

For an immediate access
everywhere to

light, WIFI,
and cold



AUTONOMOUS MOBILE SOLAR UNIT



What is the SP40?



The SOLARPLEXUS's solution is born taking into consideration 2 facts : a low electrification rate in Africa where 80% of the population has not access to light and more than 60% of the population has a cellphone.

The mobile unit SP-40 allows isolated villages in developing countries without access to light or to a cold source to have a direct access to those needs of essential necessities.

With the SP-40, the population of the isolated areas get access to light, to a WIFI network, and to a fridge. The unit is composed of a solar power unit, 240 mobile batteries and 240 lighting kits that will be installed inside the users homes.

The unit offers :



LIGHT

A direct and simple access to light at home for 240 households using their batteries and their lighting kits



RECHARGE

The possibility of recharging cellphones and numerical tablets at home.



WIFI

Access to a WIFI network for up to 50 users at a time. The WIFI network also allows to download the technical parameters from the unit to be sent straight to the Solarplexus server



COLD

Access to a refrigerated area inside the SP-40 unit



PAYMENT

A prepaid system integrated into the mobile unit to manage users monthly subscription.



TRANSPORT

A very simple way to transport the unit, the mobile batteries, the kits and all accessories into the 2 containers that serve as main frame of the SP-40.



INFRASTRUCTURE & INSTALLATION

A mobile unit that can be installed everywhere and does not require specific infrastructure for the installation



What is it made of?

A framework supporting solar panels



The framework of 100 m² of the unit is galvanized and demountable. It has been sized to withstand the strong winds of the cyclonic zones as well as the heavy rain, high temperature and a saline environment. The structure supports photovoltaic panels that allows to generate decarbonated and renewable electrical energy.

A technical container



The first container is a 20 foot maritime type that can be transported on a boat and a lorry, in which most of the electrical, electronic, communication systems and computer server are installed, in particular :

- storage batteries to harmonize photovoltaic production along the day
- inverters, electrical boxes, charge regulators, energy meters
- an electronic system to control the station and a computer server
- 20 electrical sockets distributed on the two outer sides of the container (amount 40 for the complet unit) to recharge the mobile batteries, each connector being equipped with a recognition system made of a LED display type and a socket number.
- A display screen for communication
- 4 ventilation grilles and internal thermal insulation

- 2 WIFI broadcasting system for both SOLARPLEXUS users and also SOLARPLEXUS engineers, allowing the data collected by the SP-40 unit to be uploaded to the SOLARPLEXUS central server located in réunion island
- Two 2D barcodes readers allowing the user to be able to identify himself and obtain the socket number where he can recharge his battery
- Potentially, a prepayment system to access the services of the unit (payment by phone monthly).

What is it made of?

A container for multiple use

A second 20-foot shipping container transportable on boats and trucks allowing :

- with the first container to create the foundation for the photovoltaic framework
- the transport of mobile equipments that are mountable on site such as the framework and the photovoltaic panels, but also the 240 mobile batteries and the 240 lighting kits
- to power the 20 electrical sockets (among 40 in total) distributed on the two outer sides of the container and equipped with a LED display and a number.

Mobile batteries and lighting kits

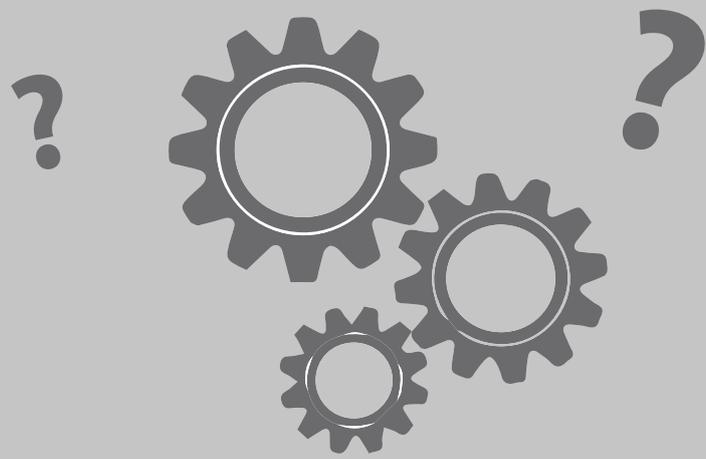
Mobile batteries are provided to unit's users to have a source of electrical energy at their home. In a standard configuration and adaptable to all projects, the SP-40 unit is provided with 240 batteries and 240 lighting kits. The features of this battery are :

- **Easily transportable** by hand and a **weight less than 3kg**
- A **protective case** to absorb shocks
- **Complete recharge** of the battery in the unit in **less than 4 hours**
- Remaining load and energy indicator an energy capacity enabling its users :
 - to light perfectly a living room of 50 m² and illuminate a bathroom using two dedicated connectors on the battery, and this, 7 hours every day during 3 days in a row without recharging.



- to recharge 2 smartphones every day during 3 days in a row using 4 USB ports in the battery, to recharge tablets and small electrical devices.

How does the SP-40 work ?



Recharge batteries in 4 steps

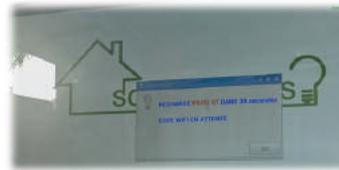
1 Identification and Authorization of charge



The SOLARPLEXUS mobile unit SP-40 allows the recharge of mobile batteries using the 40 sockets distributed on the 4 outer sides of the containers.

The user has a mobile battery provided by SOLARPLEXUS to be plugged into one of the 40 sockets. To do so, the battery has a login type QR-code to be scanned on the QR-code reader for identification by the unit.

2 Socket number and WIFI code display



A message appears in the screen indicated the socket number to log on. A WIFI code is also given to the user.

3 Sockets identification and recharge battery



The display light of the identified socket starts blinking. The user can plug his battery to the socket.

To be noted that the unit SP-40 will cancel the order in case of the battery would not connect to the socket or if any other devices would connect instead of the battery.

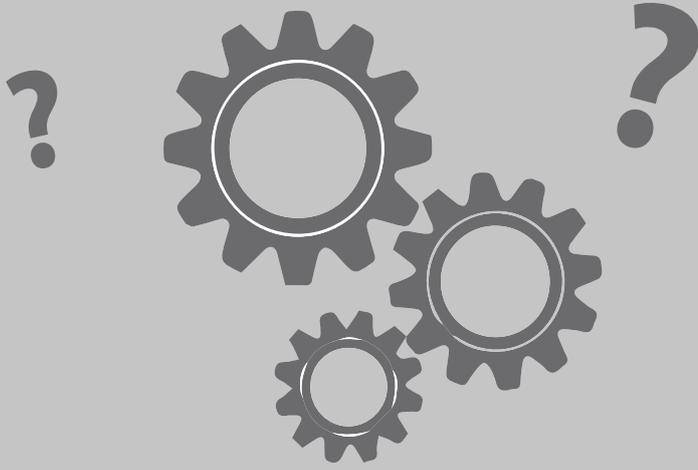
4 The use of the battery



Once the battery recharged and brought back to the user's home, the lighting kit can be connected to the battery to benefit from a quality lighting > 1500 lumens, and this, 7 hours / day during 3 days in a row.

The user can also recharge 2 smartphones a day during 3 days in a row and a numericable tablet or equivalent.

80 users can every 3 days recharge their batteries in one of the 40 sockets of the mobile unit. At the rate of 80 batteries a day in a standard configuration and adaptable to any project, 240 mobile batteries could be associated to the SOLARPLEXUS mobile unit with the guarantee of a complete recharge in less than 4 hours without any waiting time.



How does the SP-40 work?

WIFI

The SOLARPLEXUS unit allows the **broadcasting of WIFI for 50 users at a time** over a range of 300 meters. A WIFI code is given to the user during the scanning of his battery and thus give him access during 5 hours to the WIFI.

WIFI can be deployed in other forms and dissociated from the scan of the batteries. Any WIFI access protocol can be implemented easily by SOLARPLEXUS following the recommendations of the unit operator and owner.

WIFI device is also used for both the real-time transfer of electrical parameters from the mobile unit to the SOLARPLEXUS server and as well to remote control the mobile unit if necessary. Electrical power generation, the state of charge of the internal batteries and the vitality of the various electrical components are controlled and remote visualization is done to prevent any possible outages. Also it allows to understand if a user encounters difficulties in using the services, and in this case, SOLARPLEXUS mediator based on site will be able to intervene quickly.



Fridge

A **fridge of a minimum of 500 liters** capacity is located in a secured box fixed to the outside of the main container.

It is mainly dedicated for medicine preservation but not only.



Who are we?



SOLARPLEXUS



SOLARPLEXUS S.A.S is a start-up company created in May 2016. Its main activity is to design, develop, manufacture, install and maintain autonomous mobile units equipped with photovoltaic modules enabling the recharge of nomad batteries, to spread WIFI to multiple users as well as giving access to cold fridge. In particular, the company is developing the SP-40 mobile unit, which provides access to light, information and communication in isolated villages and unconnected areas. SOLARPLEXUS S.A.S can as well rely on ressources of its major shareholder AS BETHLEEM.

AS BETHLEEM



AS BETHLEEM

AS BETHLEEM is a company created in 2012 with the objective of investing in renewable energy projects, operating power plants and maintaining them. Its main asset is Bethleem Investment S.A.S, one of the largest photovoltaic power plants in Réunion (7 MWp) and having for the last 3 years the best performance of PV power plants in Reunion Island, France.

OUR TEAM

SOLARPLEXUS, in addition to its own staff, relies on resources of AS BETHLEEM. His team is composed of engineers, technicians specialized in electricity and in solar energy and digital and mechanical engineers. SOLARPLEXUS has also many partners who bring their expertise to the development of the unit, and to the development of all computing system.

The Mobile Unit SP40



SOLARPLEXUS designs, builds and tests SP40 mobile units within its facilities located in Reunion island. The first industrial unit has been installed in April 2018 in Antolojanahary, AKAMASOA's village

Photos



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You can also visit our website :
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