

SERVICE AND APPLICATION NOTES

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Backup or Portable Generator Applied to a Lennox Furnace

A home generator is a device that can supply electricity to the home during power outages. During blackouts, it allows the homeowner to use essential appliances such as air conditioners, furnaces, refrigerators and lights.

Home generators can be portable or stationary (standby). They run on a variety of fuels, such as gasoline, diesel, natural gas (NG) and liquefied petroleum gas (LPG). Both portable and stationary models can provide sufficiently long run time when hooked to an external fuel source, such as a gas line. Neither system **MUST NOT** be operated inside a structure as their exhaust could contain combustion products such as carbon dioxide and carbon monoxide. The main differences are in their connection and activation. A **portable residential standby generator** has to be rolled out from the storage, manually connected, filled with fuel and started. This style must use a manual transfer switch. A **permanent residential standby generator** by contrast can start immediately either by a push of a button or automatically. Automatic systems have an auto transfer switch that can sense power outage, isolate the home electrical wiring or designated emergency circuits from the grid and start the generator set. When power is restored back to the utility lines, the generator will turn off. In addition to the convenience of auto starting option and practically infinite run time, permanent connected systems offer longer run times than portables. All this makes the whole house generator the best to have in long-term emergencies.

How to wire system? Both style generators **MUST** be connected to the home electrical system wiring via a **transfer switch**. The transfer switch isolates the home electrical system from the power company's system and prevents "backfeeding" into utility lines. It also protects the standby generator from damage by preventing utility power from applying voltage to the home wiring while the generator is running. Some standby generators come with a pre-wired transfer switch. In the absence of local codes, all equipment and the generator must be installed to the current National Electrical Code (NEC). These codes specifically require proper grounding.

Furnaces

Voltage requirements – 120 volts + or – 10% (108 volts to 132 volts)

60Hz + or – 5% (57 Hz to 63 Hz)

Today's SureLight® Integrated control must sense proper polarity and proper ground before it will initiate sequence of operation. This means the Lennox furnace with a SureLight control will not operate without a proper ground. The ground sense function of the SureLight control is a safety feature and the furnace will not operate on permanent or temporary power without a proper ground. It is also important to remember, that most furnaces using flame rectification for sensing flame signal, will have problems without a proper ground.

Air Conditioners and Heat pumps

Voltage requirements – 208 / 230 volts + 10% or – 10% (187 volts to 253 volts)

60Hz + or – 5% (57 Hz to 63 Hz)

It is recommended to use a generator with a wave form distortion of less than 5% THD. Generators that produce a wave form distortion greater than 8%, should not be used. When these recommendations and requirements are followed, product warranties apply.

IMPORTANT: The generator manufacturer or supplier should be consulted for proper sizing and installation of the generator.

