



SINETECH

THE POWER OF CHOICE

Backup Systems for Long Power Failures

Before you purchase a Home/Farm/Small Business backup system you should consider the following facts. Backup systems and batteries are very expensive and every appliance that you choose to run on the backup system which is not absolutely necessary, can increase the cost of the backup system drastically. We therefore recommend that you carefully consider which appliances should run on the backup system after a power failure.

Things to consider: Before we can size the correct backup system you must consider the following:

1. Which items are absolutely necessary to be run on the backup system after power failure.
2. Write down the power requirements of each appliance / item in watts, VA or amps. These values are normally found on the production labels on the appliance or in the appliance manual.
3. Calculate the total wattage of all items which will be run on the backup system.
4. Consider what the most applicable backup time will be for your area. In other words how long are the power failures you experience normally.

Any recharge time shown in our kits assumes that the battery set is run down completely until the inverter system has switched off. Thus recharge times are calculated and can vary depending on age of the battery, recharge state of the battery and environmental temperatures, etc. Any backup times indicated are purely examples and relate to the power indicated. Each user should experiment to see how long the backup time will be in their own particular case - as long as the total wattage does not exceed the maximum allowable wattage of the inverter as indicated.

It is recommended that you run the inverter not more than 80% loaded to allow for some inrush current capability.

Note that any suggested backup times are related to specific load examples. For example, one system may offer 9 hours with a load of 100 watts but if you use that same inverter to its maximum allowable wattage of 550W, the backup time will only be about 45 minutes. This same principle applies to all the systems.

Backup times are calculated at full load and at half load of the maximum capability of the inverter. All of our systems have an automatic switchover facility so that they switch on automatically when the power fails. When power returns, the unit will automatically switch back to battery recharge mode and your appliances will run on standard mains again.

At a first glance some of the systems look the same but there are quite substantial differences. Some of the units have either larger inverters or larger battery chargers or larger battery banks.

Some of our smaller systems use modified sinewave inverters; larger systems use pure sinewave inverters. The difference between modified and pure sinewave inverters is explained below. Please read this before making any decisions.

Modified Sine-wave Inverters:

This type of inverter is the most cost effective one but has also many drawbacks. The Modified Sine-Wave inverter or also called Quasi - Sine Wave Inverter has some limitations. These types of inverters produce a negative by-product which is electrical noise. It is a fact that many TV's and stereos are incapable of eliminating common mode noise. As a result, powering such equipment with a Modified Sine Wave Inverter may cause a "grain" or small amount of "snow" or horizontal stripes on your TV picture, or a "hum" on your sound system.

These are some of the appliances that may experience problems when running off Modified Sine-Wave inverters:

- Laser printers, photocopiers, magneto-optical hard drives
- Some fluorescent lights with standard inductive ballasts
- Power tools employing "solid state" power or variable speed control
- Some battery chargers for cordless tools
- Sometimes produces interference in some television sets
- Digital clocks with radios
- Can produce interference to some Computers
- Ceilings Fans or standard Fans
- Sewing machines with speed/microprocessor control
- Medical equipment such as oxygen concentrators
- Any load, which has high inductive and/or capacitive components, e.g. any motor, water pumps.
- Are normally not electronically protected (Only by standard fuse)
- Modified sine-wave inverters are usually only protected by standard fuses which, under normal circumstances, are not always fast enough, therefore they are by far more vulnerable to failure and definitely get damaged if you make a mistake.

Modified Sine-wave Inverters with built in Battery Charger and Changeover switch:

Same as above but with a 6 – 25 Amp built in battery charger. Some models have also a changeover switch added. This will allow you to use this model as "Standby System" and will function as follows. While the mains or Eskom is present, the battery charger will recharge the battery and will keep the battery on float charge until the power fails. The changeover switch will immediately switch over to the inverter and any load connected to the inverter will carry on running until the battery is exhausted. After power is restored the unit will switch automatically back to Eskom power and will start to recharge the battery bank as quick as possible.

Pure Sine-wave Inverters:

This type of Sine-wave inverter is the most technically advanced and reliable model and has basically no drawbacks with the exception that it costs twice the price. With his "perfect" sine wave output, the power produced by the inverter fully assures that your sensitive loads will be correctly powered, with no interference. Basically any load can be connected to this inverter without any problems.

The better quality sine wave inverters will provide excellent regulation and very importantly, a very high inrush current capability which is very important to start heavy capacitive or inductive loads like motors and deep freezers. This is the best output waveform you can get out of an inverter and all appliances are able to run off it without interference or overheating.

Some of its advantages are as follows:

- Output voltage waveform is pure sine wave with very low harmonic distortion and the same or better than the Eskom supply
- Inductive loads like microwave ovens and motors run correctly, quieter and cooler •Reduces audible and electrical noise in fans, fluorescent lights, audio amplifiers, TV, game consoles, computers, fax, and answering machines
- Prevents crashes in computers, unreadable print outs, and glitches and noise in monitors
- It can be efficiently electronically protected in overload, overvoltage, undervoltage and over temperature conditions

Pure Sine-wave Inverters with built in Battery Charger and Changeover switch:

Same as above but with a 6 – 100 Amp built in battery charger. Some models have also a changeover switch added. This will allow you to use this model as “Standby System” and will function as follows. While the mains or Eskom is present, the battery charger will recharge the battery and will keep the battery on float charge until the power fails. The changeover switch will immediately switch over to the inverter and any load connected to the inverter will carry on running until the battery is exhausted.

It is highly recommended, wherever possible, that a Pure Sine-Wave Inverter is used. This will pre-empt possible operating problems at a later stage.

Installation:

The majority of our backup power systems will need to be hard wired into your electrical system (by a qualified electrician). Any prices quoted do not include installation. Great care has to be taken if the system is hard wired as if it is incorrectly installed the system could be damaged. Sinetech does not take any responsibility for incorrectly installed systems or any consequential damage which may be caused as a result thereof.