DEMAND RESPONSE READY

Standby Power Rating
500 kW, 625 kVA, 60 Hz

Demand Response Rating
500 kW, 625 kVA, 60 Hz

Prime Power Rating
450 kW, 563 kVA, 60 Hz

Codes and Standards
Not all codes and standards apply to all configurations. Contact factory for details.

UL2200, UL6200, UL1236, UL489
CSA C22.2, B149
BS5514 and DIN 6271
SAE J1349
NFPA 37, 70, 99, 110
NEC700, 701, 702, 708
ISO 3046, 7637, 8528, 9001
NEMA ICS10, MG1, 250, ICS6, AB1
ANSI C62.41
IBC 2009, CBC 2010, IBC 2012,
ASCE 7-05, ASCE 7-10,
ICC-ES AC-156 (2012)

Powering Ahead
Generac ensures superior quality by designing and manufacturing most of its generator components, such as alternators, enclosures, control systems and communications software. Generac also makes its own spark-ignited engines, and you’ll find them on every Generac gaseous-fueled generator. We engineer and manufacture them from the block up — all at our facilities throughout Wisconsin. Applying natural gas and LP-fueled engines to generators requires advanced engineering expertise to ensure reliability, durability and necessary performance. By designing specifically for these dry, hotter-burning fuels, the engines last longer and require less maintenance. Building our own engines also means we control every step of the supply chain and delivery process, so you benefit from single-source responsibility.

Plus, Generac Industrial Power’s distribution network provides all parts and service so you don’t have to deal with third-party suppliers. It all leads to a positive owner experience and higher confidence level. Generac spark-ignited engines give you more options in commercial and industrial generator applications as well as extended run time from utility-supplied natural gas.
STANDARD FEATURES

ENGINE SYSTEM
- Oil Drain Extension
- Heavy Duty Air Cleaner
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)
- Shipped Loose Catalyst Silencer (Open Set Only)
- Oil Temperature Indication and Alarm

Fuel System
- NPT Fuel Line Connection
- Primary and Secondary Fuel Shutoff

Cooling System
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze
- Radiator Drain Extension

Electrical System
- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM
- UL2200 GENprotect™
- Class H Insulation Material
- 2/3 Pitch
- Skewed Stator
- Permanent Magnet Excitation
- Sealed Bearing
- Amortisseur Winding
- Full Load Capacity Alternator

GENERATOR SET
- Internal Genset Vibration Isolation
- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Multiple Breakers
- Wrapped Exhaust Piping
- Standard Factory Testing
- 2 Year Limited Warranty (Standby and Demand Response Rated Units)
- 1 Year Limited Warranty (Prime Rated Units)
- Silencer Mounted in the Discharge Hood (Enclosed Unit Only)

ENCLOSURE (If Selected)
- Rust-Proof Fasteners with Nylon Washers to Protect Finish
- High Performance Sound-Absorbing Material (Sound Attenuated Enclosures)
- Gasketed Doors
- Upward Facing Discharge Hoods (Radiator and Exhaust)
- Stainless Steel Lift Off Door Hinges
- Stainless Steel Lockable Handles
- RhinoCoat™ - Textured Polyester Powder Coat Paint

CONTROL SYSTEM

Power Zone® Pro Sync Controller

Program Functions
- NFPA 110 Level 1 Compliant
- Engine Protective Functions
- Alternator Protective Functions
- Digital Engine Governor Control
- Digital Voltage Regulator
- Multiple Programmable Inputs and Outputs
- Remote Display Capability
- Remote Communication via Modbus® RTU, Modbus TCP/IP, and Ethernet 10/100
- Alarm and Event Logging with Real Time Stamping
- Expandable Analog and Digital Inputs and Outputs
- Remote Wireless Software Update Capable
- Wi-Fi, Bluetooth, BMS and Remote Telemetry
- Built-In Programmable Logic Eliminates the Need for External Controllers Under Most Conditions
- Ethernet Based Communications Between Generators
- Programmable I/O Channel Properties
- Built-In Diagnostics

PROTECTIONS
- Low Oil Pressure
- Low Coolant Level
- High/Low Coolant Temperature
- Sensor Failure
- Oil Temperature
- Over/Under Speed
- Over/Under Voltage
- Over/Under Frequency
- Over/Under Current
- Over Load
- High/Low Battery Voltage
- Battery Charger Current
- Phase to Phase and Phase to Neutral Short Circuits (I^2T Algorithm)

7 Inch Color Touch Screen Display
- Resistive Color Touch Screen
- Sunlight Readable (1400 NITS)
- Easily Identifiable Icons
- Multi-Lingual
- On Screen Editable Parameters
- Key Function Monitoring
- Three Phase Voltage, Amperage, kW, kVA, and kVAr
- Selectable Line to Line or Line to Neutral Measurements
- Frequency
- Engine Speed
- Engine Coolant Temperature
- Engine Oil Pressure
- Engine Oil Temperature
- Battery Voltage
- Hourmeter
- Warning and Alarm Indication
- Diagnostics
- Maintenance Events/Information
**ENGINE SYSTEM**
- Baseframe Cover/Rodent Guard
- Oil Heater
- Air Filter Restriction Indicator
- Radiator Stone Guard (Open Set Only)
- Level 1 Fan and Belt Guards (Enclosed Units Only)
- Engine Coolant Heater
- Shipped Loose Catalyst Silencer (Open Set Only)

**FUEL SYSTEM**
- NPT Flexible Fuel Line

**ELECTRICAL SYSTEM**
- 10A UL Listed Battery Charger
- Battery Warmer

**ALTERNATOR SYSTEM**
- Alternator Upsizing
- Anti-Condensation Heater

**CIRCUIT BREAKER OPTIONS**
- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breakers

**ENGINEERED OPTIONS**

**ENGINE SYSTEM**
- Coolant Heater Ball Valves
- Fluid Containment Pan

**CONTROL SYSTEM**
- Battery Disconnect Switch

**GENERATOR SET**
- Demand Response Rating
- Extended Factory Testing (3-Phase Only)
- 12 Position Load Center

**ENCLOSURE**
- Weather Protected Enclosure
- Level 1 Sound Attenuated
- Level 2 Sound Attenuated
- Level 2 Sound Attenuated with Motorized Dampers
- Level 3 Sound Attenuated (Steel Only)
- Steel Enclosure
- Aluminum Enclosure
- Damper Alarm (Motorized Dampers Only)
- Up to 200 MPH Wind Load Rating (Contact Factory for Availability)
- AC/DC Enclosure Lighting Kit
- Enclosure Heaters
- Door Open Alarm Switch

**CONTROL SYSTEM**
- NFPA 110 Compliant 21-Light Remote Annunciator
- Remote Relay Assembly (8 or 16)
- Remote E-Stop (Break Glass-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Surface Mount)
- Remote E-Stop (Red Mushroom-Type, Flush Mount)
- 10A Engine Run Relay
- Ground Fault Annunciator
- 100 dB Alarm Horn
- 120V GFCI and 240V Outlets

**WARRANTY (Standby Gensets Only)**
- 2 Year Extended Limited Warranty
- 5 Year Limited Warranty
- 5 Year Extended Limited Warranty
- 7 Year Extended Limited Warranty
- 10 Year Extended Limited Warranty

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**DEMAND RESPONSE READY**

**ENGINE SET**
- Special Testing
- Battery Box

**CIRCUIT BREAKER OPTIONS**
- 3rd Main Line Circuit Breaker
- 4th Main Line Circuit Breaker
INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary Emergency and Non-Emergency

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make Generac
Cylinder # 12
Type V12
Displacement - in³ (L) 1,574.4 (25.8)
Bore - in (mm) 5.19 (132)
Stroke - in (mm) 6.30 (160)
Compression Ratio 10.0:1
Intake Air Method Turbocharged/Aftercooled
Number of Main Bearings 7
Connecting Rods Steel Alloy
Cylinder Head Cast Iron
Cylinder Liners Cast Steel Alloy
Ignition Electronic
Piston Type Cast Aluminum Alloy
Crankshaft Type Forged Steel Alloy
Lifter Type Solid
Intake Valve Material High Temp Steel Alloy
Exhaust Valve Material High Temp Steel Alloy
Hardened Valve Seats High Temp Steel Alloy
Governor Electronic
Frequency Regulation (Steady State) ±0.25%

Lubrication System

Oil Pump Type Gear
Oil Filter Type Full-Flow Cartridge
Crankcase Capacity - qt (L) 95 (90)

Cooling System

Cooling System Type Pressurized Closed Recovery
Fan Type Pusher
Fan Speed - RPM 1,640
Fan Diameter - in (mm) 44 (1,118)

Fuel System

Fuel Type Natural Gas
Carburetor Down Draft
Secondary Fuel Regulator Standard
Fuel Shut Off Solenoid Standard
Operating Fuel Pressure - in H₂O (kPa) 11 - 14 (2.7 - 3.5)
Optional Operating Fuel Pressure - in H₂O (kPa) 7 - 11 (1.7 - 2.7)

Engine Governing

Governor Electronic
Frequency Regulation (Steady State) ±0.25%

Cooling System

System Voltage 24 VDC
Battery Charger Alternator 60 A
Battery Size See Battery Index 0161970SBY
Battery Voltage (2) - 12 VDC
Ground Polarity Negative

Fuel System

Fuel Type Natural Gas
Carburetor Down Draft
Secondary Fuel Regulator Standard
Fuel Shut Off Solenoid Standard
Operating Fuel Pressure - in H₂O (kPa) 11 - 14 (2.7 - 3.5)
Optional Operating Fuel Pressure - in H₂O (kPa) 7 - 11 (1.7 - 2.7)

Engine Electrical System

System Voltage 24 VDC
Battery Charger Alternator 60 A
Battery Size See Battery Index 0161970SBY
Battery Voltage (2) - 12 VDC
Ground Polarity Negative

ALTERNATOR SPECIFICATIONS

Standard Model K0500124Y23
Poles 4
Field Type Revolving
Insulation Class - Rotor H
Insulation Class - Stator H
Total Harmonic Distortion <5% (3-Phase)
Telephone Interference Factor (TIF) <52

Standard Excitation Permanent Magnet
Bearings Sealed Ball
Coupling Direct via Flexible Disc
Prototype Short Circuit Test Yes
Voltage Regulator Type Full Digital
Number of Sensed Phases All
Regulation Accuracy (Steady State) ±0.25%
**POWER RATINGS - NATURAL GAS**

<table>
<thead>
<tr>
<th></th>
<th>Standby/Demand Response</th>
<th>Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three-Phase 120/208 VAC @0.8pf</td>
<td>500 kW/625 kVA</td>
<td>450 kW/563 kVA</td>
</tr>
<tr>
<td>Three-Phase 120/240 VAC @0.8pf</td>
<td>500 kW/625 kVA</td>
<td>450 kW/563 kVA</td>
</tr>
<tr>
<td>Three-Phase 277/480 VAC @0.8pf</td>
<td>500 kW/625 kVA</td>
<td>450 kW/563 kVA</td>
</tr>
<tr>
<td>Three-Phase 346/600 VAC @0.8pf</td>
<td>500 kW/625 kVA</td>
<td>450 kW/563 kVA</td>
</tr>
</tbody>
</table>

**MOTOR STARTING CAPABILITIES (skVA)**

<table>
<thead>
<tr>
<th>skVA vs. Voltage Dip</th>
<th>277/480 VAC</th>
<th>30%</th>
<th>208/240 VAC</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>K0500124Y23</td>
<td>1,020</td>
<td></td>
<td>K0600124Y23</td>
<td>1,120</td>
</tr>
<tr>
<td>K0600124Y23</td>
<td>1,560</td>
<td></td>
<td>G0546124N23</td>
<td>1,760</td>
</tr>
<tr>
<td>K0832124Y23</td>
<td>2,800</td>
<td></td>
<td>K0792124Y23</td>
<td>2,130</td>
</tr>
<tr>
<td>K0832124Y23</td>
<td>2,090</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FUEL CONSUMPTION RATES***

<table>
<thead>
<tr>
<th>Percent Load</th>
<th>Natural Gas – scfh (m³/hr)</th>
<th>Standby/Demand Response</th>
<th>Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>25%</td>
<td>2,550 (72)</td>
<td>2,431 (69)</td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>3,624 (103)</td>
<td>3,409 (97)</td>
<td></td>
</tr>
<tr>
<td>75%</td>
<td>4,770 (135)</td>
<td>4,426 (125)</td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td>5,862 (166)</td>
<td>5,425 (154)</td>
<td></td>
</tr>
</tbody>
</table>

**COOLING**

<table>
<thead>
<tr>
<th></th>
<th>Standby/Demand Response</th>
<th>Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Flow (Fan)</td>
<td>scfm (m³/min)</td>
<td>31,400 (889)</td>
</tr>
<tr>
<td>Coolant Flow</td>
<td>gpm (Lpm)</td>
<td>225 (852)</td>
</tr>
<tr>
<td>Coolant System Capacity</td>
<td>gal (L)</td>
<td>25 (93)</td>
</tr>
<tr>
<td>Maximum Operating Ambient Temperature</td>
<td>°F (°C)</td>
<td>122 (50)</td>
</tr>
<tr>
<td>Maximum Operating Ambient Temperature (Before Derate)</td>
<td>See Bulletin No. 0199270SSD</td>
<td></td>
</tr>
<tr>
<td>Maximum Radiator Backpressure</td>
<td>in H₂O (kPa)</td>
<td>0.5 (0.12)</td>
</tr>
</tbody>
</table>

**COMBUSTION AIR REQUIREMENTS**

<table>
<thead>
<tr>
<th></th>
<th>Standby/Demand Response</th>
<th>Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow at Rated Power</td>
<td>scfm (m³/min)</td>
<td>935 (26.5)</td>
</tr>
</tbody>
</table>

**ENGINE**

<table>
<thead>
<tr>
<th></th>
<th>Standby/Demand Response</th>
<th>Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Engine Speed RPM</td>
<td>1,800</td>
<td>1,800</td>
</tr>
<tr>
<td>Horsepower at Rated kW**</td>
<td>729</td>
<td>656</td>
</tr>
<tr>
<td>Piston Speed ft/min (m/min)</td>
<td>1,890 (576)</td>
<td>1,890 (576)</td>
</tr>
<tr>
<td>BMEP psi (kPa)</td>
<td>204 (1,404)</td>
<td>183 (1,263)</td>
</tr>
</tbody>
</table>

**EXHAUST**

<table>
<thead>
<tr>
<th></th>
<th>Standby/Demand Response</th>
<th>Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust Flow (Rated Output)</td>
<td>scfm (m³/min)</td>
<td>3,188 (90.2)</td>
</tr>
<tr>
<td>Max. Backpressure (Post Silencer)</td>
<td>inHg (kPa)</td>
<td>0.75 (2.54)</td>
</tr>
<tr>
<td>Exhaust Temp (Rated Output - Post Silencer)</td>
<td>°F (°C)</td>
<td>1,380 (749)</td>
</tr>
</tbody>
</table>

**DEMAND RESPONSE READY**

**Operating Data**

- Derate – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.
- Please contact a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528, and DIN6271 standards. Standby - See Bulletin 0187500SSB
- Demand Response - See Bulletin 10000018250
- Prime - See Bulletin 0187510SSB

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**DISCLAIMER**

- Refer to “Emissions Data Sheet” for maximum bHP for EPA and SCAQMD permitting purposes.
SG500 | 25.8L | 500 kW
INDUSTRIAL SPARK-IGNITED GENERATOR SET
EPA Certified Stationary Emergency and Non-Emergency

DIMENSIONS AND WEIGHTS*

OPEN SET (Includes Exhaust Flex)
L x W x H - in (mm) 154.4 (3,922) x 70.5 (1,791) x 74.9 (1,902)
Weight - lbs (kg) 9,386 - 9,739 (4,257 - 4,417)

WEATHER PROTECTED ENCLOSURE
L x W x H - in (mm) 207.4 (5,268) x 70.9 (1,801) x 80.0 (2,032)
Weight - lbs (kg) Steel: 11,576 - 11,929 (5,250 - 5,410)
Aluminum: 10,469 - 10,841 (4,757 - 4,917)

LEVEL 1 SOUND ATTENUATED ENCLOSURE
L x W x H - in (mm) 247.5 (6,287) x 70.9 (1,801) x 80.0 (2,032)
Weight - lbs (kg) Steel: 12,583 - 12,936 (5,707 - 5,867)
Aluminum: 10,921 - 11,274 (4,953 - 5,113)

LEVEL 2 SOUND ATTENUATED ENCLOSURE
L x W x H - in (mm) 207.4 (5,268) x 70.9 (1,801) x 114.1 (2,898)
Weight - lbs (kg) Steel: 12,921 - 13,658 (5,860 - 6,194)
Aluminum: 11,066 - 11,565 (5,019 - 5,245)

LEVEL 3 SOUND ATTENUATED ENCLOSURE
L x W x H - in (mm) 232.0 (5,893) x 76.9 (1,953) x 129.2 (3,282)
Weight - lbs (kg) 15,950 - 16,303 (7,234 - 7,394)

* All measurements are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Please contact a Generac Power Systems Industrial Dealer for detailed installation drawings.