



Solar micro house kit type 1.

These solar home kits are designed for houses and homes in areas with no grid or an unreliable grid to give needed electricity. The kits are for small installations in tropical areas where it is hot and humid and maintenance is a problem. Therefore we use the best components and a special battery to get a predicted life time of 20-25 years with no service. Components are European of highest quality and the battery pack is based on Ni-Fe cells. Ni-Fe battery contains no lead and are considered as very green and environmentally friendly. The solar panels are ROHS certified for highest demands in green standards. Double laminated glass do also give the by far best life time of panels (40 years seems correct)



The kits are available in 5 sizes depending on demands. The smaller kits operates on 12 VDC output and have no inverter to keep costs down. They do also use low voltage so demands in electrical installation is much simpler.

Solar home kit type 1 characteristics in short.

- * Kit 1 is aimed for smaller installations where key is to get electricity for basic needs.
- * Can handle 3 separate led lamps and a mobile charge, small fridge + a bit extra for shorter times of day
- * Thin film CIGS solar panel for best operation in less sunny and rather cloudy weather. Made in Germany and by patents from Sweden.
- * Double glass laminated panels with no plastic back side that is degenerated by sun light and UV radiation. Strong and solid design. Warranty 10/25 years by solar panel standards.
- * Electronics by Victron Holland for best reliability and life time.
- * Marine quality components like cables and junctions for less corrosion
- * Ni-Fe battery designed to be deep cycled to 50% and if so life time is 20-25 years / 70% rest capacity if operated and charged at 25-35C in temperature.
- * Ni-Fe battery is by far the most rugged battery. It can be discharged and empty for a long time with no degeneration. It can be overcharged and not destroyed.
- * Ni-Fe is environmentally correct and recyclable and do not leak dangerous materials. No acids in electrolyte
- * Components produced under ISO 9000 certified production for best reliability.

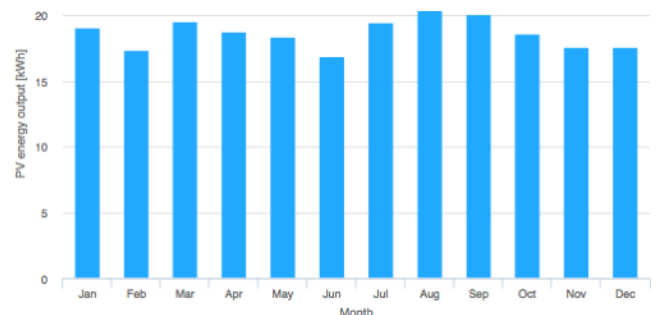
Often we say this is a “ **hakuna matate** “ solution.

Solar panels from Germany Sweden by Solibro.



CIGS panels are the best when hot and they are also best when there is clouds and haze in front of sun. Sunny days is never a problem but a cloudy week set and stress all limits. CIGS are the best here. Panels are 2 laminated glasses and no plastics ar back side. This improve life time and practically panels can operate 40 years and up.

The table show outputs per panel in Kinshasa in a simulation by PV-Gis software and





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here we see one panel gives in average 0.5 KWH / day in output. Kinshasa is rather uniform over all months so this is very good.

Solar panels are mounted on the roof by rubber covered clamps and this is very simple and robust. Cables are connected by pre-made MC4 connectors you just click in position.

MPPT chargers give 20-30 % more capacity than the old PWM systems so we always use them. They are extra good when cloudy and in twilight.

Inverter is sine wave design so all equipment can be used with no problems. We only use Victron brand as we like no problems and quality is best.

Fuse and fuse box is also Victron brand and we delivered installed cables with connectors mounted at delivery.

Cables are always large area copper cables remade for direct installation with no tools



except a adjustable wrench that is included in a small tool kit.



Battery storage is the key component that is most costly and can make problems if not best solutions. By this reason we use Ni-Fe systems as they are by far the most rugged and long life design. Well designed installations work for 20-30 years even in hot climate and cells can be empty or overcharged and still survive. They need water fill every 6 years in hot climate.

Ni-Fe are standard in most demanding applications where other batteries are limited in some ways. Compared to new Lithium technology these are more solid and better. Price is about the same. Limit is they are very heavy and large.

Target for the kits is 15-20 years operation with no service so we have only the water check every 6 years.

Kit 1 is 10 cells of 100AH in a serial connection to give 1.2 KWH energy storage. This is rather much and can handle rainy days and also some peak power when a TV etc is used for a few hours operation. Battery is 60 Kg heavy so it is far more than a car battery but last many times longer. Ni Fe cells can be empty and overcharged with no damage in contradiction to lead battery systems. This is by far the most rugged long life battery system.

Kit nr 1 Micro house kit.

This is designed to give power for a 100 Liter Fridge/ cooler and a TV set + 4-6 lamps + mobile phone charger and some hours radio. To save costs we use a 12 volt DC system and fridge + TV. System can handle this and a little more so there can be a future expansion.

- 1 pcs 145 W CIGS solar panel by Solibro
- 1 pcs Ni-Fe battery 12 volt 1.2 KWH weight 60 kg like 3 car batteries in weight so it is huge and long life.
- 1 pcs MPPT solar charger 100 Volt 15A
- 1 pcs Cable kit pre-made and just to hook up
- 1 pcs 12 volt junction box with fuses.

All pre-connected and system can be installed in maybe 1 hour only by a non expert.

Electrical components are 12 volt car and caravan equipment when most can be found. Boat electronics is also useable.

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