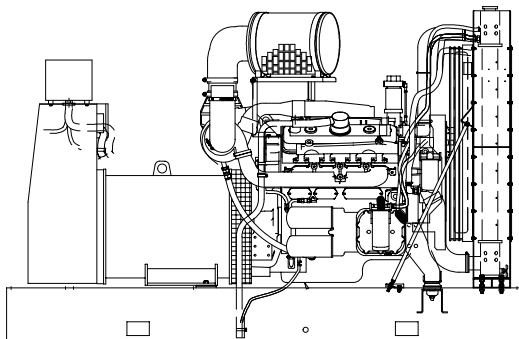


Standard Features

- 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 set provides one-step load acceptance per NFPA 110.
- 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.
 - A permanent-magnet, pilot-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.
 - Electronic, isochronous governor provides precise frequency regulation.



Ratings Range

		60 Hz	50 Hz
Standby:	kW	305-410	288-336
	kVA	381-513	360-420
Prime:	kW	275-370	260-304
	kVA	344-463	325-380

Generator Ratings

Generator	Voltage	PH	Hz	130°C	105°C	150°C	125°C	
				Rise Standby Rating kW/kVA	Rise Prime Rating kW/kVA	Rise Standby Rating kW/kVA	Rise Prime Rating kW/kVA	
4M4019	120/208	3	60	350/438	315/394	360/450	325/406	
	127/220	3	60	360/450	325/406	375/469	340/425	
	139/240	3	60	375/469	340/425	400/500	360/450	
	220/380	3	60	305/381	275/344	305/381	275/344	
	240/416	3	60	350/438	315/394	360/450	325/406	
	277/480	3	60	375/469	340/425	400/500	360/450	
	110/190	3	50	300/375	272/340	324/405	292/365	
	115/200	3	50	296/370	268/335	324/405	292/365	
	120/208	3	50	288/360	260/325	316/395	288/360	
	220/380	3	50	300/375	272/340	324/405	292/365	
	230/400	3	50	296/370	268/335	324/405	292/365	
	240/416	3	50	288/360	260/325	316/395	288/360	
	4M4021	120/208	3	60	370/463	335/419	395/494	360/450
		127/220	3	60	390/488	355/444	405/506	365/456
		139/240	3	60	405/506	365/456	405/506	365/456
		220/380	3	60	315/394	285/356	315/394	285/356
240/416		3	60	370/463	335/419	395/494	360/450	
277/480		3	60	405/506	365/456	405/506	365/456	
110/190		3	50	320/400	288/360	332/415	300/375	
115/200		3	50	324/405	292/365	332/415	300/375	
120/208		3	50	320/400	288/360	328/410	296/370	
220/380		3	50	320/400	288/360	332/415	300/375	
230/400		3	50	324/405	292/365	332/415	300/375	
240/416		3	50	320/400	288/360	328/410	296/370	
5M4024		120/208	3	60	405/506	365/456	405/506	365/456
		127/220	3	60	405/506	365/456	405/506	365/456
		139/240	3	60	405/506	365/456	405/506	365/456
		220/380	3	60	400/500	360/450	400/500	360/450
	240/416	3	60	405/506	365/456	405/506	365/456	
	277/480	3	60	405/506	365/456	405/506	365/456	
	110/190	3	50	336/420	304/380	336/420	304/380	
	115/200	3	50	336/420	304/380	336/420	304/380	
	120/208	3	50	336/420	304/380	336/420	304/380	
	220/380	3	50	336/420	304/380	336/420	304/380	
	230/400	3	50	336/420	304/380	336/420	304/380	
	240/416	3	50	336/420	304/380	336/420	304/380	
	5M4027	120/208	3	60	405/506	365/456	405/506	365/456
		127/220	3	60	405/506	365/456	405/506	365/456
		139/240	3	60	410/513	370/463	410/513	370/463
		220/380	3	60	405/506	365/456	405/506	365/456
240/416		3	60	405/506	365/456	405/506	365/456	
277/480		3	60	410/513	370/463	410/513	370/463	
110/190		3	50	336/420	304/380	336/420	304/380	
115/200		3	50	336/420	304/380	336/420	304/380	
120/208		3	50	336/420	304/380	336/420	304/380	
220/380		3	50	336/420	304/380	336/420	304/380	
230/400		3	50	336/420	304/380	336/420	304/380	
240/416		3	50	336/420	304/380	336/420	304/380	
5M4160		220/380	3	60	405/506	365/456	405/506	365/456
		5M4162	220/380	3	60	410/513	370/463	410/513
		4M4266	347/600	3	60	400/500	360/450	405/506
		5M4272	347/600	3	60	410/513	370/463	410/513

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 GUIDELINES FOR DERATION: ALTITUDE: Derate 1.5% per 1000 ft. (305 m) elevation above 3300 ft. (1006 m). TEMPERATURE: Derate 2.75% per 10°F (5.5°C) temperature increase above 105°F (40°C).

Alternator Specifications

Type	4-Pole, Rotating Field
Exciter type	Brushless Permanent Magnet Pilot Exciter
Voltage regulator	Solid State, Volts/Hz
Insulation: NEMA MG1-1.66,	
Material	Class H, Synthetic, Nonhygroscopic
Temperature rise	130° C, 150° C Standby
Bearing, number, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Rotor balancing	125% (60Hz) 150% (50Hz)
Voltage regulation, no load to full load (with <0.5% drift due to temp. variation) ..	±0.25%
One-step load acceptance per NFPA 110	100% of Rating
Peak motor starting kVA:	(35% dip for voltages listed)
480/416V 4M4019 (12 lead) ...	1350 (60Hz), 1000 (50Hz)
480/416V 4M4021 (12 lead) ...	1350 (60Hz), 1000 (50Hz)
480/416V 5M4024 (10 lead) ...	1350 (60Hz), 1000 (50Hz)
480/416V 5M4027 (12 lead) ...	1550 (60Hz), 1250 (50Hz)
380V 5M4160 (4 lead)	1175 (60Hz)
380V 5M4162 (4 lead)	2100 (60Hz)
600V 4M4266 (4 lead)	1300 (60Hz)
600V 5M4272 (4 lead)	1750 (60Hz)

- Compliance with NEMA, IEEE, and ANSI standards for temperature rise.
- Sustained short-circuit current 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.
- Superior voltage waveform from two-thirds pitch windings and skewed stator.
- A digital solid-state, volts-per-hertz voltage regulator with ±0.25% no-load to full-load regulation.
- A brushless alternator with brushless pilot exciter for excellent load response.

Application Data

Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	Detroit Diesel	
Engine, Model, Type	8V-92TA, (8083-7416) 2-Cycle, Turbocharged, Aftercooled	
Cylinder arrangement	8-V	
Displacement, cu. in. (L)	736 (12.1)	
Bore and stroke, in. (mm)	4.84 (123) x 5.00 (127)	
Compression ratio	15.0:1	
Piston speed, ft/min. (m/sec.)	1500 (7.6)	1250 (6.3)
Main bearings: number, type	5, Replaceable Insert	
Rated rpm	1800	1500
Max. power at rated rpm, hp (kW)	643 (480)	526 (392)
Cylinder head material	Cast Iron	
Crankshaft material	Forged Steel	
Valve (exhaust) material	Pyromet 31	
Governor, type, make/model	Electronic, Barber-Colman, Dyna 8000	
Frequency regulation, no load to full load	Isochronous	
Frequency regulation, steady state	±0.25%	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, cfm (m ³ /min.)	4460 (126)	3800 (108)
Exhaust temperature at rated kW, dry exhaust, °F (°C)	865 (463)	890 (477)
Maximum allowable back pressure, in. Hg (kPa)	2.0 (6.8)	1.4 (4.7)
Engine exhaust outlet size, in. (mm)	see ADV drawing	

Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Battery charging alternator:		
Ground (negative/positive)	Negative	
Volts (DC)	24	
Ampere rating	65	
Starter motor rated voltage (DC) .	24	
Recommended battery cold cranking amps (CCA) rating	950 above 32°F (0°C)	1250 below 32°F (0°C)
Quantity of batteries	2 above 32°F (0°C), 4 below 32°F (0°C)	
Battery voltage (DC)	12	
Rolling current at 32°F (0°C)	-	

Fuel

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, in. (mm)	0.5 (13)	
Fuel return line, min. ID, in. (mm)	0.31 (8)	
Max. lift, engine-driven fuel pump, ft. (m)	6.8 (2.1)	
Max. fuel flow, gph (Lph)	96 (363)	91 (344)
Fuel prime pump	N/A	
Fuel filter	2, Primary/Secondary	
Recommended fuel	#2 Diesel	

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, qts. (L)	25.0 (24)	
Oil pan capacity with filter, qts. (L)	27.0 (26)	
Oil filter, quantity, type	2, Cartridge	
Oil cooler	Water-Cooled	

Application Data

Cooling (Standard Radiator)

Cooling System	60 Hz	50 Hz
Ambient temperature °F (°C)	105 (40)	
Engine jacket water capacity, gal. (L)	7.3 (27.0)	
Radiator system capacity, including engine, gal. (L)	23.3 (87.6)	
Engine jacket water flow, gpm (Lpm)	160 (606)	133 (505)
Heat rejected to cooling water at rated kW, dry exhaust Btu/min.	19933	16306
Water pump type	Centrifugal	
Fan diameter, including blades, in. (mm)	40 (1016)	
Fan hp (kW)	30 (22.4)	17 (12.7)
Max. restriction of cooling air, intake and discharge side of rad., in. Hg (kPa)	0.037 (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)	7.3 (27.0)	
Radiator system capacity, including engine, gal. (L)	-	
Engine jacket water flow, gpm (Lpm)	160 (606)	133 (505)
Heat rejected to cooling water at rated kW, dry exhaust Btu/min.	19933	16306
Water pump type	Centrifugal	
Fan diameter, including blades, in. (mm)	43 (1092)	
Fan hp (kW)	29 (21.6)	17 (12.7)
Max. restriction of cooling air, intake and discharge side of rad., in. Hg (kPa)	0.037 (0.125)	

Remote Radiator System†	60 Hz	50 Hz
Exhaust manifold type	Dry	
Connection sizes:		
Water inlet, in. (mm)	3.5 (89) ID Hose	
Water outlet, in. (mm)	(2) 2.5 (63) ID Hose	
Static head allowable above engine, ft. (m)	50 (15.25)	

City Water Cooling System	60 Hz	50 Hz
Exhaust manifold type	Dry	
System capacity, gal. (L)	12.3 (46.5)	
City water consumption,* gpm (Lpm) at 50°F (10°C)	28.4 (108)	23 (87)
Connection sizes:*		
Water inlet, in.	1.5 NPT	
Water outlet, in.	1.0 NPT	

* Data based on Modine C-820-438 heat exchanger with thermostatically controlled water-saver valve, electric solenoid valve, and surge tank.

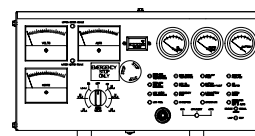
† Contact your local distributor for cooling system options and specifications based on your application.

Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, cfm (m ³ /min.)	22600 (640)	18800 (532)
Cooling air required for gen. set when equipped with CWC or remote radiator, based on 25°F (14°C) rise and ambient temp. 85°F (29°C), cfm (m ³ /min.)	10100 (286)	9100 (258)
Combustion air, cfm (m ³ /min.)	1770 (50)	1480 (42)
Heat rejected to ambient air:		
Engine BTU/min.	2640	2520
Generator BTU/min.	1770	1460

Fuel Consumption	60 Hz	50 Hz
Diesel, gph (Lph) at % load		
100%	33.2(125.6)	27.3(103.3)
75%	25.1 (95.0)	19.9 (75.3)
50%	16.7 (63.2)	14.0 (53.0)
25%	10.2 (38.6)	8.3 (31.4)

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

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

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

Manual Paralleling Controller

Provides capability to parallel two or more generator sets without large switchgear-style cubicles
Uses 16-light annunciation and microprocessor logic
Same features as Microprocessor-Plus controller
Compatible with 12-volt and 24-volt engine electrical systems

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



Accessories

Open Unit

- Exhaust Silencer, Critical or Residential
- Flexible Exhaust Connector, Stainless Steel

Cooling System

- Block Heater
- City Water Cooling
- High Ambient Radiator
- Radiator Duct Flange
- Remote Radiator Cooling

Fuel System

- Auxiliary Fuel Pump
- Day Tanks
- Flexible Fuel Lines
- Fuel Pressure Gauge
- Subbase Fuel Tanks

Electrical System

- Battery
- Battery Charger, Equalize/Float Type
- Battery Charger, Trickle Type
- Battery Heater
- Battery Rack and Cables (standard)

Engine and Generator

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Bus Bar Kits
- Generator Strip Heater
- Line Circuit Breaker
- Line Circuit Breaker with Shunt Trip
- NFPA 110 Literature
- Oil Drain Extension with Valve Kit
- Optional Generators
- Rated Power Factor Testing
- Safeguard Breaker

Paralleling System

- Load-Sharing Module
- Reactive Droop Compensator
- Remote Speed Adjust Potentiometer/Electronic Governor
- Voltage Adjust Potentiometer
- Voltage Regulator Relocation Kit

Maintenance

- General Maintenance Literature Kit
- Overhaul Literature Kit

Controller (Standard Controller)

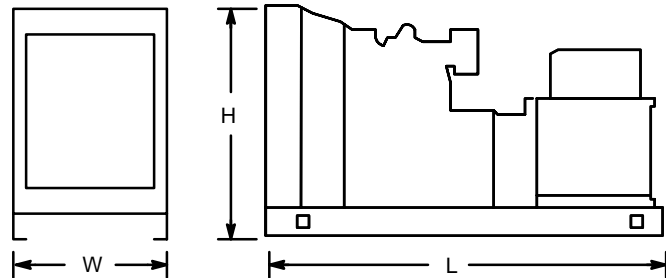
- Common Failure Relay Kit
- Customer Connection Kit
- Dry Contact Kit (Isolated Alarm)
- Extension Wiring Harness for Remote Mounting of Controller
- FASTCHECK® Diagnostic Fault Detector
- Prealarm Sender Kit
- Remote Annunciator Panel
- Remote Audio/Visual Alarm Panel
- Remote Emergency Stop Kit
- Run Relay Kit
- Tachometer Kit/Oversize Meterbox
- Wattmeter Kit/Oversize Meterbox

Miscellaneous Accessories

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

WEIGHTS AND DIMENSIONS

Overall Size, L x W x H, in. (mm): 114.0 x 52.1 x 74.3
 (2896 x 1322 x 1887)
 Weight (Radiator Model), wet lb. (kg): 7040 (3193)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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