

Do you live or are planning to build off-grid and need an efficient, fully automatic and eco-friendly system giving reliable electrical power 24/7? The Powerguard PS System is the complete solution.

Powerguard PS System

The Powerguard PS System is an efficient and cost effective solution for providing electrical power to domestic or business properties not connected to the main electricity network or grid (off-grid). Two of the options for solving the problem are:

- 1) Pay an electrical distribution company to make the connection to the national electricity grid. In our experience this can cost from £10,000.00 to more than £250,000.00 depending on the distance and complexity of the connection. Obtaining permission to bring power cables across land owned by others can make it even more difficult and expensive.
- 2) Generate your own electricity. To do this efficiently and with automatic operation a Powerguard PS System would be installed. This will usually cost between £9,000.00 and £18,000.00 depending on the size of the property. (Prices are ex VAT).

The Powerguard PS System is designed and built to supply electrical power 24 hours a day 365 days a year. The high quality output will power all equipment and appliances designed to connect to the standard mains power.

It is fully automatic and reliable with a long working life of over 25 years.

The Powerguard PS System will control any auto-start generator to provide electricity as efficiently as possible.

The PS System includes a clever control system, inverter, battery charger and battery bank. It will provide the maximum amount of electrical power for every drop of fuel consumed.

In a typical application providing electrical power to a mixed and variable load such as a domestic dwelling or business the generator will operate for significantly less but not usually more than 8 hours out of 24.

The PS System starts the generator to power the heavier loads during the day and when it is running uses the surplus power to recharge the batteries. The PS System will automatically adjust the battery charge rate to suit the load on the generator. If the load increases the system will reduce the charge



A TYPICAL INSTALLATION SHOWING THE PS SYSTEM, BATTERY ISOLATOR AND PART OF THE BATTERY BANK.

power into the batteries and vice versa. This means that the generator load is kept within the most effective band to give the best fuel economy. In the periods when the load is lighter the PS System shuts down the generator and supplies the load from the batteries via the inverter. The higher loads are powered from the generator and the lighter loads are powered from the batteries via the inverter.

Typically the reduced generator run-time increases the operating life of the generator by more than three times and reduces fuel use, pollution and maintenance by more than two thirds. It is fully automatic and will adjust itself to operate as efficiently as possible.

powerguard

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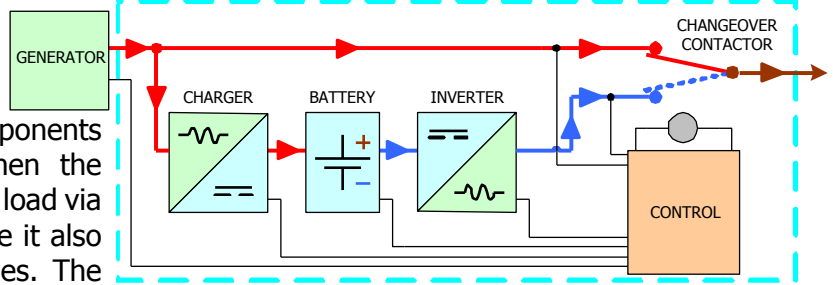
The PS System can pay for itself in less than 3 years when used in a typical mixed load application.

The sketch on the right shows the main components of a typical Powerguard PS System. When the generator is running it supplies power to the load via the changeover contactor. At the same time it also powers the charger recharging the batteries. The path is shown by the red arrows.

When the PS System shuts down the generator the inverter is started and provides power to the load via the changeover contactor. The path is shown by the blue arrows.

The Powerguard PS System controlling an auto-start generator is the complete answer to generating your own power.

It is fully automatic, fully integrated, efficient and reliable.



TYPICAL PS SYSTEM BLOCK DIAGRAM

domestic property or business without a significant increase in the cost of producing electricity on its own. The Powerguard PS CHP System is efficient and reliable and reduces the cost of generating your own power.

Renewable Energy

The Powerguard PS System has a dedicated input for a renewable energy source such as a wind turbine or PV solar panels. The sophisticated control monitors the power coming into the system from the renewable source and adjusts the engine run-time accordingly.

For example a 1kW wind turbine can make a useful contribution reducing fuel use and pollution. The PS System will monitor the charge current from the wind turbine and if the battery is charged can switch the energy into an immersion heater to provide hot water.

The Powerguard PS System is a reliable and cost effective product. We have many satisfied users and reference sites.

Generators

The Powerguard PS System will work with and control any auto-start generator that starts when a relay contact is closed and stops when it is opened.

If you do not have a generator or your generator is due for replacement you should consider purchasing a Powerguard PS Generator. They are designed and built to give very good fuel economy and are more efficient than the normal standby generators available. For example they use dedicated single phase alternators which can be up to 20% more efficient than the multi wound types normally used. The generators also have many other features that make them ideal to work efficiently with the Powerguard PS System.

Powerguard PS Generators are Prime Power rated as opposed to the normal Standby rated sets. Prime Power means that the generator is rated to be the main or only source of power with the generator running for long periods. Standby means that the generator is rated to start and run infrequently when the mains supply fails.

Combined Heat and Power (CHP)

The Powerguard PS System increases the efficiency of a generator dramatically during the 24 hour daily cycle. However engines still run hot and waste energy in the form of heat, about 2kW of heat for every 1kW of electrical power. If a large proportion of the waste heat is recovered and used to provide hot water and space heating the efficiency of the system can increase to more than 80%.

The heat is a by-product of producing electricity and is already paid for. In applications where the generator runs longer it is possible to provide enough hot water to satisfy the requirements of a typical

Typical Powerguard Off-grid System With Wind and PV Solar

