



Supplying Power, Entertainment and Communications to your Spanish Home...

Alicante Murcia Region C/Federico Lorca Garcia Pinoso 03650

Tel 00 34 968 432 132 Mob 00 34 653 983 800

C.I.F. B-7365734

Email Info@solar-sky.com

Off Mains ELECTRICITY System

We have developed an off mains electricity power system for customers that do not have mains utility power. The system uses the following components:

- 4.5kw low noise diesel generator (8.5kw diesel generator optional)
- 3kw pure sine wave inverter (Outback 3024)
- Programmable management system (Outback Mate)
- Heavy Duty deep cycle Battery bank (Rolls)
- Optional Solar Photovoltaic panels

System Basics

When the generator is switched off the inverter uses the battery bank to produce 230v electricity silently. In doing this the inverter slowly discharges the battery bank.

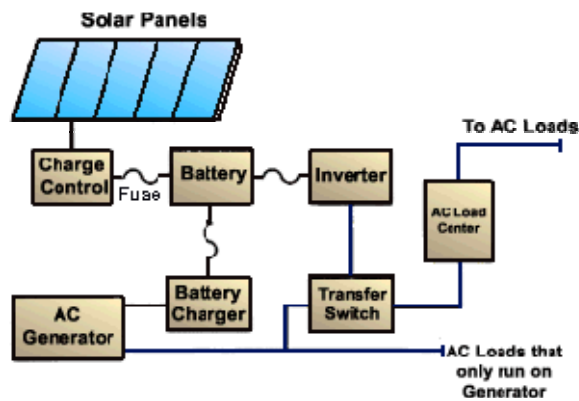
When the battery bank reaches a preset charge level, the generator is automatically started to recharge the battery bank and simultaneously powers appliances that would normally be running off the inverter and battery bank. Electrical power remains constant throughout this process and the user would not notice the switchover apart from the generator starting.

Alternatively when there is a large demand for power the system can be programmed to sense this and will startup the generator automatically. Whilst the generator is providing power to the heavy duty load (IE washing machines, air conditioning unit etc) the batteries are being simultaneously charged, this has an added benefit in that maximum use of generator power available is optimised minimising overall running costs.

The system has been designed as the starting point for a complete solar solution to provide power to remote homes or in situations where grid connection is not possible. The modular design has the option of adding solar panels and/or a wind turbine at a later date to reduce reliance on the generator and a obtain reduction in diesel and maintenance costs.

Grid independent systems are suitable for use where there is no mains supply available. They generally consist of:

- Renewable energy charging resource (wind generator, hydrogenerator or solar panels)
- Charge controller system for the renewable energy source (Outback Power)
- Batteries to store electricity (Heavy duty deep cycle)
- Inverter system to convert battery stored electricity into 230V AC mains quality electricity
- Generator set as a prime or secondary power source when used with renewable systems



Typical Solar System

The renewable energy source is permanently connected to the battery set via a charge controller and provides power for battery charging whenever it is available. The inverter system utilises the stored energy in the battery to supply the AC loads. If at any time battery voltage goes low or the load is particularly high the inverter can request additional support from the generator. The inverter will start the generator automatically and switch the power from the generator to the user additionally it switches a proportion the generator output directly to the inverter to charge the batteries. This ensures that when the generator is running its power output is used most cost effectively. When the batteries have recovered sufficient charge or the high load is no longer present the inverter switches of the generator automatically and operation returns to silent mode. Modern technology is so far advanced that good quality off grid systems operate seamlessly with an automatic power change over taking place in less than 20milliseconds causing no interruption to supply whilst offering all the convenience of a grid connected system.

The system is fully automatic:

Both the generator and the inverter are controlled by an automated management system which means you do not have to switch the generator or inverter on or off. Once programmed the system will switch each item on and off automatically. The system requires little input from the user, other than ensuring that Diesel fuel level is maintained and routine servicing on the generator is carried out. This feature makes the system a viable cost-effective alternative to grid power.

Silent overnight power:

You can program the system to remain silent at night. This will enable the generator to start in the day, but it will not allow the generator to come on at night except under an emergency power requirement. When the generator is switched off, 230V power is supplied silently with the inverter drawing power off the batteries. Should the batteries reach a critical discharge level the generator will automatically start to charge the batteries back up again. The amount of power available is determined by the capacity of batteries chosen. Where budget allows the largest battery capacity to match the generator output should be chosen.

GENERATORS.

The most popular generators for this type of application are usually diesel powered, we offer a range of diesel generators, both 1500RPM and 3000RPM units. When the application is supported by a renewable energy source (Solar Panels or wind generator) the 3000RPM units are suitable as they will only be required to operate in a standby or support mode with limited running hours per day (Max 4 to 6 Hours).



For heavy duty applications or where the generator is the sole source of energy we would recommend that the SDMO 1500RPM units be fitted, these units are well designed of robust build, rated for continuous operation and will if maintained to manufacturer instructions give many years of reliable service.

3KW battery systems with fully automatic control ready to install start from €5,975
(Control Panel, Inverter/Charger and Heavy duty deep cycle Batteries, cables and safety fuses. NB Generator not included).

Diesel Generator (3000RPM) with autostart from €1750

Diesel Generator (1500RPM) with Autostart from €4950

IVA is applicable at 16%. Delivery charges apply.



The above photo shows the ATS (generator auto start) control panel (Top left). 3KW Outback inverter charger (centre), Safety fuse box(White box) and mains output Isolator (bottom left) . To the right is the MX60 Solar Regulator

Solar Sky S.L. reserve the right to change the specification at any time for items of a similar or better specification subject to supply.