

Features:

- Excitation system: self-excited (AREP and PMG are optional)
- ATS (automatic transfer switch) receptacle
- Lockable battery isolator switch
- Stainless galvanized zinc plates with strong corrosion resistance
- Vibration isolators between the engine/alternator and base frame
- Integrated wiring design
- Base fuel tank for at least 8 hours running
- Equipped with an industrial muffler
- Engine oil pump
- 50 C radiator
- Top lifting and steel base frame with forklift holes
- Drainage for fuel tank
- Complete protection functions and safety labels
- IP44 (soundproof sets), IP54 (control system)
- Water jacket preheater, oil heater and double air cleaner, etc. are available.



Output Ratings

Generating Set Model	Prime	Standby
WCS350/S	315kVA/252kW	350kVA/280kW

Ratings at 0.8 power factor.

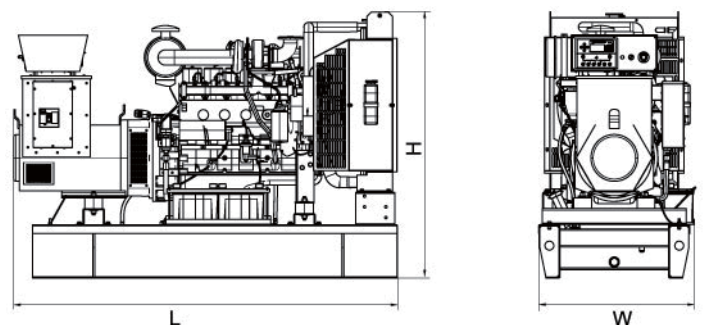
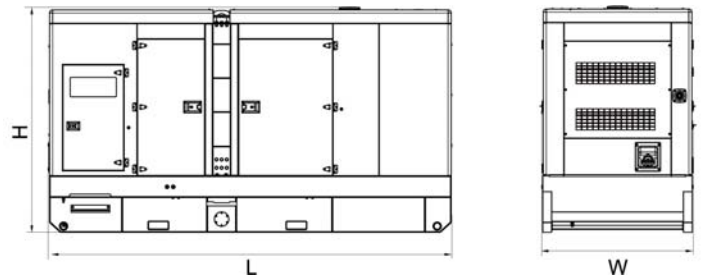
Ratings and Performance Data

Engine Make & Model:	NT855-G6	
Alternator Model:	HC1444ES	
Alternator Brand:	STAMFORD	
Control System:	PLC-920 / PLC-7420	
Noise Level@7m:	68.9-78.2	
Frequency & Phase:	50Hz & 3PH	
Engine Speed: RPM	1500	
Structure Type:	WCS350	A
	WCS350S	R
Fuel Tank Capacity: L	WCS350	410
	WCS350S	660
Fuel Consumption: l/h	at 100% load	65.6
	at 75% load	49.4

Dimensions and Weights

Generating Set Model	Length (L) mm (in)	Width (W) mm (in)	Height (H) mm (in)	Dry kg (lb)
WCS350	3030	1280	1830	3040
WCS350S	4450	1500	2200	4075

Dry = With Lube Oil Wet = With Lube Oil and Coolant



Also available in the following voltages: 415/240V-380/220V-220/127V-200/115V;

ESP: Standby Power Standby duty, operation under variable load, without over load;

PRP: Prime Power-Continuous duty operation, under variable load 24/24h-10% over load permissible 1 hour/12 hours;

The data is only for your reference but not for use of sales.

M: Mechanical speed governor, E/ECU: Electronic speed governor;

NA: Naturally aspirated, TC: Turbocharged, TCA: Turbocharged and air-air aftercooled, TCW: Water-cooled Turbocharged;

The weights are approximate and without fuel.

Engine model: NT855-G6

GENERAL ENGINE DATA

Type	4-Cycle; In-line; 6-Cylinder Diesel	
Aspiration	Turbocharged	
Bore x Stroke	5.5 x 6.0 (140 x 152)	
Displacement.....	855 (14.0)	
Compression Ratio.....	14.0 : 1	
Dry Weight		
Fan to Flywheel Engine.....	— lb (kg)	2800 (1270)
Heat Exchanger Cooled Engine.....	— lb (kg)	3030 (1374)
Wet Weight		
Fan to Flywheel Engine.....	— lb (kg)	2914 (1322)
Heat Exchanger Cooled Engine.....	— lb (kg)	3204 (1453)
Moment of Inertia of Rotating Components		
• with FW 1109 Flywheel	— lb _m • ft ² (kg • m ²)	118.5 (4.99)
• with FW 1001 Flywheel	— lb _m • ft ² (kg • m ²)	180.3 (7.60)
Center of Gravity from Rear Face of Flywheel Housing.....	— in (mm)	27.7 (704)
Center of Gravity above Crankshaft Centerline.....	— in (mm)	5.5 (140)
Maximum Static Loading at Rear Main Bearing.....	— lb (kg)	N.A.

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Block	— lb • ft (N • m)	1000 (1356)
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EXHAUST SYSTEM

Maximum Back Pressure.....	— in Hg (mm Hg)	3 (76)
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AIR INDUCTION SYSTEM

Maximum Intake Air Restriction		
• with Dirty Filter Element.....	— in H ₂ O (mm H ₂ O)	25 (635)
• with Normal Duty Air Cleaner and Clean Filter Element.....	— in H ₂ O (mm H ₂ O)	10 (254)
• with Heavy Duty Air Cleaner and Clean Filter Element.....	— in H ₂ O (mm H ₂ O)	15 (381)

COOLING SYSTEM

Coolant Capacity — Engine Only	— US gal (liter)	5.0 (18.9)
— with HX 1134 Heat Exchanger.....	— US gal (liter)	12.5 (47.3)
Maximum Coolant Friction Head External to Engine		
— 1800 rpm.....	— psi (kPa)	6 (41)
— 1500 rpm.....	— psi (kPa)	5 (34)
Maximum Static Head of Coolant Above Engine Crank Centerline.....	— ft (m)	60 (18.3)
Standard Thermostat (Modulating) Range.....	— °F (°C)	180 - 200 (82 - 93)
Minimum Pressure Cap.....	— psi (kPa)	10 (69)
Maximum Top Tank Temperature for Standby / Prime Power	— °F (°C)	220 / 212 (104 / 100)
Minimum Raw Water Flow @ 90°F to HX 1134 Heat Exchanger.....	— US gpm (liter / min)	54 (204)
Maximum Raw Water Inlet Pressure at HX 1134 Heat Exchanger	— psi (kPa)	50 (345)

LUBRICATION SYSTEM

Oil Pressure @ Idle Speed.....	— psi (kPa)	15 (103)
@ Governed Speed	— psi (kPa)	35 - 45 (241 - 310)
Maximum Oil Temperature.....	— °F (°C)	250 (121)
Oil Capacity with OP 1396 Oil Pan : High - Low	— US gal (liter)	9.5 - 7.5 (36.0 - 28.4)
Total System Capacity (Including Combo Filter).....	— US gal (liter)	10.2 (38.6)
Angularity of OP 1396 Oil Pan — Front Down		45°
— Front Up		45°
— Side to Side.....		45°

Alternator model: HCI444ES

Class-Temp Rise		Cont.H-125/40 °C			Standby-150/40 °C			Standby-163/27 °C			
50 Hz	Series Star(V)	380	400	415	380	400	415	380	400	415	
	Parallel Star(V)	100	200	208	100	200	208	100	200	208	
	Series Delta(V)	220	230	240	220	230	240	220	230	240	
		kVA	325	325	325	358	358	358	345	345	345
		kW	260	260	260	286	286	286	276	276	276
		Efficiency(%)	93.6	93.7	93.8	92.7	93.0	93.2	92.7	93.0	93.2
		kW Input	278	277	277	309	308	307	298	297	296

60 Hz	Series Star(V)	416	440	480	416	440	480	416	440	480	
	Parallel Star(V)	208	220	240	208	220	240	208	220	240	
	Series Delta(V)	240	254	277	240	254	277	240	254	277	
		kVA	381	394	419	419	431	450	406	419	460
		kW	305	315	335	335	345	365	325	335	355
		Efficiency(%)	93.6	93.7	93.6	92.9	92.7	93.1	93.2	93.2	93.3
		kW Input	326	336	357	361	372	392	349	359	380

WCS350 / WCS350S

Control System PLC-920 (Optional)

PowerLink PLC-920 generator controllers integrating digital, intelligent and network techniques are used as the automatic control systems for diesel generators. It can carry out functions including pre-alarm, warning & electrical trip, error, fail monitoring and controls, etc.

FUNCTION

Pre-Alarm

- Engine temperature
- Oil pressure
- Over/under voltage
- Over/under frequency
- Over/under speed

Warning & Electrical trip

- Over current
- Short circuit

Error

- Over/under speed
- Speed loss
- Battery low voltage
- Battery high voltage
- Maintenance
- Over current
- Short circuit
- Engine stop
- CAN bus
- Charge alternator

Controls

- Fuel and stop solenoid
- ECU power and stop
- Starter motor
- Automatic generator start
- Preheat
- External alarm horn
- Engine cooling
- Idle mode

Fail monitoring

- Emergency stop
- Multiple engage fail
- Failed to start
- Low oil pressure
- High temperature
- Speed failure
- Voltage
- Charging fail
- Shutdown
- Warning



FEATURES

- Largest back-lit icon display in its class
- Extremely efficient power save mode
- 3 configurable analogue/digital inputs
- Configurable staged loading outputs
- 15 events log
- LCD alarm indication
- Configurable remote start input
- Power factor measurement for 3 phases
- 3 phase Load current measurement
- 3 phase alternator voltage measurement
- Configurable 4 inputs and 8 outputs
- Engine run-time scheduler
- Engine hours counter
- Automatic start control
- CAN and alternator speed sensing in one variant
- Active, Reactive, Apparent power measurement
- Fully configuration via the fascia or PC using USB communication
- Motoring Engine Speed, Coolant Temperature, Oil Pressure and Fuel Level

SPCIFICATION

- Dimensions: 140mm*113mm*43mm
- Panel cut-out: 118mm*92mm
- Protection: IP65 at front panel
- Weight: approximately 0.16kg
- Operating temperature: -30 °C to 70 °C
- DC battery supply voltage: 8 to 35V
- Max. operating current: 85mA at 12V
96mA at 24V
- CT secondary: 5A
- Flexible sensor measurement:
Full scale: 480ohm;
Accuracy: ±2%FS; Resolution: 1%

Control System function list

	MODEL	PLC-920	PLC-7420	
General accessory	AVR	●	●	
	Electronic Governing	×	×	
	Glow plug control	●	●	
	Cycle Cranking (MODBUS) Networking	●	●	
	Fault History	×	●	
Operator Interface	manual start/stop	●	●	
	Auto/remote start	●	●	
	Regular Test	●	●	
	Auto operation LED	●	●	
	Manual operation LED	●	●	
	Common Shutdown LED	●	●	
	Common warning LED	●	●	
	Fail to start LED	●	●	
	Emergency stop(local)	●	●	
	Alphanumeric screen	●	●	
Measurement and Instrumentation	Remote start input active LED	×	●	
	Alarm reset	●	●	
	Engine	Oil pressure	●	●
		Water Temperature	●	●
		Engine Speed	●	●
		Hours Run	●	●
		Number of Starts	●	●
	Alternator	Battery Voltage	●	●
		Coolant Temperature	●	●
		3Phase-L Voltage&Frequency	●	●
		3Phase Current	●	●
		Frequency	●	●
		kWh	●	●
		Apparent Power	●	●
		Active Power and Reactive Power	●	●
Power Factor		●	●	
Per PhasekW, kVAr		●	●	
Per Phase KVA	●	●		
Mains Expression	Phase Voltage	●	●	
	Output Power	×	●	
	Grid Line Voltage	×	●	
	Grid Phase Voltage	×	●	
	Grid Frequency	×	●	
Shutdown Protection and Indication	Low Fuel Level	●	●	
	High Fuel Level	×	○	
	Low Oil Pressure	●	●	
	High Water Temperature	●	●	
	Failure to Stop	●	●	
	Failure to Start	●	●	
	Controllable start circles/times	×	●	
	Overspeed	●	●	
	Under&Over Voltage	●	●	
	Under&Over Frequency	●	●	
Threshold Warning/Indication	Overcurrent	●	●	
	Earth Leakage	○	○	
	Reverse Power	×	×	
	Reverse kW/r	×	×	
	Low Oil Pressure	●	●	
	Low Water Temperature	○	○	
	High Water Temperature	●	●	
	Low Water Level	●	●	
	Low/High Battery Voltage	●	●	
	Failure to Charge	●	●	
Paralleling Capability	Overcurrent	●	●	
	Overload	●	●	
	Genset Under/Over Voltage	●	●	
	Genset Under/Over Frequency	●	●	
	under/over Speed	●	●	
	High Engine Temperature	●	●	
	Earth Leakage	○	○	
	Synchrscope(Independent Bus)	×	×	
	Active and Reactive Power Control	×	×	
	Synchrscope(Shared Bus)	×	×	
Power Transfer Function	Synchronization Detector	×	×	
	Peak Lopping	×	×	
	Automatic Transfer	○	●	
	Hard Closed Transition	●	●	
	Soft Closed Transition	×	×	
	Gen/Mains Breaker	×	×	
	Gen/Mains Breaker Status Protection	×	×	
	Speed/Voltage Control	×	×	
	Power Indication	×	●	
	Fuel&Solenoid Valve Control	●	●	
Environment	Starter Control	●	●	
	Preheating	○	○	
	Mains Transfer Switch (Standard)	×	×	
	Mains Transfer Switch (Emergency)	×	×	
	Operating Temperature (-40 °C-70 °C)	●	●	
	Ambient Temperature (-25 °C-45 °C)	●	●	
	Humidity <=80%	●	●	
	Grid Over/Under Voltage Control	×	●	
	Grid Over/Under Frequency Control	×	●	
	Remote Start Output(Load/No-load)	●	●	
Monitoring Function	Optional Relay Output	●	●	
	Remote Telecom Control with All Functions	×	●	
	Engine Instrument Monitoring	●	●	
	Alternator Output Instrument Monitoring	●	●	
	Connection Point with All-around Setting For 6 Users	●	●	
	3 Users Input Connection Point	●	●	
	LCD Light Control of Low Light Operation Environment	●	●	
	Safe PIN Code	●	●	
	RS232/485 Interface	×	×	
	Language Selection	●	●	
Multi-Language Function	●	●		

Control System

Digital, intelligent control system allows easier operation.

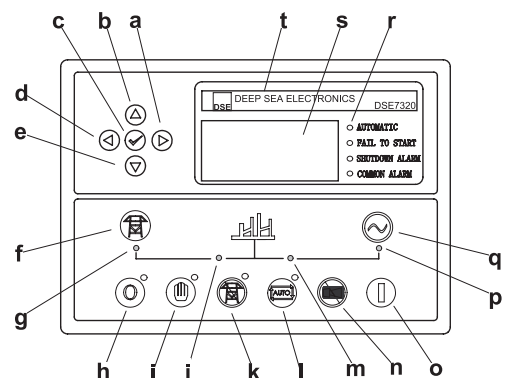
PLC-7420

PLC-7420 is an advanced control module based on micro-processor, containing all necessary functions for protection of the genset and the breaker control. It can monitor the mains supply, breaker control and automatically start the engine when the mains is abnormal. Accurately measure various operational parameters and display all values and alarms information on the LCD. In addition, the control module can automatically shut down the engine and indicate the engine failure.



FEATURES

- Microprocessor control, with high stability and credibility
- Monitoring and measuring operational parameters of the mains supply and genset
- Indicating operation status, fault conditions, all parameters and alarms
- Multiple protections; multiple parameters display, like pressure, temp. etc.
- Manual, automatic and remote work mode selectable
- Real time clock for time and date display, overall runtime display, 250 log entries
- Overall power output display
- Integral speed/frequency detecting, telling status of start, rated operation, overspeed etc.
- Communication with PC via RS485 OR RS232 interface, using MODBUS protocol



Control Panel

- a Button (next page)
- b Button (increase value / previous item)
- c Button (accept)
- d Button (previous page)
- e Button (decrease value / next item)
- f Button (transfer the load to the mains supply, when in Manual mode only)
- g Mains supply available LED
- h Stop / Reset button
- i Manual button (Manual control mode)
- j Mains supply on load LED
- k Test button (Test mode)
- l Auto button (Auto mode)
- m Genset on load LED
- n Mute/Lamp test button
- o Start button (Manual)
- p Genset available LED
- q Button (transfer the load to the genset, when in Manual mode only)
- r Alarm LED (4 alarm items)
- s LCD display
- t Control module name

Optional

Engine	Alternator	Generator Set	Fuel System	Canopy
<ul style="list-style-type: none"> • Water Jacket Preheater • Oil Preheater 	<ul style="list-style-type: none"> • Winding Temperature Measuring Instrument • Alternator Preheater • PMG • Anti-damp and anti-corrosion treatment • Anti-condensation heater 	<ul style="list-style-type: none"> • Tools with the machine 	<ul style="list-style-type: none"> • Low fuel level alarm • Automatic fuel feeding system • Fuel T-valves 	<ul style="list-style-type: none"> • Trailer
Lubricating System	Exhaust System	Cooling System	Control Panel	Voltages
<ul style="list-style-type: none"> • Oil with the machine 	<ul style="list-style-type: none"> • Protection board from hotness 	<ul style="list-style-type: none"> • Front heat protection • Coolant (-30°C) 	<ul style="list-style-type: none"> • Remote control panel • PLC-920 • PLC-7420 • ATS 	<ul style="list-style-type: none"> • 415/240V • 400/230V • 380/220V • 220/127V • 200-115V

