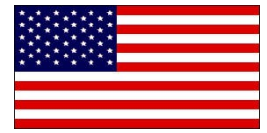




# GeneratorJoe



Made in the USA!



## Sentry Series Model: 20 SN and SN-3

### Ratings

Single and/or Three Phase Available

60 Hz Standby:	kW	19.0
	kVA	19.0

Natural Gas or Propane Fuel

### Features

- Single source responsibility for the generator set and accessories.
- Prototype and production tested to insure one step load acceptance per NFPA 110.
- Two year limited warranty on generator sets and accessories.
- Unit conforms to NEMA, UL, ANSI and other standards.
- Heavy duty 4 cycle industrial engine for reliability and fuel efficiency.
- Brushless rotating field generator with class H insulation.
- Heavy duty steel base with integral vibration isolators.
- Electronic Isochronous Governor.
- EPA .
- Aluminum powder coated housing.
- Deep Sea 7420 controller.
- ABB breakers.
- Extended oil/radiator drains.
- 6 Amp battery charger.

Generator	Voltage	PH	Hz	Liquid Propane Gas		Natural Gas	
				kW/kVA	Amps	kW/kVA	Amps
20 SN-1-1	120/240	1	60	19/19	79	19/19	79
20 SN-3-2	120/208	3	60	20/25	69	20/25	69
20 SN-3-3	120/240	3	60	20/25	60	20/25	60
20 SN-3-4	277/480	3	60	20/25	30	20/25	30
20 SN-3-5	127/220	3	60	20/25	66	20/25	66

RATINGS: All single phase gen-sets are dedicated 4 lead windings, rated at unity (1.0) power factor. All three phase gen-sets are 12 lead windings, rated at .8 power factor. 130°C "STANDBY RATINGS" are strictly for gen-sets that are used for back-up emergency power to a failed normal utility power source. This standby rating allows varying loads, with no overload capability, for the entire duration of utility power outage. All gen-set power ratings are based on temperature rise measured by resistance method as defined by MIL-STD 705C and IEEE STD 115, METHOD 6.4.4. All generators have class H (180°C) insulation system on both rotor and stator windings. All factory tests and KW/KVA charts shown above are based on 130°C (standby) R/R winding temperature, within a maximum 40°C ambient condition. Generators operated at standby power ratings must not exceed the temperature rise limitation for class H insulation system, as specified in NEMA MG1-22.40. Specifications & ratings are subject to change without prior notice.

## ENGINE

Manufacturer ..... General Motors  
 Model and Type ..... Ind. Power Train Vortec, 3.0L, 4 cycle  
 Aspiration ..... Natural  
 Cylinder Arrangement ..... 4 Cylinders, In-Line  
 Displacement Cu. In. (Liters) ..... 181 (3.0)  
 Bore & Stroke In. (Cm.) ..... 4 x 3.6 (10.2 x 9.1)  
 Compression Ratio ..... 9.3:1  
 Main Bearings & Style ..... 4, Babbitt  
 Cylinder Head ..... Cast Iron  
 Pistons ..... 4, Silicon Aluminum  
 Crankshaft ..... Nodular Iron  
 Exhaust Valve ..... Forged Steel  
 Governor ..... Electronic  
 Frequency Reg. (no load-full load) ..... Isochronous  
 Frequency Reg. (steady state) .....  $\pm 1/4\%$   
 Air Cleaner ..... Dry, Replaceable Cartridge  
**Engine Speed** ..... **1800 rpm**  
 Piston Speed, ft/min (m./min) ..... 1080 (329)  
 Max Power, bhp (kwm) Standby/LPG ..... 48 (36)  
 Max Power, bhp (kwm) Standby/NG ..... 47 (35)  
 Ltd. Warranty Period . 12 Months or 2000 hrs., first to occur

## FUEL SYSTEM

Type ..... LPG or NAT. GAS, Vapor Withdrawal  
 Fuel Pressure (kpa), in. H<sub>2</sub>O\* ..... (1.74-2.74), 7"-11"  
 Secondary Fuel Regulator ..... NG or LPG Vapor System  
 Auto Fuel Lock-Off Solenoid ..... Standard on all sets  
 Fuel Supply Inlet Line ..... 1" NPTF  
 \* Measured at gen-set fuel inlet, downstream of any dry fuel accessories.

## FUEL CONSUMPTION

LP GAS: FT <sup>3</sup> /HR (M <sup>3</sup> /HR)	STANDBY
100% LOAD	145 (4.1)
75% LOAD	118 (3.3)
50% LOAD	83 (2.4)
LPG = 2500 BTU X FT <sup>3</sup> = Total BTU/HR LPG Conversion: 8.50 FT <sup>3</sup> = 1 LB. : 36.4 FT <sup>3</sup> = 1 GAL.	

NAT. GAS: FT <sup>3</sup> /HR (M <sup>3</sup> /HR)	STANDBY
100% LOAD	345 (9.8)
75% LOAD	279 (7.9)
50% LOAD	195 (5.5)
NG = 1000 BTU X FT <sup>3</sup> = Total BTU/HR	

## OIL SYSTEM

Type ..... Full Pressure  
 Oil Pan Capacity qt. (L) ..... 4 (3.8)  
 Oil Pan Cap. W/ filter qt. (L) ..... 4.3 (4.1)  
 Oil Filter ..... 1, Replaceable Spin-On

## ELECTRICAL SYSTEM

Ignition System ..... Electronic  
 Eng. Alternator and Starter:  
 Ground ..... Negative  
 Volts DC ..... 12  
 Max. Amp Output of Alternator ..... 70  
 Recommended Battery to -18°C (0°F): 12VDC, Size BC# 24F  
 Max Dimensions: 10 3/4" lg X 6 3/4" wi X 9" hi, with standard round posts. Min. output at 600 CCA. Battery tray (max. dim. at 12"lg x 7"wi), hold down straps, battery cables, and battery charger, is furnished. Installation of (1) starting battery is required, with possible higher AMP/HR rating, as described above, if normal environment averages -13°F (-25°C) or cooler.

## COOLING SYSTEM

Type of System ..... Pressurized, closed recovery  
 Coolant Pump ..... Pre-lubricated, self-sealing  
 Cooling Fan Type (no. of blades) ..... Pusher (10)  
 Fan Diameter inches (cm) ..... 18" (46)  
 Ambient Capacity of Radiator °F (°C) ..... 125 (51.6)  
 Engine Jacket Coolant Capacity Gal (L) ..... 1.8 (6.8)  
 Radiator Coolant Capacity (incl. engine) Gal.(L) ..... 5.0 (18.9)  
 Maximum Restriction of Cooling Air Intake and discharge side of radiator in. H<sub>2</sub>O (kpa) ..... 0.5 (.125)  
 Water Pump Capacity gpm (L/min) ..... 18.2 (69)  
 Heat Reject Coolant : Btu/min (kw) ..... 1940 (34)  
 Low Radiator Coolant Level Shutdown ..... Standard  
 Note: Coolant temp. shut-down switch setting at 220°F (104°C) with 50/50 (water/antifreeze) mix.

## COOLING AIR REQUIREMENTS

Combustion Air, cfm (m<sup>3</sup>/min) ..... 64 (1.8)  
 Radiator Air Flow cfm (m<sup>3</sup>/min) ..... 2500 (72)  
 Heat Rejected to Ambient:  
 Engine: kw (btu/min) ..... 9 (520)  
 Alternator: kw (btu/min) ..... 4.5 (250)

## EXHAUST SYSTEM

Exhaust Outlet Size ..... 2"  
 Max. Back Pressure in. hg (KPA) ..... 3.0 (10.2)  
 Exhaust Flow, at rated kw: cfm (m<sup>3</sup>/min) ..... 250 (7.1)  
 Exhaust Temp., at rated kw: °F (°C) ..... 1056 (569)  
 Engines are EPA certified for LPG and Natural Gas.

# GeneratorJoe



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## ALTERNATOR SPECIFICATIONS

**STANDARDS:** Marathon MagnaPlus and MagnaMax generators meet UL Listed Electric Generator, American and other international standards such as: NEMA MG1-22, BS5000, CAS C22.2, IEC 34-1 AND VDE 0530. Other standards and certifications can be considered upon request. (Both MagnaPlus & MagnaMax series are built with NEMA Class H Insulation materials or better which are normally rated at 190C degrees total temperature by NEMA however UL laboratories demands the total temperature be derated to a maximum of 160C total temperature when "UL LISTED").

**VOLTAGE REGULATOR:** SE350, supplied with standard MagnaPlus units and excitation system have solid state voltage build-up, encapsulated for humidity and abrasion protection, 1% regulation, volts per hertz operation, over excitation shutdown, stability adjust and built-in voltage adjustment.

PM300 (optional on MagnaPlus) Supplied with optional PMG excitation support have solid state voltage build-up, encapsulated for humidity and abrasion protection, 1% regulation, volts per hertz operation, over excitation shutdown, stability adjust and built-in voltage adjustment.

DVR2000E+ (optional for MagnaPlus) Standard on MagnaMax voltage regulator and PMG excitation support system are digital, microprocessor design with solid state voltage build-up, encapsulated for humidity and abrasion protection, 1/4% regulation, true volts per hertz operation with adjustable cut in, loss of sensing continuity shutdown, over excitation shutdown, 3 phase RMS sensing, over voltage

protection, and provisions for parallel operation.

PMG Excitation Support System (Standard on MagnaMax) Optional for MagnaPlus, permanent magnet generator excitation support system, minimum short circuit support current of 300% of the rating (250% for 50 hertz) for 10 seconds.

**INSULATION SYSTEM:** Meet UL1446, UL2200 requirements. Class H materials or better.

**MAIN ROTOR:** MagnaPlus main rotating field construction shall consist of one piece, four pole laminations, incorporate amortisseur windings to facilitate parallel operation and application to voltage distorting loads. In addition, the amortisseur winding and field pole coil supports may be integrally die cast with the rotor laminations to form a unitized rotor core. The rotating assembly shall be dynamically balanced to less than 2 mils-peak-to-peak-displacement, and shall be designed to have an over speed withstand of 125% of rated speed for 15 minutes when operating at stable rated operating temperature.

**VERIFICATION OF PERFORMANCE:** (MagnaPlus series) All certified performance and temperature rise test data submitted by generator manufacturer are to be the result of the actual test of the same or duplicate generators. Temperature rise data shall be the result of loaded, rated power factor heat runs at the rated voltage and hertz. All performance testing shall be done in accordance with MIL-STD-705 and/or IEEE Standard-115. Generators are manufactured using production procedures & quality assurance to ISO9001:2008.

## DEEP SEA 7420 DIGITAL MICROPROCESSOR CONTROLLER



The 7420 controller is an auto start mains (utility) failure module for single gen-set applications. This controller includes a backlit LCD display which continuously displays the status of the engine and generator at all times.

The 7420 controller will also monitor speed, frequency, voltage, current, oil pressure, coolant temp., and fuel levels. These modules have been designed to display warning and shut down status. It also includes: (11) configurable inputs alerts • (8) configurable outputs alerts • voltage monitoring • mains (utility) failure detection • (250) event logs • configurable timers • automatic shutdown or warning during fault detection • remote start (on load) • engine preheat • advanced metering capability • hour meter • text LCD displays • protected solid state outputs • test buttons for: stop/reset • manual mode • auto mode • lamp test • start button • power monitoring (kWh, kVAh, kVAh)

This controller includes the 7420 expansion features including RS232, RS484 (using MODBUS-RTU/TCP), direct USB connection with PC, expansion optioned using DSE-Net for remote annunciation and remote relay interfacing for a distance of up to 3300FT. The controller software is freely downloadable from the internet and allows monitoring with direct USB cable, LAN, or by internet via the built in web interface.



Further expansion is available by adding the optional "WebNet" gateway interface module. This device will allow comprehensive monitoring of the generator via the cloud including identification, location, and status. Some advantages of this module include: reduced site visits and maintenance costs • remote fuel management • fault analysis • asset tracking • automatic system alerts • maximized system up-time.

# GeneratorJoe



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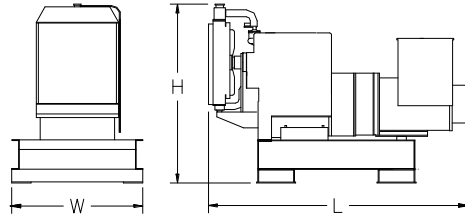
# Standard Features and Optional Accessories

## Standard Features

- **Heavy duty steel base**
- **Vibration isolators**
- **Oil/radiator drain valve with extension**
- **Battery charger**
- **Battery cables/rack**
- **Circuit breaker**
- **Owners manual**
- **Electronic Isochronous Governor**

## Weights and Dimensions

Overall Size, L x W x H, in.: 68 in. x 36 in. x 48 in.  
Weight (Wet): 971 lbs.  
Note: Dim and weights reflect standard open unit with no options



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

## Optional Accessories

- PMG
- PMG with DVR regulator
- Block heater
- Battery heater
- Battery charger upgrades (10-20 amp)
- E-stop
- Enclosure lights
- Liquid LP withdrawal
- Dual fuel
- WebNet gateway (remote monitoring)
- NFPA 110 compliance package
- 3 phase sensing
- Generator strip heater
- 8 Lamp Annunciator panel
- Weather enclosure with internal muffler
- Hospital grade silencers
- Oil pan heater
- Flexible fuel lines



## **GeneratorJoe®**

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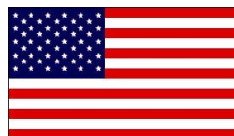
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**Made in the USA!**



**CONTRACTOR**

# **GeneratorJoe**

**Sentry Series  
Model: 20 SN and SN-3**

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