

Standby Generators

45kW - Liquid Cooled Gas Engine

Standby Power Rating

45 kW 60Hz

Includes:

- Naturally aspirated gaseous fueled 2.4L engine
- Two line LCD tri-lingual digital Nexus controller
- Isochronous electronic governor
- Closed coolant recovery system
- Smart battery charger
- UV/Ozone resistant hoses
- $\pm 1\%$ voltage regulation
- Natural gas or LP operation
- UL 2200 Listed
- Meets EPA emission regulations

Catalog numbers:

- SGN045RBS/SGN045RBSE*
120/240V, 1-phase
- SGN045CBS/SGN045CBSE*
120/208V, 3-phase
- SGN045JBS/SGN045JBSE*
120/240V, 3-phase
- SGN045IBS/SGN045IBSE*
277/480V, 3-phase

*Catalyst factory Installed to meet CARB/EPA requirements for California and Massachusetts

Features

- **Innovative design and prototype testing**
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 Siemens with the confidence that these systems will provide superior performance.
- **True Power® electrical technology**
Superior harmonics and sine wave form produce less than 5% total harmonic distortion for utility quality power. This allows confident operation of sensitive electronic equipment and micro-chip based appliances, such as variable speed HVAC.
- **Test criteria:**
 - Prototype tested
 - System torsional tested
 - NEMA MG1-22 evaluation
 - Motor starting ability
- **Solid-state, frequency compensated voltage regulation**
This state-of-the-art power maximizing regulation system is standard on all Siemens models. It provides optimized fast response to changing load conditions and maximum motor starting capability by electronically torque-matching the surge loads to the engine. An unequalled $\pm 1\%$ voltage regulation.
- **Siemens transfer switches**
Long life and reliability are synonymous with Siemens. One reason for this confidence is that the Siemens product line includes its own transfer systems and controls for total system compatibility.



Data Sheet

www.usa.siemens.com/generators

SIEMENS

Application & Engineering Data

| Generator specifications | |
|-------------------------------------|---------------|
| Type | Synchronous |
| Rotor insulation | Class H |
| Stator insulation | Class H |
| Telephone interference factor (TIF) | <50 |
| Alternator output leads 3 phase | 4 wire |
| Bearings | Sealed Ball |
| Coupling | Flexible Disc |
| Load capacity (standby rating) | 45 kW |
| Excitation system | Direct |

| Voltage regulation | |
|--------------------|--------------|
| Type | Electronic |
| Sensing | Single Phase |
| Regulation | ± 1% |

| 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 models are fully prototyped tested | |

| Enclosure features | |
|---|--|
| Galvanized steel weather protective enclosure | Ensures protection against mother nature. Electrostatically applied textured epoxy paint for added durability. |
| Enclosed critical grade muffler | Quiet, critical grade muffler is mounted inside the unit to prevent injuries. |
| Small, compact, attractive | Makes for an easy, eye appealing installation. |

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, ISO8528, SAE J1349 and DIN6271).

| Engine specifications | |
|-----------------------|------------------------------------|
| Make | Generac |
| Model | In-line |
| Cylinders | 4 |
| Displacement | 2.4 Liter, 146 in. ³ |
| Bore | 3.41 |
| Stroke | 3.94 |
| Compression ratio | 8.5:1 |
| Intake air system | Naturally aspirated |
| Valve seats | Precision ground |
| Lifter type | Overhead valve push rod, hydraulic |

| Governor specifications | |
|-------------------------|-------------|
| Type | Electronic |
| Frequency regulation | Isochronous |
| Steady state regulation | ± 0.25% |

| Engine lubrication system | |
|---------------------------|-----------------------------|
| Oil pump | Gear |
| Oil filter | Full flow spin-on cartridge |
| Crankcase capacity | 4 Quarts |

| Engine cooling system | |
|-----------------------|--------------------|
| Type | Pressurized closed |
| Water pump | Belt driven |
| Fan speed | 2000 |
| Fan diameter | 22 inches |
| Fan mode | Pusher |

| Fuel system | |
|--------------------------|----------------------------|
| Fuel type | Natural gas, propane vapor |
| Carburetor | Down Draft |
| Secondary fuel regulator | Standard |
| Fuel shut off solenoid | Standard |
| Operating fuel pressure | 5" - 14" H ₂ O |

| Electrical system | |
|---------------------------|------------------|
| Battery charge alternator | 12V 30 Amp |
| Static battery charger | 2 Amp |
| Recommended battery | Group 26, 525CCA |
| System voltage | 12 Volts |

Operating data

| | |
|-------------------|-------|
| KW rating (LP/NG) | 45/45 |
|-------------------|-------|

| | |
|-------------|-------------------------|
| Engine size | 2.4 Liter 4 cyl. Inline |
|-------------|-------------------------|

| Catalog numbers | Generator output voltage/kW - 60Hz | kW | AMP | CB Size (Both) |
|-----------------------|------------------------------------|----|-----|----------------|
| SGN045RBS/SGN045RBSE* | 120/240V, 1-phase, 1.0 pf | 45 | 188 | 200 |
| SGN045CBS/SBN045CBSE* | 120/208V, 3-phase, 0.8 pf | 45 | 156 | 175 |
| SGN045JBS/SGN045JBSE* | 120/240V, 3-phase, 0.8 pf | 45 | 135 | 150 |
| SGN045IBS/SGN045IBSE* | 277/480V, 3-phase, 0.8 pf | 45 | 68 | 80 |

*Catalyst factory Installed

| Engine fuel consumption (Natural Gas) (Propane) | Natural Gas (ft ³ /hr.) | Propane (gal/hr.) | Propane cu ft/hr |
|---|---------------------------------------|----------------------|---------------------|
| Exercise cycle | 65 | 0.7 | 25 |
| 25% of rated load | 210 | 2.3 | 831 |
| 50% of rated load | 380 | 4.2 | 151 |
| 75% of rated load | 545 | 5.9 | 216 |
| 100% of rated load | 730 | 8.0 | 290 |

Engine cooling

| | | | |
|---|---------|-------|----------|
| Air flow (inlet air including alternator and combustion air)ft ³ /min. | | 2,725 | |
| System coolant capacity | US gal. | | 3.0 |
| Heat rejection to coolant | BTU/hr. | | 173,000 |
| Max. operating air temp. on radiator | °C (°F) | | 60 (150) |
| Max. ambient temperature | °C (°F) | | 50 (140) |

Combustion air requirements

| | | | |
|---------------------------|-----|--|-----|
| Flow at rated power 60 Hz | cfm | | 144 |
|---------------------------|-----|--|-----|

Sound emissions in DBA

| | | | |
|------------------------------|--|--|----|
| Exercising at 7 meters | | | 61 |
| Normal operation at 7 meters | | | 73 |

Exhaust

| | | | |
|------------------------------------|-----|--|------|
| Exhaust flow at rated output 60 Hz | cfm | | 429 |
| Exhaust temp. at muffler outlet | °F | | 1150 |

Engine parameters

| | | | |
|-----------------------|-------|--|------|
| Rated synchronous RPM | 60 Hz | | 3000 |
|-----------------------|-------|--|------|

Power adjustments for ambient conditions

Temperature Deration

| | | | |
|--|----------------------------------|--|----|
| | 3% for every 10 °C above - °C | | 25 |
| | 1.65% for every 10 °F above - °F | | 77 |

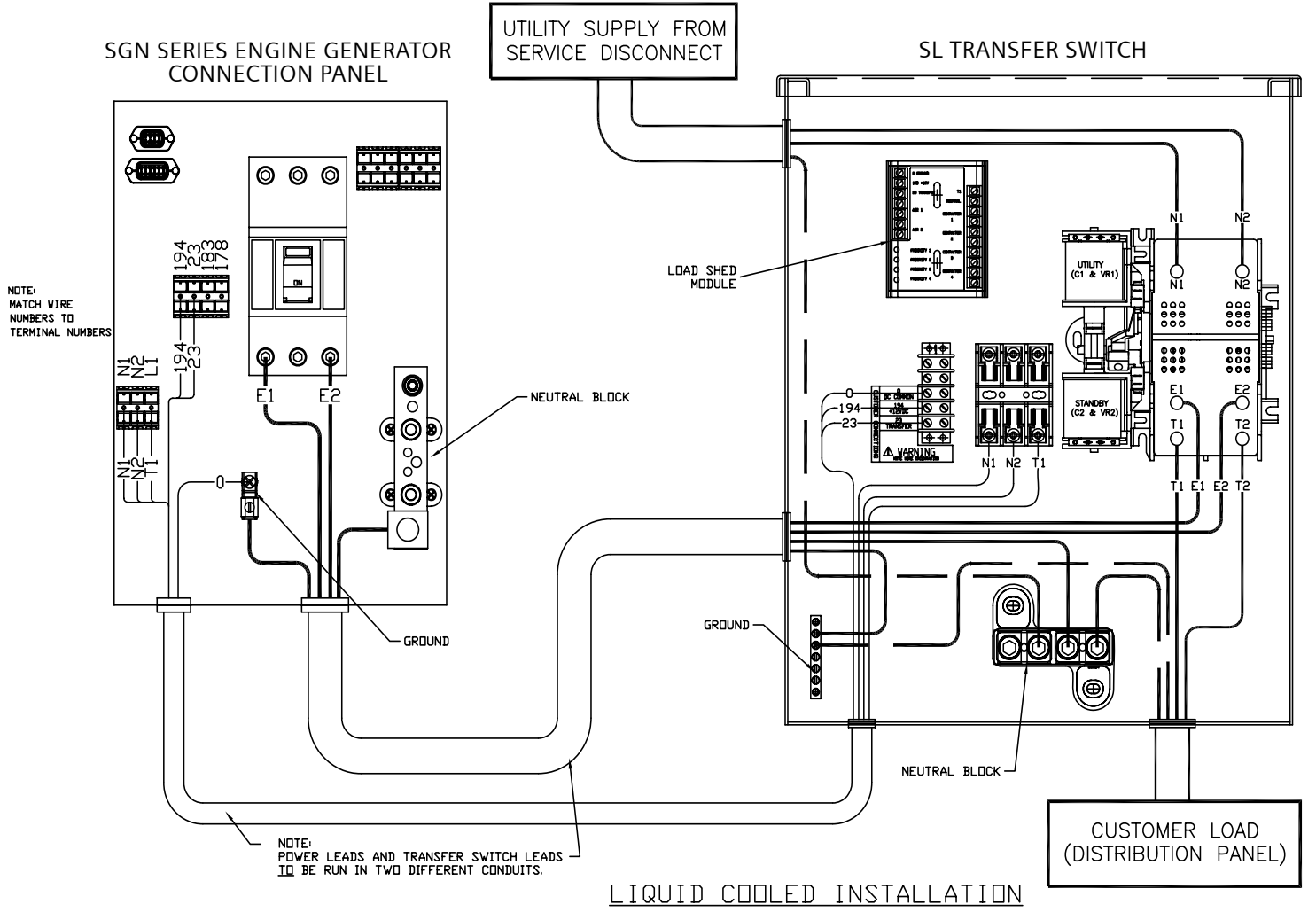
Altitude Deration

| | | | |
|--|-----------------------------------|--|-----|
| | 1% for every 100 m above - m | | 183 |
| | 3% for every 1000 ft. above - ft. | | 600 |

* Refer to EPA # GNX-NRSI for maximum fuel flow for EPA and SCAQMD permitting purposes.

RATING: All three phases units are rated at 0.8 power factor. All single phase units are rated at 1.0 power factor. STANDBY RATING: Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046-1. Design and specifications are subject to change without notice.
KW rating is based on LPG Fuel and may derate with natural gas.

Interconnections



| Nexus control features | |
|---|---|
| 2-Line Plain Text LCD Display | Simple user interface for ease of operation |
| Mode Switch | Automatic Start on Utility failure. 7 day exerciser |
| -Auto | Automatic Start on Utility failure. 7 day exerciser |
| -Off | Stops unit. Power is removed. Control and charger still operate. |
| -Manual/Test (start) | Start with starter control, unit stays on. If utility fails, transfer to load takes place. |
| Programmable start delay between 10-30 seconds | Standard |
| Engine Start Sequence | Cyclic cranking: 16 sec. on, 7 rest (90 sec. maximum duration) |
| Engine Warm-up | 5 seconds |
| Engine Cool-Down | 1 minute |
| Starter Lock-out | Starter cannot re-engage until 5 sec. after engine has stopped. |
| Smart Battery Charger | Standard |
| Automatic Voltage Regulation with Over and Under Voltage Protection | Standard |
| Automatic Low Oil Pressure Shutdown | Standard |
| Overspeed Shutdown | Standard, 72Hz |
| High Temperature Shutdown | Standard |
| Overcrank Protection | Standard |
| Safety Fused | Standard |
| Failure to Transfer Protection | Standard |
| Low Battery Protection | Standard |
| 50 Event Run Log | Standard |
| Future Set Capable Exerciser | Standard |
| Incorrect Wiring Protection | Standard |
| Internal Fault Protection | Standard |
| Common External Fault Capability | Standard |
| Governor Failure Protection | Standard |

*Single and three phase connections may vary , refer to the owner's manual for specific connection information.

Installation layout - Liquid Cooled Standby Generator 45kW

| ENGINE/KW | ENCLOSURE MATERIAL | WEIGHT DATA | | SHIPPING WEIGHT (SKID AND GENSET) |
|-----------|--------------------|--------------------------|--|-----------------------------------|
| | | WEIGHT (GENSET) KG (LBS) | WEIGHT (WOODEN SHIPPING CRATE/SKID) KG (LBS) | |
| 2.4L/25KW | STEEL | 631 [1393] | 44 [98] | 676 [1491] |
| 2.4L/25KW | ALUMINUM | 579 [1276] | 44 [98] | 623 [1374] |
| 2.4L/25KW | STEEL | 631 [1393] | 44 [98] | 676 [1491] |
| 2.4L/25KW | ALUMINUM | 579 [1276] | 44 [98] | 623 [1374] |
| 2.4L/45KW | STEEL | 641 [1414] | 44 [98] | 686 [1512] |
| 2.4L/45KW | ALUMINUM | 588 [1297] | 44 [98] | 632 [1395] |

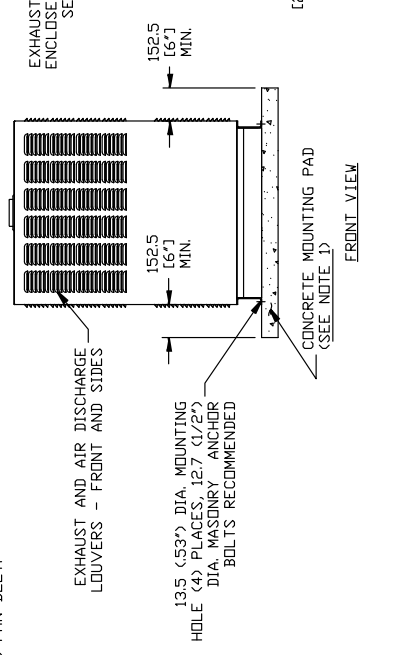
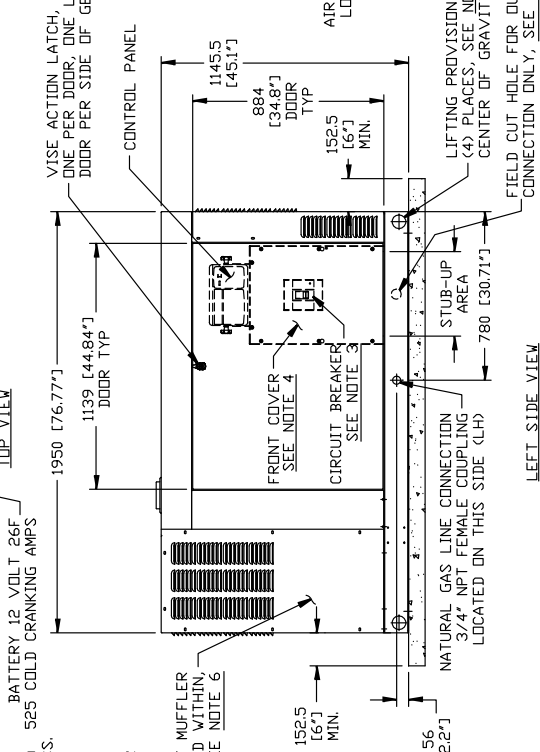
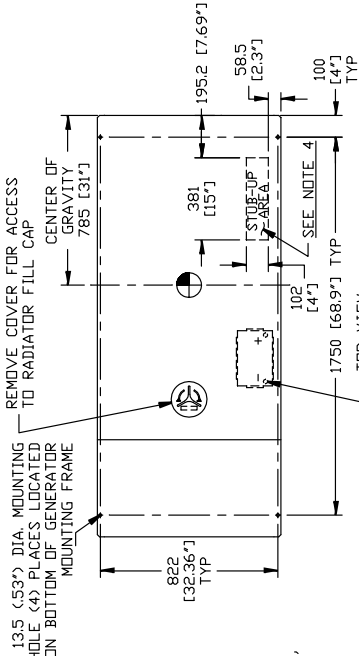
NOTES:

- 1) MINIMUM RECOMMENDED CONCRETE PAD SIZE: 1155 (45.5') WIDE X 2255 (88.8') LONG. REFERENCE INSTALLATION GUIDE SUPPLIED WITH UNIT FOR CONCRETE PAD GUIDELINES.
- 2) ALLOW SUFFICIENT ROOM ON ALL SIDES OF THE GENERATOR FOR MAINTENANCE ACCESS. SEE NOTE 1 FOR MINIMUM CLEARANCES. THE ACCURACY OF THE CURRENT APPLICABLE NFPA 705 AND NFPA STANDARDS WILL VARY BY JURISDICTION, STATE AND LOCAL CODES FOR MINIMUM DISTANCES FROM OTHER STRUCTURES.
- 3) CIRCUIT BREAKER INFORMATION:
SEE SPECIFICATION SHEET WITHIN OWNERS MANUAL
- 4) INSIDE STUB-UP AREA FOR AC LEAD CONNECTION, NEUTRAL CONNECTION, BATTERY CHARGER 120 VOLT AC (<5 AMP MAX.) CONNECTION, AND ACCESS TO TRANSFER SWITCH CONTROL WIRES. REMOVE FRONT COVER FOR ACCESS.
- 4A) FIELD CUT HOLE IS ONLY REQUIRED FOR MOUNTING OF GENERATOR ON AN EXISTING PAD.
- 5) REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS.
- 6) REMOVE EITHER LEFT OR RIGHT HAND SIDE PANEL TO ACCESS EXHAUST MUFFLER AND FAN BELT.

SERVICE ITEM ACCESSIBILITY CHART

| SERVICE ITEM | 2.4L |
|---------------------|-----------------|
| OIL FILL CAP | ETHER DOOR |
| OIL DIP STICK | THRU RIGHT DOOR |
| OIL FILTER | THRU RIGHT DOOR |
| OIL DRAIN HOSE | THRU RIGHT DOOR |
| RADIATOR DRAIN HOSE | THRU LEFT DOOR |
| AIR CLEANER ELEMENT | ETHER DOOR |
| SPARK PLUGS | THRU RIGHT DOOR |
| MUFFLER | SEE NOTE 6 |
| FAN BELT | SEE NOTE 6 |
| BATTERY | THRU LEFT DOOR |

REFERENCE OWNERS MANUAL FOR PERIODIC REPLACEMENT PART LISTINGS



Warning: Installation drawing for reference only. Liquid cooled units should be installed by an Authorized Siemens Standby Generator Contractor.

Siemens Industry Inc.
Building Technologies Division
Standby Power Systems
Catalog Numbers:
SGN045RB5, SGN045RBSE, SGN045CBS, SGN045CBSE,
SGN045JBS, SGN045JBSE, SGN045IBS, SGN045IBSE

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