engine:

- Engine Speed
- Oil Pressure
- Coolant Temperature
- Run Time
- Battery Volts
- Engine Maintenance Due

Protection Circuits (Warning)

- Charge Failure
- Battery Voltage Low/High
- Fail to stop
- Generator voltage High/Low
- Generator Frequency Over/Under
- Over Speed/ Under Speed
- High Coolant Temperature

Pre-Alarms:

- Low Oil Pressure
- High Engine Temp
- Low Engine Temp
- Under/Over Speed
- Under/Over Frequency
- Under/Over Voltage
- ECU Warning

Instrumentation Generator:

- Voltage (L-L, L-N)
- Current (L1, L2, L3)
- Frequency
- KW, Pf, KVAR,
- KWh, KVAh, KVARh

Protection Circuits (Shutdown)

- Fail To Start
- Emergency Stop
- Low Oil Pressure
- High Coolant Temperature
- Over Speed / Under Speed
- Over Voltage / Under Voltage
- Over Frequency/Under Frequency
- Oil Pressure Sensor Open
- Coolant Sensor Open
- Generator Over Current

Communications:

- RS232
- RS485
- Ethernet
- SMS Messaging

Instrumentation Mains:

- Voltage (L-L, L-N)
- Frequency
- Mains on Load
- Generator on Load

There are a number of options available on the DSE7320, options that may be configurable will depend on what controls are already been utilised by the site installation, options include:

- Low Fuel Level (Indication + VFC)
- Low Coolant Level (Indication + VFC)
- High Oil Temperature Shutdown
- Common Alarm (VFC)
- Generator Running (VFC)
- Generator Not Available (VFC)

There are also a number of expansion modules available for the SEN7320 including:

- Expansion LED Module
- Expansion Relay Module
- Expansion Input Module

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Optional Acoustic Enclosure

Canopy II

The optional acoustic enclosure for this model is Canopy SEN3, suitable for operation in harsh outdoor environments whilst providing excellent security and acoustic performance. All steel canopy parts are pre-treated and polyester powder coated to a typical thickness of 70-80µm in cream and the base frame is finished in RAL9005 black.

Acoustically, the canopy is designed to meet the requirements of EU Legislation 2000/14/EC, achieved by extensive use of rock wool and perforated zintec steel lining. Exhaust noise is minimised by internally mounted high performance exhaust silencers.

A steel fuel tank with filler, gauge and accessory points, is integrated within the base frame.

Other design features include:

- Twin doors each side for excellent maintenance access
- Panel/breaker access door with viewing window
- Heavy duty locks on all doors for total security
- Weather cap on exhaust discharge
- Emergency Stop button relocated to canopy exterior
- Lifting and holding down points
- Fork lift pockets



Dimensions (MM)			Additional Weight	Typical Sound Pressure Level At 75% of Prime Power		Fuel Tank Capacity Litres	
L	W	H	Kg *	d(B)A @ 1m	d(B)A @ 7m	Integral	Bunded
4520	1500	2200	560	80	72	N/A	526

* Indicative weight of canopy additional to open set

Typical SPL is a mean level, measured in free field conditions, with no contributory background noise

Mechanical Options (Open Set)

Engine & Cooling:

- Oil and coolants drains extended to edge of base frame
- Manual lube oil drain pump
- Coolant heater
- Medium duty air cleaner
- Exhaust manifold guards

Alternator:

- Anti-condensation heater
- Quadrature droop kit

Fuel System:

- Fuel filter & water separator
- Low fuel level switch (single point)
- Fuel level switch (four point)
- Manual fuel transfer pump
- Pumped/gravity fuel transfer system

Exhaust System:

- Residential silencer
- Critical silencer
- Flange/connection kit

Please contact sales@yellowpower.com for further details along with an installation quotation

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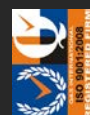
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