



**ADVANTAGES OF
INVERTER OVER
GENERATOR POWER**

Excerpt from Inverter
Charger Series Manual

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Normally, good quality sine wave inverters provide better performance and significant cost savings when compared to generators.

1.0 PEAK / SURGE POWER OUTPUT

Peak / surge power output is the ability of a power source to provide more than its rated continuous power out for a very brief period to start certain loads. AC induction motor driven loads that require starting against high back pressure / mechanical inertia like reciprocating pumps and compressors used in refrigeration, air-conditioning, Oxygen Concentrators etc. will initially require a very large additional starting surge current over and above the Locked Rotor Current to start from rest. Once they have started moving and have attained their rated speed, their power requirement reduces to their normal running current rating. The starting RMS current surge in these devices may reach up to 5 times their normal RMS running current rating and the starting surge may last > 1 second. Generators have poor peak power capability due to their inherent operating characteristics. Peak power is usually no more than 125% of their continuous power rating. They must be greatly oversized to successfully start the above loads. On the other hand, inverters can provide higher surge power of up to 2 to 3 times their continuous power rating. Thus, a lower size of inverter will be required for meeting the peak / surge power requirements. If a larger than ideal generator is purchased to satisfy the load's peak or motor starting requirements, the excess generator capacity is wasted and will mean additional fuel consumption and reduced life.

2.0 NO LOAD / SELF CONSUMPTION POWER

This is the minimum amount of power needed to keep an inverter or generator in a running / standby condition. Obviously, this is much greater for an unloaded generator as a generator's engine must always be running resulting in higher inefficiency, noise and wear and tear. On the other hand, with no load, an inverter requires very low self-consumption power and yet it can deliver full power instantly to loads when needed. Some inverters like the Samlex America Inc. Inverter Charger Series come with a "Power Saving Mode" that draws very minimal power of 5 W to keep the inverter in "Sleep Mode" and wakes up if a programmed value of the load is detected.

3.0 OUTPUT FREQUENCY

Many loads, such as motor driven tools, will not operate over a wide frequency range. Output frequency of an engine generator is directly related to the engine RPM (Revolutions per Minute). The RPM of a generator falls when a heavy load is switched on. Similarly, the RPM rises if a heavy load is switched off. The RPM of a generator engine is regulated against the above loading / unloading effect by a mechanical governor that increases / decreases the fuel supply to the engine to maintain a constant RPM. Due to aging, the performance of the governor deteriorates and hence, it is not able to regulate the RPM and hence the frequency. The output frequency of an inverter is precisely regulated at 50 / 60Hz over a wide range of operating conditions.

4.0 OUTPUT VOLTAGE

The output voltage of engine generators is sometimes not regulated to within 120 VAC / 230 VAC + / - 10% due to deterioration in the performance of their governor / regulator. These voltage excursions can damage some AC loads. In contrast, inverters closely match utility power and provide the desired output voltage regulation.

Less Operating Cost & Environmentally Friendly.

Inverters do not use fuel, lubricants or moving parts. They generate very little heat and do not produce noise or pollutants.

For more information, visit: www.samlexamerica.com