BatSol

keep the power

The universal storage solution for micro-inverters

Presentation

Batsol® is a storage unit made of a NiMH 720Wh battery, a communicating BMS and an associated mechanical design.

The patented Batsol® design allows its easy implementation in any standard 60 to 72 cells PV panel with an aluminum frame. The Batsol® can be mounted on the photovoltaic rails below the photovoltaic panel aluminum frame. This allows the Batsol® to be used with almost any panel as long as it has a frame. The Batsol® has a unique thermal and mechanical design preventing it from overheating.

Batsol® input is wired to the PV panel using MC4 connectors. The MC4 output can be wired to a micro-inverter.

The Batsol® units are linked to a management device called the le BatMatch® using CAN bus. The BatMatch® drives the Batsol® to meet the exact user's needs.

You can add or remove a Batsol® from the system at any time without power interruption. For the first time, the storage capacity can be adjusted just as needed.

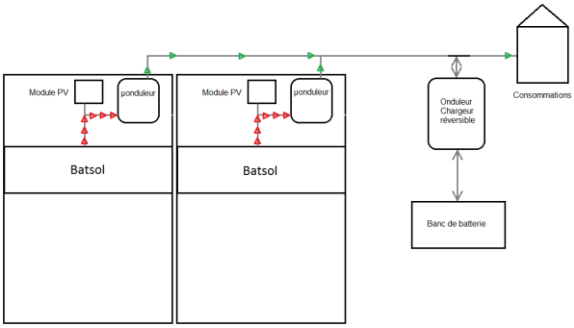
Thee Batsol® is an easy to handle, secured item. It can be implemented by anybody anywhere

Using Batsol

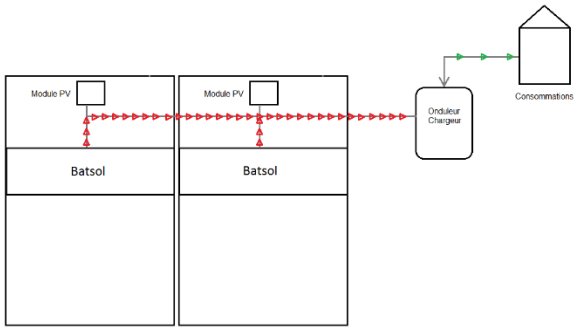
Off-grid systems

Almost all standalone systems need storage. Batsol® is an easy way to handle this storage need. Its design makes it straightforward, not needing any battery room, nor high amperage DC disconnects. 2 configurations are possible:

Mini-grid. In this configuration, each module has a micro-inverter for grid feeding. These micro-inverters are feeding an AC bus. A reversible converter is used to generate the AC signal. This design is easy to install and scalable. It works well for systems from 1500Wp to approx. 30kWp.



On a DC bus. Batsols® are paralleled and directly connected to the input of a DC/AC converter. The converter has to be NiMH compatible. This design involves a DC wiring. It uses only one converter but is limited to small systems.



Including a storage capacity in each PV module gives the Batsol® an unequaled flexibility. It is so simple to increase or decrease the storage capacity according to the needs or to simply maintain it by just replacing a Batsol® whenever needed. Increasing the size of an existing generator does not involve replacing the whole battery bank as before. Just add Batsol®... or two... or more!

For grid tied systems up to 250kWp

For new plants, you will need one micro-inverter per PV module. This allows for the maximum flexibility as each PV modules with its inverter and its Batsol® is an independent complete power unit of its own. Each of these units feeds AC power to the AC bus, piling up power. All the Batsol® communicate with the central control unit: the BatMatch® Depending on their State of Charge and depending on the needs to cover, the BatMatch® will drive the Batsol® and decide whether to charge them or to use them to produce power. The BatMatch® has an Ethernet port and can be linked to an internet router. The solar power plant can therefore be remotely monitored.

The BatMatch® can work two different ways:

- Real time operation: The BatMatch® AC current sensor monitors the power drawn from or fed to the grid at utility meter level and drives the Batsol® in order to maximize local use and to bring the surplus energy sent to the grid to a minimum. The current sensor can be replaced by a 0-10Vdc input.
- Load curve operation: an hourly load curve is logged in the BatMatch® and will be used as a target to drive the Batsol®

A BatMatch®can handle up to 110 Batsol® For bigger solar generators, it is possible to stack the BatMatch® almost without limits.

To increase existing solar generators, use micro-inverters and enough Batsol®to meet the plant's storage needs. Please get in touch with ERM for more information and sizing.

For large PV plants (more than 500kWp), The Batsol-MP®works at string level and can be fitted to any string inverter. Please ask us for more about the Batsol-MP®

Why Batsol®

Batsol®/ BatMatch®design has many advantages over competition when storage is needed:

- Cheap: mass production of this standard unit allowed us to be very competitive,
- Flexible: the storage capacity can be adjusted at any time, without changing anything in the generator, from 0 to 9 times installed PV Power,
- Easy to size and install: No battery room. No needed technical skills. No heavy handling. No civil works. Just use your panels as units.
- Easy to maintain: Replacing a Batsol®can be done by one single person in a couple of minutes without entering high risks premises.
- Increased H&S: Batsol®are connected to the PV module in low voltage (less than 40Vdc). They are fully isolated and prevent any electrical shock. They can easily be stored, handled and taken care of when worn out.
- Unbeaten plant reliability: If one of the Batsol®is damaged, the generator's operation and the other Batsol®are not affected and keep on working. If the Batsol® stops working, the PV module keeps on producing.
- Even more flexible: The BatMatch®drives your energy just as you want it to be driven. Get hold of your production and make the decisions on how to use it.

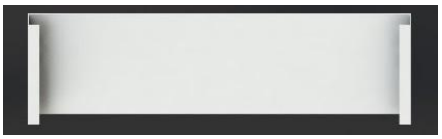
Technical specifications[1]

Item	Unit	Value
Name		Batsol®
Voltage min nominal max	Vdc	20 24 39
Nominal capacity at 20°C	Ah	30
Nominal capacity (energy)	Wh	720
Technology		NiMH
Current max IN (from PV) 0.3C	A	10
Currentt max OUT (to µ-inverter) 1C	A	15
Voltage MPP max IN	Vdc	35

[1] Technical specifications of the Batsol®may be changed without notice.

Item	Unit	Value
Open circuit voltage Voc max IN	Vdc	40
Power max OUT	W	300
Cycle life		1500
Temperatures min max (operation)	°C	-20 / +60
Temperatures min max (storage)	°C	-45 / +70
Storage duration without charge max at 25°C	Month	3
Humidity max	%	95
Dimensions (L x l x e)	mm	830 x 760 x 56
PV Module frames sizes Batsol®can fit in: - width	mm	Modules 60 or 72 standards cells standard aluminium frame 980 < L < 1150
Weight	kg	20
IP rating		IP64
BMS		Included. Protection over voltage, over current, under voltage, temperature, cell balancing
Communication		CAN Bus
One cycle efficiency		92%
Standards and certifications EMC Directive 2004/108/EEC and Safety Directive 2006/95/EC - EN60950-1: 2005 Safety EN61000-6-2: 2007 EMC- Emission - EN61000-6-3: 2006 EMC- Emission		

Easy installation

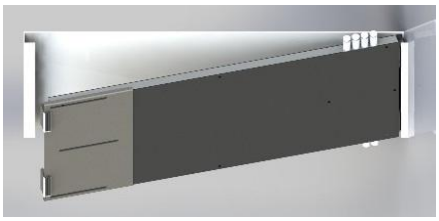


Standard PV frame

Batsol®inserted

Insertion of rubber holders

Locking up



insertion of Batsol®

Transport packing details:
980 x 360 x 26 mm 12kg per unit
Classification IATA : (DGR 3.9.2.6) Class 9 UN3481
PI 967
Section I - IMP: RLI