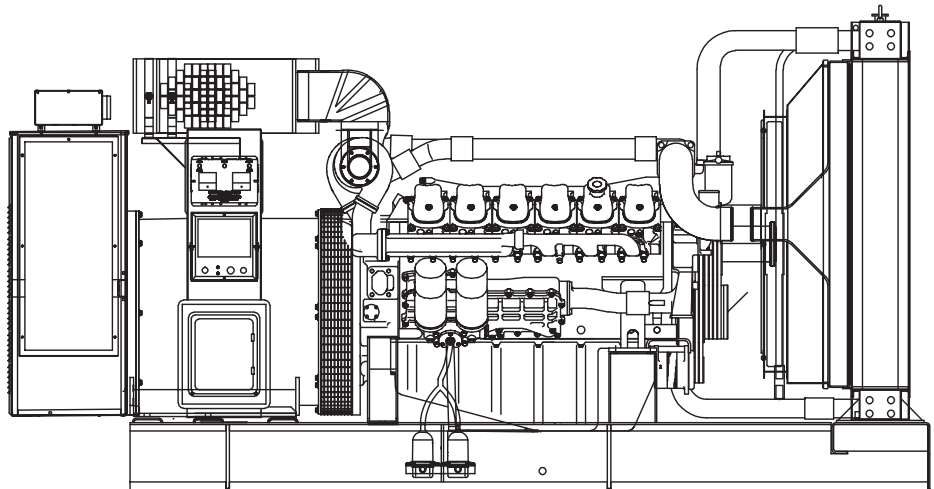


# SB600

## Industrial Bi-Fuel Diesel Generator Set

Standby Power Rating  
**600 KW 60 Hz**  
**620 KVA 50 Hz**

Prime Power Rating  
**547 KW 60 Hz**  
**590 KVA 50 Hz**



### FEATURES

- **INNOVATIVE DESIGN & PROTOTYPE TESTING** are key components of GENERAC'S success in "IMPROVING POWER BY DESIGN." But it doesn't stop there. Total commitment to component testing, reliability testing, environmental testing, destruction and life testing, plus testing to applicable CSA, NEMA, EGSA, and other standards, allows you to choose GENERAC POWER SYSTEMS with the confidence that these systems will provide superior performance.
- **TEST CRITERIA:**

  - ✓ PROTOTYPE TESTED
  - ✓ SYSTEM TORSIONAL TESTED
  - ✓ ELECTRO-MAGNETIC INTERFERENCE
  - ✓ NEMA MG1 EVALUATION
  - ✓ MOTOR STARTING ABILITY
  - ✓ SHORT CIRCUIT TESTING
  - ✓ UL 2200 COMPLIANCE AVAILABLE
- **POWERMANAGER® DIGITAL CONTROL PLATFORM.** The PowerManager® Digital Control Platform (PM-DCP) is a powerful control system built around a 32-bit, industrial microprocessor. Standard factory programming controls the entire engine / generator system, while allowing the PM-DCP, with its onboard PLC, to be customized to meet any application requirement. The system is available on single unit gas, diesel or bi-fuel installations as well as Modular Paralleling Systems (MPS) from 350 kW - 3000 kW.
- **BI-FUEL** provides low cost, low volume fuel storage and operation along with a 40% reduction in fuel costs.
- **SINGLE SOURCE SERVICE RESPONSE** from Generac's dealer network provides parts and service know-how for the entire unit, from the engine to the smallest electronic component. You are never on your own when you own a GENERAC POWER SYSTEM.
- **ECONOMICAL DIESEL POWER.** Low cost operation due to modern diesel engine technology. Better fuel utilization plus lower cost per gallon provide real savings.
- **LONGER ENGINE LIFE.** Generac heavy-duty diesels provide long and reliable operating life.
- **GENERAC TRANSFER SWITCHES, SWITCHGEAR AND ACCESSORIES.** Long life and reliability is synonymous with GENERAC POWER SYSTEMS. One reason for this confidence is that the GENERAC product line includes its own transfer systems, accessories, switchgear and controls for total system compatibility.

primary codes and standards



# SB600

# application and engineering data

## GENERATOR SPECIFICATIONS

TYPE.....	Marathon Four-pole, revolving field PMG
ROTOR INSULATION.....	Class H
STATOR INSULATION.....	Class H
ADDITIONAL INSULATION.....	Antifungal Coating
TOTAL HARMONIC DISTORTION.....	<5%
TELEPHONE INTERFERENCE FACTOR (TIF).....	<50
BEARINGS.....	Prelubed and Sealed
COUPLING.....	Direct Connected
LOAD CAPACITY(Standby Rating).....	100%
WINDING PITCH.....	2/3

### VOLTAGE REGULATOR

Regulation.....	Digitally Controlled ± 0.25%
Sensing.....	Single or 3 Phase
Paralleling Capability.....	Yes

### CONTROL PANEL

Type.....	PowerManager Digital Control Platform
-----------	---------------------------------------

### DISPLAY

AC Volts.....	Line to Line and Line to Neutral
AC Amps.....	Per line
Frequency.....	10-99 Hertz
Oil Pressure.....	Digital Touchscreen LCD
Coolant Temperature.....	Digital Touchscreen LCD
Fuel Level.....	Digital Touchscreen LCD
DC Battery Voltage.....	Digital Touchscreen LCD
Hour Meter - Run Time Hours.....	Digital Touchscreen LCD
Engine Speed in RPM.....	Digital Touchscreen LCD
Generator Power kW.....	Digital Touchscreen LCD
Power Factor.....	Digital Touchscreen LCD
Turbo Pressure.....	Digital Touchscreen LCD
Gas Pressure.....	Digital Touchscreen LCD
Gas Flow (CFM).....	Digital Touchscreen LCD
Air Temperature (Incoming).....	Digital Touchscreen LCD
Gas Temperature.....	Digital Touchscreen LCD
Charge Air Cooler Valve Position.....	Digital Touchscreen LCD
Not in Auto.....	Digital Touchscreen LCD
Common Alarm.....	Digital Touchscreen LCD

### ALARMS

High/Low Generator Voltage.....	Digital Touchscreen LCD
High/Low Battery Voltage.....	Digital Touchscreen LCD
High/Low Frequency.....	Digital Touchscreen LCD
Low Oil Pressure & Prealarm.....	Digital Touchscreen LCD
High, Low, Critical Low Fuel Level.....	Digital Touchscreen LCD
Overcrank.....	Digital Touchscreen LCD
Sensor Failure.....	Digital Touchscreen LCD

### COMMUNICATION

Serial Communication RS232 and RS485
GenLink Software for PowerManager® Digital Control Platform

## ENGINE SPECIFICATIONS

MAKE.....	Generac / Doosan
MODEL.....	P222FE
CYLINDERS.....	V12
DISPLACEMENT.....	22 Liter (1338 cu. in.)
BORE.....	128 mm (5.04 in.)
STROKE.....	142 mm (5.60 in.)
COMPRESSION RATIO.....	15:1
INTAKE AIR.....	Turbocharged, Aftercooled
CYLINDER HEAD.....	(6) 1-Cylinder Cast Iron with Overhead Valve
PISTONS.....	Heat Resistant Aluminum Alloy

## ENGINE SPECIFICATIONS Cont.

### VALVE TRAIN

LIFTER TYPE.....	Solid
HARDENED VALVE SEATS.....	Replaceable

### ENGINE GOVERNOR

<input type="checkbox"/> ELECTRONIC.....	Standard
FREQUENCY REGULATION, NO-LOAD TO FULL LOAD.....	0.5%
STEADY STATE REGULATION.....	±0.25%

### LUBRICATION SYSTEM

TYPE OF OIL PUMP.....	Gear
OIL FILTER.....	Bypass and Full flow, cartridge
CRANKCASE CAPACITY.....	42 Liters (11.1 U.S. gal.)

## ENGINE FEATURES

**ECONOMICAL POWER** Microprocessor controlled bi- fuel diesel engine starts on diesel fuel and provides power from an air/natural gas mixture ignited by diesel injection and continuously monitored by the on board control.

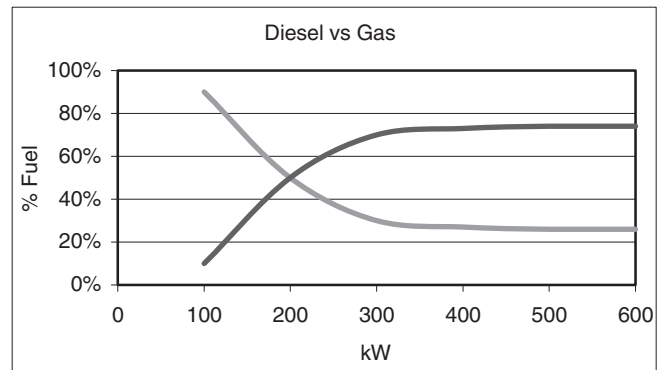
**LONGER ENGINE LIFE** Generac heavy duty bi-fuel diesels provide long and reliable operating life along with low emissions.

**EMISSIONS** Capable of low particulate and NOx emission levels.

### HOW DOES A BI-FUEL ENGINE WORK?

The diesel engine is equipped with a metering system that feeds natural gas into the incoming air supply. The standard diesel injection system is used and the injector sprays diesel fuel into the cylinder at the correct time. The diesel fuel ignites and thus ignites the natural gas charge. Total power is derived from a combination of natural gas and diesel as shown in the chart below. The ratio of natural gas to diesel fuel is a function of several factors, including load and intake air temperature. The higher thermal efficiency of diesel engines and the lower cost of natural gas, along with low emission levels, combine to make the bi-fuel engine a very economical choice.

FUEL PRESSURE - NAT. GAS 1 psi  
FUEL CONSUMPTION



Load kW	Gal/Hr Diesel w/Nat Gas	Gal/Hr Straight Diesel	% Nat Gas	Cu.Ft./hr. Nat Gas
100	8	8.9	10%	125
200	8.5	17.0	50%	1187
300	7.5	24.8	70%	2431
400	8.5	31.4	73%	3206
500	9.7	37.2	74%	3843
600	11	43.3	74%	4480

Rating definitions - Standby: Applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. (All ratings in accordance with BS5514, ISO3046 and DIN6271).

# SB600

# operating data (60Hz)

## OPERATING DATA

	STANDBY		PRIME	
	SB600		SB600	
<b>GENERATOR OUTPUT VOLTAGE/KW—60Hz</b>	<b>Rated kW</b>	<b>Rated AMP</b>	<b>Rated kW</b>	<b>Rated AMP</b>
120/208V, 3-phase, 0.8 pf	600	2082	547	1898
120/240V, 3-phase, 0.8 pf	600	1806	547	1645
277/480V, 3-phase, 0.8 pf	600	902	547	822
600V, 3-phase, 0.8 pf	600	722	547	658
NOTE: Consult your Generac dealer for additional voltages.				
<b>MOTOR STARTING KVA</b>	<b>Low Wye &amp; Delta</b>	<b>High Wye</b>	<b>Low Wye &amp; Delta</b>	<b>High Wye</b>
Maximum @ 35% instantaneous voltage dip with standard alternator; 60 Hz-kVa	1900	2600	1900	2600
<b>FUEL</b>				
Fuel pump lift in.	39		39	
Natural Gas (920 BTU minimum) pressure	1 psi		1 psi	
<b>COOLING</b>				
Coolant capacity	System - lit./gal.	131 (34.6)	131 (34.6)	
	Engine - lit./gal.	36 (9.5)	36 (9.5)	
	Radiator - lit./gal.	95 (25)	95 (25)	
Coolant flow/min.	60 Hz - lit./gal.	870 (230)	870 (230)	
Heat rejection to coolant @ FL	BTU/hr.	1,740,000	1,390,000	
Inlet air	60 Hz - m <sup>3</sup> /min. (cfm)	665 (23,500)	665 (23,500)	
Max. air temp onto radiator*	°C (°F)	60 (140)	60 (140)	
Max. ambient temperature*	°C (°F)	50 (122)	50 (122)	
Max. external pressure drop on radiator	in. H <sub>2</sub> O	0.5	0.5	
<b>COMBUSTION AIR REQUIREMENTS</b>				
Flow at rated power	60 Hz - m <sup>3</sup> /min. (cfm)	55.5 (1959)	48.6 (1716)	
<b>EXHAUST</b>				
Exhaust flow at rated output	60 Hz - m <sup>3</sup> /min. (cfm)	182 (6419)	159 (5615)	
Maximum recommended back pressure	Kpa (" Hg)	5.1 (1.5)	5.1 (1.5)	
Exhaust temp. at rated output	°C (°F)	704 (1300)	616 (1141)	
Exhaust outlet size	inches (mm.)	2 x 8 (203.2) or 1 x 10 (254)	2 x 8 (203.2) or 1 x 10 (254)	
<b>ENGINE</b>				
Rated RPM	60 Hz	1800	1800	
HP at rated KW	60 Hz	954	935	
Piston speed	60 Hz - m/sec. (ft./min)	8.5 (1677)	8.5 (1677)	
BMEP	60 Hz - PSI	313	274	
<b>POWER ADJUSTMENTS FOR AMBIENT CONDITIONS**</b>				
Temperature				
	4.1% for every 10°C above - °C	40	40	
	2.4% for every 10°F above - °F	104	104	
Altitude				
	0.8% for every 100 m above - m.	1067	1066	
	2.6% for every 1000 ft. above - ft.	3500	3500	

\* Note: Values given are maximum temperatures to which power adjustments can be applied. Consult your Generac Power Systems representative if operating conditions exceed these maximums.

\*\* Note: Consult Factory for high altitude cooling options.

# SB600

# Standard Engine & Safety Features

- High Coolant Temperature Automatic Shutdown
- Low Coolant Level Automatic Shutdown
- Low Oil Pressure Automatic Shutdown
- Overspeed Automatic Shutdown (Solid-state)
- Crank Limiter (Solid-state)
- Oil Drain Extension
- Radiator Drain
- Factory-Installed Cool Flow Radiator
- Closed Coolant System
- UV/Ozone Resistant Hoses
- Rubber-Booted Engine Electrical Connections
- Stainless Steel Flexible Exhaust Connection
- Battery Charge Alternator
- Battery Cables
- Battery Tray
- 24 Volt, Solenoid-activated Starter Motor
- Air Cleaner
- Fan Guard
- Control Console
- Isochronous Governor
- Jacket water heater
- Vibration Isolators

4 of 4

## POWERMANAGER® DIGITAL CONTROL PLATFORM

The PowerManager® Generator Controller (PM-GC) is a fully programmable, integrated digital generator control console using a 32-bit industrial microprocessor to handle all control, monitoring, input/output genset functions. The open architecture used allows customizing the controls to meet any customer requirement, yet maintaining the simplicity of operation 'as is' with the factory default programming. (see Generac bulletin #0168840SBY)

## OPTIONS

- **OPTIONAL COOLING SYSTEM ACCESSORIES**
  - Radiator Duct Adapter
- **OPTIONAL FUEL ACCESSORIES**
  - Base Tank Low Fuel Alarm
  - Primary Fuel Filters
  - UL Listed Fuel Tanks
  - Electric fuel transfer pump system
- **OPTIONAL ELECTRICAL ACCESSORIES**
  - 10A Dual Rate Battery Charger
  - Battery, 24 Volt
  - Battery warmer
- **OPTIONAL ALTERNATOR ACCESSORIES**
  - Alternator Upsizing
  - Alternator Heater
  - Main Line Circuit Breaker  
(factory installed up to 2000 Amp.)
- **OPTIONAL EXHAUST ACCESSORIES**
  - Critical Exhaust Silencer
  - Residential Exhaust Silencer
  - Industrial Exhaust Silencer
- **ADDITIONAL OPTIONAL EQUIPMENT**
  - Automatic Transfer Switch
  - 21 Light Remote Annunciator
  - Remote Relay Panels
  - Oil Make-Up System
  - Oil Heater
  - 5 Year Warranties
  - Export Boxing
  - GenLink® Communications Software
- **OPTIONAL ENCLOSURES**
  - Weather Protective
  - Sound Attenuated
  - Aluminum

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