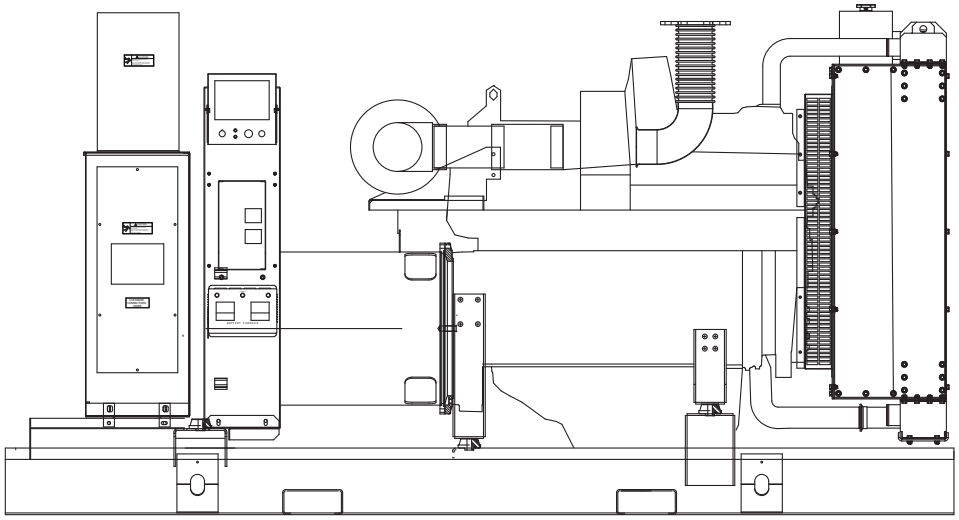
SD400

Liquid Cooled Diesel Engine Generator Sets

Standby Power Rating
400KW 60 Hz

Prime Power Rating
368KW 60 Hz



Power Matched
13.5L Deere Engine
Turbocharged / Aftercooled
Tier III Compliant

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
  - ✓ TIER III COMPLIANCE

- **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.

- **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.** Deere 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.

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APPLICATION & ENGINEERING DATA

SD400

GENERATOR SPECIFICATIONS

TYPE ..... Four-pole, revolving field
ROTOR INSULATION ..... Class H
STATOR INSULATION ..... Class H
LINE-TO-LINE HARMONIC FACTOR 5%
BALANCED TELEPHONE INFLUENCE FACTOR (TIF) ..... <50
ALTERNATOR ..... Self-ventilated and drip-proof
BEARINGS (PRE-LUBED & SEALED) 1
COUPLING ..... Direct, Flexible Disc
LOAD CAPACITY (STANDBY) 100%
LOAD CAPACITY (PRIME) 110%

NOTE: Emergency loading in compliance with NFPA 99, NFPA 110. Generator rating and performance in accordance with ISO8528-5, BS5514, SAE J1349, ISO3046 and DIN6271 standards.

EXCITATION SYSTEM

❒ PERMANENT MAGNET EXCITER ..... ±0.25% regulation ✓
(standard) Enhances motor starting capabilities ✓
Isolates the excitation system from non-linear loads ✓
Sustains short circuit current (300% for 10 seconds) ✓
Mounted outboard of main bearing (for easy maintenance) ✓
REGULATION ..... Solid-state ✓
3-phase sensing ✓

GENERATOR FEATURES

- ❒ Revolving field heavy duty generator
- ❒ Directly connected to the engine
- ❒ Operating temperature rise 120 °C above a 40 °C ambient
- ❒ Insulation is Class H rated at 150 °C rise
- ❒ All prototype models have passed three phase short circuit testing

CONTROL PANEL FEATURES

❒ TOUCH SCREEN DISPLAY PANEL READS:

- Voltage (all phases)
- Power factor
- kVAR
- Engine speed
- Run hours
- Fault history
- Coolant temperature
- Low oil pressure shutdown
- Overvoltage
- Low coolant level
- Not in auto position (flashing light)
- ATS selection
- Current (all phases)
- kW
- Transfer switch status
- Low fuel pressure
- Service reminders
- Oil pressure
- Time and date
- High coolant temperature shutdown
- Overspeed
- Low coolant level
- Exercise speed

❒ INTERNAL FUNCTIONS:

- I^2T function for alternator protection from line to neutral and line to line short circuits
- Emergency stop
- Programmable auto crank function
- 2 wire start for any transfer switch
- Communicates with the Generac HTS transfer switch
- Built-in 7 day exerciser
- Adjustable engine speed at exerciser
- RS232 port for GenLink® control
- RS485 port remote communication
- Canbus addressable
- Governor controller and voltage regulator are built into the master control board
- Temperature range -40 °C to 70 °C

ENGINE SPECIFICATIONS

MAKE ..... DEERE
MODEL ..... See Exhaust Emission Sheet
CYLINDERS I-6
DISPLACEMENT - liter/(cu. in.) 13.5 (824)
BORE - mm/(in.) 132 (5.20)
STROKE - mm/(in.) 165 (6.50)
COMPRESSION RATIO 16.0:1
INTAKE AIR ..... Turbocharged/Aftercooled
NUMBER OF MAIN BEARINGS 5
CONNECTING RODS ..... Carbon Steel
CYLINDER HEAD ..... Cast Iron with Overhead Valves
PISTONS ..... Heat Resistant Aluminum Alloy
CRANKCASE ..... Case Hardened, Die Forged, Carbon Steel
ENGINE CRANKCASE VENT ..... Open

VALVE TRAIN

LIFTER TYPE ..... Solid
INTAKE VALVE MATERIAL ..... Special Heat Resistant Steel
EXHAUST VALVE MATERIAL ..... Stellite Faced Heat Resistant Steel
HARDENED VALVE SEATS ..... Replaceable
VALVES PER CYLINDER 4

ENGINE GOVERNOR

ELECTRONIC ..... Standard
FREQUENCY REGULATION NO LOAD TO FULL LOAD ..... Isochronous
STEADY STATE FREQUENCY REGULATION ..... ±0.25%

LUBRICATION SYSTEM

TYPE OF OIL PUMP ..... Gear
OIL FILTER ..... Bypass and Full Flow Cartridge
CRANKCASE CAPACITY - liter/(gal.) 60 (15.8)

COOLING SYSTEM

TYPE OF SYSTEM ..... Pressurized, Closed Recovery
WATER PUMP ..... Pre-Lubed, Self Sealing
TYPE OF FAN ..... Pusher
NUMBER OF FAN BLADES 8
DIAMETER OF FAN - mm/(in.) 966 (38.0)
COOLANT HEATER ..... 240V(2000W)

FUEL SYSTEM

FUEL ..... No. 2 Diesel (Min. Cetane #40)
(Fuel should conform to ASTM Spec.)
FUEL FILTER ..... 10 Micron
FUEL INJECTION PUMP ..... Delphi EUI
INJECTORS ..... Multi-hole, Nozzle Type
FUEL LINE (Supply) 12.7 (0.50)
FUEL RETURN LINE 9.53 (0.375)
FUEL PUMP ..... Mechanical

ELECTRICAL SYSTEM

BATTERY CHARGE ALTERNATOR ..... 30 Amps at 24V
STARTER MOTOR ..... 6.0 kW at 24V
RECOMMENDED BATTERY ..... 2 x 12V
GROUND POLARITY ..... Negative

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). Prime (Unlimited Running Time): Applicable for supplying electric power in lieu of commercially purchased power. Prime power is the maximum power available at variable load. A 10% overload capacity is available for 1 hour in 12 hours. (All ratings in accordance with BS5514, ISO3046, ISO8528 and DIN6271).

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SD400

OPERATING DATA		STANDBY		PRIME	
GENERATOR OUTPUT VOLTAGE/KW—60Hz		**Rated kW**	**Rated AMP**	**Rated kW**	**Rated AMP**
120/208V, 3-phase, 0.8 pf	NOTE: Consult your Generac dealer for additional voltages.	400	1387	368	1277
120/240V, 3-phase, 0.8 pf		400	1203	368	1107
277/480V, 3-phase, 0.8 pf		400	601	368	553
346/600V, 3-phase, 0.8 pf		400	481	368	443
MOTOR STARTING KVA		**208/240 V**	**480 V**	**208/240 V**	**480 V**
Maximum @ 35% instantaneous voltage dip					
60 Hz with Standard Alternator		1100	1356	1100	1356
FUEL					
Fuel consumption—60 Hz	% Load	**25%**	**50%**	**75%**	**100%**	**25%**	**50%**	**75%**	**100%**
	kW @ % Load	100	200	300	400	92	184	276	368
	gal./hr.	8.4	15.2	22	30.5	6.9	13.7	20.5	27.3
	liters/hr.	31.8	57.5	83.3	115.5	26.1	51.9	77.6	103.3
	Total fuel flow gal/hr.	48 - 52				48 - 52			
	Maximum Fuel Return Press.	140 In. H20 (5.1 PSI)				140 In. H20 (5.1 PSI)			
COOLING					
Coolant capacity	System - lit./gal.	64.5 (17.03)				64.5 (17.03)			
	Engine - lit./gal.	18 (4.75)				18(4.75)			
	Radiator - lit./gal.	46.5 (12.28)				46.5 (12.28)			
Coolant flow/min.	60 Hz - lit./gal.	470 (124)				470 (124)			
Heat rejection to coolant	BTU/hr.	788,880				717,180			
Inlet air	60 Hz - m^3/min. (cfm)	567 (20,000)				567 (20,000)			
Max. air temp onto radiator*	°C (°F)	60 (140)				60 (140)			
Max. ambient temperature*	°C (°F)	50 (122)				50 (122)			
COMBUSTION AIR REQUIREMENTS					
Flow at rated power	60 Hz - m^3/min. (cfm)	33.9 (1197)				33.0 (1176)			
EXHAUST					
Exhaust flow at rated output					
	60 Hz - m^3/min. (cfm)	81 (2860)				73 (2578)			
Maximum recommended back pressure					
	Kpa (" Hg)	10 (2.9)				10 (2.9)			
Exhaust temperature at rated output					
	°C (°F)	471 (880)				427 (801)			
Exhaust outlet size	mm. (in)	127 (5")				127 (5")			
ENGINE					
Rated RPM	60 Hz	1800				1800			
HP at rated KW	60 Hz	617				561			
Piston speed	60 Hz - m/sec. (ft./min)	594 (1950)				594 (1950)			
BMEP	60 Hz psi	329				300			
POWER ADJUSTMENT FOR AMBIENT CONDITIONS					
Temperature					
	-4.5% for every 10 °C above - °C	40				40			
	-2.5% for every 10 °F above - °F	104				104			
Altitude					
	-0.8% for every 100 m above - m	1067				1067			
	-2.5% 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.

STANDARD ENGINE & SAFETY FEATURES

SD400

- 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 Extension
- Factory-Installed Cool Flow Radiator
- Closed Coolant System
- UV/Ozone Resistant Hoses
- Rubber-Booted Engine Electrical Connections
- Stainless Steel Flexible Exhaust Connection
- Secondary Fuel Filter
- Fuel Lock Off Solenoid
- Battery Charge Alternator
- Battery Cables
- Battery Tray
- Vibration Isolation between Unit and Base Frame
- 24 Volt, Solenoid-activated Starter Motor
- Air Cleaner
- Fan Guard
- Control Console
- Isochronous Governor
- Jacket Water Heater
- Flexible Fuel Lines (Stainless Steel Braid)
- Radiator Duct Adaptor

POWERMANAGER® DIGITAL CONTROL PLATFORM

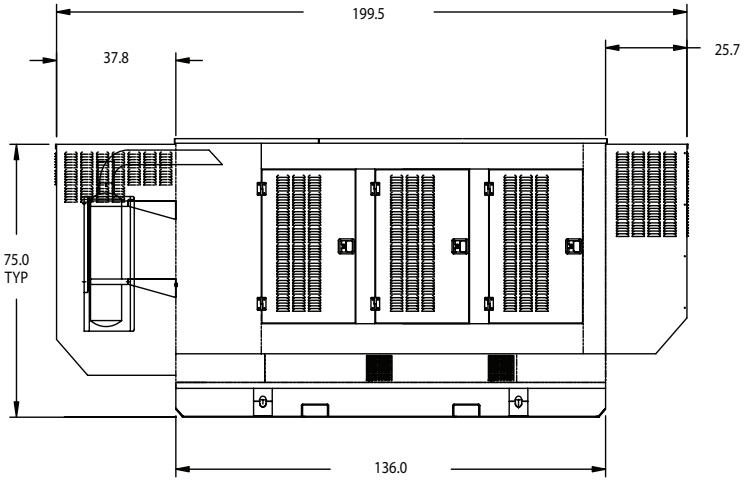
The PowerManager® Generator Controller (PM-GC) is a fully programmable, integrated digital generator control console using a 32-bit industrial microprocessor to handle all control, monitoring, input/output genset functions. The open architecture used allows customizing the controls to meet any customer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

OPTIONS

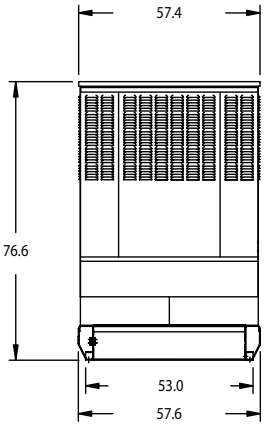
- **OPTIONAL COOLING SYSTEM ACCESSORIES**
  - ❍ Optional Coolant Systems (consult factory)
- **OPTIONAL FUEL ACCESSORIES**
  - ❍ Base Tank Low Fuel Alarm
  - ❍ Primary Fuel Filters
  - ❍ UL Listed Fuel Tanks
  - ❍ Electric Fuel Transfer Pump System
- **OPTIONAL ELECTRICAL ACCESSORIES**
  - ❍ 10A Dual Rate Battery Charger
  - ❍ Battery, 24 Volt
  - ❍ Battery Warmer
- **OPTIONAL ALTERNATOR ACCESSORIES**
  - ❍ Alternator Upsizing
  - ❍ Alternator Heater
  - ❍ Main Line Circuit Breaker
  - ❍ Alternator Tropicalization
- **OPTIONAL ENCLOSURES**
  - ❍ Weather Protective
  - ❍ Sound Attenuated
  - ❍ Aluminum & Stainless Steel
  - ❍ Enclosed Critical Muffler
- **ADDITIONAL OPTIONAL EQUIPMENT**
  - ❍ Automatic Transfer Switch (100 Amp - 2600 Amp)
  - ❍ 20 Light Remote Annunciator
  - ❍ Remote Relay Panels
  - ❍ Oil Make-Up System
  - ❍ Oil Heater
  - ❍ 5 Year Warranties
  - ❍ Export Boxing
  - ❍ GenLink® Communications Software

Distributed by:

Design and specifications subject to change without notice. Dimensions shown are approximate. Contact your Generac dealer for certified drawings. DO NOT USE THESE DIMENSIONS FOR INSTALLATION PURPOSES.



LEFT SIDE VIEW



REAR VIEW

mm [in] Shown with optional acoustic enclosure

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