# **SPECTRUM®**

## DETROIT DIESEL



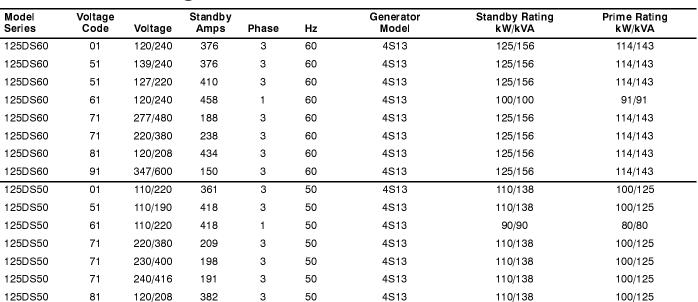
**Model: 125DS** 

Diesel

## Standard Features

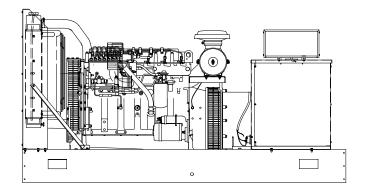
- Spectrum® product distributors provide one-source responsibility for the generating system and accessories.
- All generator sets and components are prototype tested, factory built, and production tested.
- Generator sets provide one-step load acceptance per NFPA 110.
- Generator set engine on 60 Hz model is Environmental Protection Agency (EPA) certified.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are available.
- Generator features:
  - Brushless, rotating-field generator has broadrange reconnectability.
  - Permanent magnet-excited generator (PMG) provides superior short-circuit capability.
- Other features:
  - Controllers are available to meet all applications.
     See controller features inside.
  - Low coolant level shutdown protects generator set from overheating.
  - Integral vibration isolation eliminates the need for installation of vibration spring isolators under the unit

# **Generator Ratings**



RATINGS: Standby ratings are continuous for the duration of any power outage. No overload capacity is specified at this rating. Prime ratings are continuous per BS 5514, DIN 6271, ISO-3046, and IEC 34-1 with 10% overload capacity one hour in twelve hours. All single-phase units are rated at 1.0 power factor. All 3-phase units are rated at 0.8 power factor. Contact the factory for ratings of city water-cooled and remote radiator models. Larger alternators may be used to meet special application requirements. Availability is subject to change without notice. The manufacturer of Spectrum products reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Spectrum products distributor for availability. GENERAL GUIDELINESFOR DERATION: ALTITUDE: Derate 1.0% per 1000 ft. (305 m) elevation above 1000 ft. (305 m)). TEMPERATURE: Derate 1.0% per 10°F (5.5°C) temperature above 77°F (25°C).





# **Alternator Specifications**

Type	4-Pole, Rotating Field
Exciter type	Brushless, Permanent Magnet
Number of leads	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation: NEMA MG1-1.66	
Material	Class H
Temperature rise	130°C, Standby
Bearing, number, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no load to full load	±2%
One-step load acceptance per NFPA110	100% of Rating
Peak motor starting kVA:	(35% dip for 480 V, 60 Hz and 380 V, 50 Hz)
4S13	510 (60 Hz), 370 (50 Hz)

- Compliance with NEMA, IEEE, and ANSI standards for temperature rise.
- Sustained short-circuit current of up to 300% of rated current for up to 10 seconds.
- Sustained short-circuit capability enabling downstream circuit breakers to trip without collapsing the generator field.
- Self-ventilation and drip-proof construction.
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- Solid-state, volts-per-hertz voltage regulator with ±2% no-load to full-load regulation.
- Brushless alternator with brushless exciter for excellent load response.

# **Application Data**

## **Engine**

Liigiile		
Engine Specifications	60 Hz	50 Hz
Manufacturer	Detroit Diesel	
Engine, model, type	Series 40-8. Turboc	
Cylinder arrangement	6 In	-line
Displacement, cu. in. (L)	530	(8.7)
Bore and stroke, in. (mm)	4.59 (117) >	(5.35 (136)
Compression ratio	15.	8:1
Piston speed, ft/min. (m/sec.)	1605 (8.2)	1338 (6.8)
Main bearings: number, type	7, Replace	able Insert
Rated rpm	1800	1500
Max. power at rated rpm, hp (kW)	205 (153)	175 (131)
Engine power at standby rating, hp (kW)	190 (142)	166 (124)
Cylinder head material	Cast Iron	
Crankshaft material	Forged Steel	
Valve material:		
Intake	Chromium-9	Silicon Steel
Exhaust	Inco	onel
Governor, type, make/model		anical, ch P
Frequency regulation, no load to full load	3%	-5%
Frequency regulation, steady state	±0.33%	
Air cleaner type, all models	Dry, Pape	r Element

## **Engine Electrical**

Engine Electrical System	60 Hz	50 Hz
Battery charging alternator:		
Ground (negative/positive)	Nega	ative
Volts (DC)	1	2
Ampere rating	6	6
Starter motor rated voltage (DC)	1	2
Recommended battery cold cranking amps (CCA) rating for 0°F (-18°C)	12	50
Quantity of batteries	2	2
Battery voltage (DC)	1	2
Rolling current at 32°F (0°C)	-	

### **Fuel**

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, in. (mm)	0.31 (8.0)	
Fuel return line, min. ID, in. (mm)	0.19 (	5.0)
Max. lift, engine-driven fuel pump, ft. (m)	3.3 (1	.0)
Max. fuel flow, gph (Lph)	47.6 (179.3)	
Fuel prime pump	Manual	
Fuel filter	Primary and	Secondary
Recommended fuel	#2 Diesel, min. 45 Cetane	

### **Exhaust**

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, cfm (m <sup>3</sup> /min.)	1060 (30)	880 (24.9)
Exhaust temperature at rated kW, dry exhaust, ${}^{\circ}F$ ( ${}^{\circ}C$ )	950 (510)	995 (535)
Maximum allowable back pressure, in. Hg (kPa)	2.5	(8.4)
Exhaust outlet size at hookup, in. (mm)	4 (10	01.6)

### Lubrication

Lubricating System	60 Hz	50 Hz
Туре	Fu∥ Pressure	
Oil pan capacity, qts. (L)	22 (20.8)	
Oil pan capacity with filter, qts. (L)	26 (2	24.6)
Oil filter, quantity, type	1, Car	tridge
Oil cooler	Water	Cooled

# **Application Data**

## **Cooling (Standard Radiator)**

Cooling System	60 Hz	50 Hz
Ambient temperature °F (°C)	115	(46)
Engine jacket water capacity, gal. (L)	4.5 (17)	
Radiator system capacity, including engine, gal. (L)	8.0	(30)
Engine jacket water flow, gpm (Lpm)	82 (310)	68 (259)
Heat rejected to cooling water at rated kW, dry exhaust Btu/min.	4830	4010
Water pump type	Centrifugal	
Fan diameter, including blades, in. (mm)	23.6 (600)	
Fan hp (kW)	9 0 (6 7)	5.2 (3.9)
Max. restriction of cooling air, intake and discharge side of rad., in. $H_2O$ (kPa)	0.5 (0	0.125)

## **Cooling (Optional Systems)**

High Ambient Radiator System	60 Hz	50 Hz
Ambient temperature °F (°C)	122	(50)
Engine jacket water capacity, gal. (L)	4.5	(17)
Radiator system capacity, including engine, gal. (L)	8.5 (	32.2)
Engine jacket water flow, gpm (Lpm)	82 (310)	68 (259)
Heat rejected to cooling water at rated kW, dry exhaust Btu/min.	4830	4010
Water pump type	Centr	ifugal
Fan diameter, including blades, in. (mm)	23.6 (600)	
Fan hp (kW)	9.0 (6.7)	5.2 (3.9)
Max. restriction of cooling air, intake and discharge side of rad., in. H <sub>2</sub> O (kPa)	0.5 (0	).125)

Remote Radiator System*	60 Hz	50 H
Exhaust manifold type	Dry	
Connection sizes:		
Water inlet, in. (mm)	2.5 (64)	D Hose
Water outlet, in. (mm)	2.25 (57)	ID Hose
Static head allowable above engine, ft. (m)	35 (1	0.7)

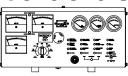
<sup>\*</sup> Contact your local distributor for cooling system options and specifications based on your specific application.

City Water Cooling System	60 Hz	50 Hz
Exhaust manifold type	D	ry
System capacity, gal. (L)	1.25	(4.5)
City water consumption, gpm (Lpm) at 50°F (10°C)	8.3 (31.4)	6.7 (25.3)
Connection sizes:		
Water inlet, in.	0.50 NPT	
Water outlet, in.	0.50 NPT	

## **Operation Requirements**

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, cfm (m <sup>3</sup> /min.)	6700 (190)	5500 (158)
Cooling air required for gen. set when equipped with CWC or remote radiator, based on 25°F (14°C) rise and ambient temp. of 85°F (29°C), cfm (m³/min.)	5200 (147)	4500 (127)
Combustion air, cfm (m <sup>3</sup> /min.)	392 (11.1)	313 (8.9)
Heat rejected to ambient air:		
Engine BTU/min	1740	1420
Generator BTU/min	510	520
Fuel Consumption	60 Hz	50 Hz
Diesel, gph (Lph) at % load		
100%	10.0 (37.9)	8.2 (31.0)
75%	7.4 (28.0)	6.5 (24.6)
50%	6.0 (22.7)	4.5 (17.0)
	4.0 (15.1)	2.8 (10.6)

## **Controllers**



### **Standard Controller**

### Microprocessor-Plus, 16-Light Controller

Audio/visual annunciation with NFPA-110, Level 1 capability Microprocessor logic with AC meters and engine gauges Compatible with 12-volt and 24-volt engine electrical systems Remote start, prime power, and remote annunciation capability

## **Optional Controllers**

### Digital Controller

Audio/visual annunciation with NFPA-110, Level 1 capability Programmable microprocessor logic with digital display Compatible with 12-volt and 24-volt engine electrical systems Remote start, prime power, remote annunciation, and remote communication capability

#### Microprocessor-Plus, 7-Light Controller

Audio/visual annunciation with NFPA-110, Level 2 capability Microprocessor logic with AC meters and engine gauges Compatible with 12-volt and 24-volt engine electrical systems Remote start, prime power, and remote annunciation capability

#### Basic Controller

Provides remote or automatic start with NFPA compliance
Uses single-light annunciation with basic control functions
Relay logic with three models—standard Basic, standard Basic with
engine gauges, and expanded Basic with AC meters and engine gauges
Compatible with 12-volt engine electrical systems only

### **Oversized Meterbox Controllers**

Provides additional space for optional engine oil temperature gauge, tachometer, and wattmeter

Available with 16-light or 7-light annunciation and microprocessor logic Same features as Microprocessor-Plus controller

## Compatible with 12-volt and 24-volt engine electrical systems

### Manual Controller

Designed for prime power and mobile applications
Uses single-light annunciation with basic control functions
Relay logic with AC meters and engine gauges
Compatible with 12-volt engine electrical systems only

### Engine Gauge Box Controller for Paralleling Switchgear

Interfaces between generator set and switchgear for paralleling switchgear applications

Engine gauges with emergency stop switch

Compatible with 24-volt engine electrical systems only

NOTE: See the respective controller spec sheet for additional controller features and accessories.

Voltage Adjust PotentiometerVoltage Regulator Relocation Kit

SPECTRUM N7650 County Trunk LS, Sheboygan, Wisconsin 53083 U.S.A. Phone 920-459-1877 Fax 920-459-1825 (U.S.A. Sales), Fax 920-459-1614 (International)

# **Accessories**

	England Unit	Maintananaa	
$\overline{}$	Enclosed Unit	Maintenance	
0	Exhaust Silencer, Critical or Residential	General Maintenance Literature Kit	
0	Silencer Mounting Kit for Housing Sound Shield Enclosure	Maintenance Kit (includes air, oil, and fuel filters)	
0	Tail Pipe and Rain Cap Kit	Overhaul Literature Kit	
0	·	Controller (Standard Controller)	
0	Weather Housing	○ Common Failure Relay Kit	
	Open Unit	<ul> <li>Customer Connection Kit</li> </ul>	
$\circ$	Exhaust Silencer, Critical or Industrial	<ul> <li>Dry Contact Kit (Isolated Alarm)</li> </ul>	
$\circ$	Flexible Exhaust Connector, Stainless Steel	<ul> <li>Extension Wiring Harness for Remote Mounting of Control</li> </ul>	oller
	Cooling System	○ FASTCHECK® Diagnostic Fault Detector	
0	Block Heater	<ul><li>Prealarm Sender Kit</li></ul>	
$\circ$	City Water Cooling	Remote Annunciator Panel	
0	Radiator Duct Flange	<ul> <li>Remote Audio/Visual Alarm Panel</li> </ul>	
0	Remote Radiator Cooling	Remote Emergency Stop Kit	
	Fuel System	○ Run Relay Kit	
0	Auxiliary Fuel Pump	<ul> <li>Tachometer Kit/Oversize Meterbox</li> </ul>	
0	Day Tanks	<ul> <li>Wattmeter Kit/Oversize Meterbox</li> </ul>	
0	Flexible Fuel Lines	Miscellaneous Accessories	
0	Fuel Pressure Gauge	0	
0	Subbase Fuel Tanks	0	
_		0	_
$\overline{}$	Electrical System	0	_
0	Battery	0	
0	Battery Charger, Equalize/Float Type	0	
0	Battery Charger, Trickle Type	0	
0	Battery Heater	0	_
0	Battery Rack and Cables	0	_
	Engine and Generator	WEIGHTS AND DIMENSIONS	
0	Air Cleaner, Heavy Duty	Overall Size, L x W x H, in. (mm): 104.5 x 34.0 x	56.2
0	Air Cleaner Restriction Indicator	(2654 x 864 x 1	
0	Bus Bar Kits	Weight (Radiator Model), wet lb. (kg): 3335 (1513	3)
0	CSA Certification		
0	Electronic Isochronous Governor		
0	Generator Strip Heater		
	Line Circuit Breaker		[
_	Line Circuit Breaker with Shunt Trip		
0	NFPA 110 Literature		
0	Oil Drain Extension with Valve Kit	↓ □	
0	Optional Generators	- w → L	
0	Rated Power Factor Testing		
0	Safeguard Breaker	NOTE: This drawing is provided for reference only and should not be used for pla installation. Contact your local distributor for more detailed information.	ınning
0	Voltage Regulation, 1%		
0	Voltage Regulator Sensing, Three-Phase	DISTRIBUTED BY:	
	Paralleling System		
0	Load-Sharing Module		
$\circ$	Reactive Droop Compensator		
$\cap$	Remote Speed Adjust Potentiometer/Flectronic Governor		

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