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Home Battery easy DIY

An innovative point of view with solution proposals for the inexpensive construction of an electricity storage facility.

Montepree

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Preface

With the help of the house battery storage you use more of your self-produced solar power.
There are two key features that help you to make a simple and quick decision on the construction of a small, inexpensive and effective home battery storage unit:

- The return on investment resulting from the price-performance ratio.
- The value of the gain in independence

As the current remuneration in Germany for feeding self-generated electricity from an own photovoltaic system into the public grid has now fallen to approx. 0.11 Euro/KWh, there is a difference of approx. 0.17 Euro/KWh compared to the purchase from the local utility grid (approx. 0.28 Euro/KWh).
Only this aforementioned difference makes it possible to create a small self-built e-storage with a return of about 6% to 8% (self-built costs calculated without wages). This low feed-in yield is an increasingly important factor for sustainable, affordable and environmentally friendly electricity storage in your own home. The self-contained battery storage described in the following can be made safe and simple by using low-cost, large series module inverters approved for the public grid for feeding the stored energy into the house grid.
Especially when a battery storage unit is coupled with an own photovoltaic system, the result is an optimal and inexpensive situation on the way to a "self-sufficient house".

A further point is the worldwide increase in system networking via the Internet and, in addition, the increasing complexity of electricity networks and the resulting vulnerability. The danger of a large-scale power failure has certainly increased considerably. As one of the critical infrastructures in our country, the supply of electricity via the "public" electricity grid plays a key role and with the high risk associated with this, fatal consequences could result from one or more longer outages.

The reliable supply of electrical energy to a partly highly technical society is of enormous importance.
The demand for uninterruptible power is constantly growing, while at the same time demands for economy, efficiency, cost

fairness and last but not least environmental protection have to be met.
The operation of electrical networks must therefore be aligned to this complex field of tension in order to meet the extensive tasks in the long term.

"You have to buy oil and gas, but you can generate and store electricity yourself".

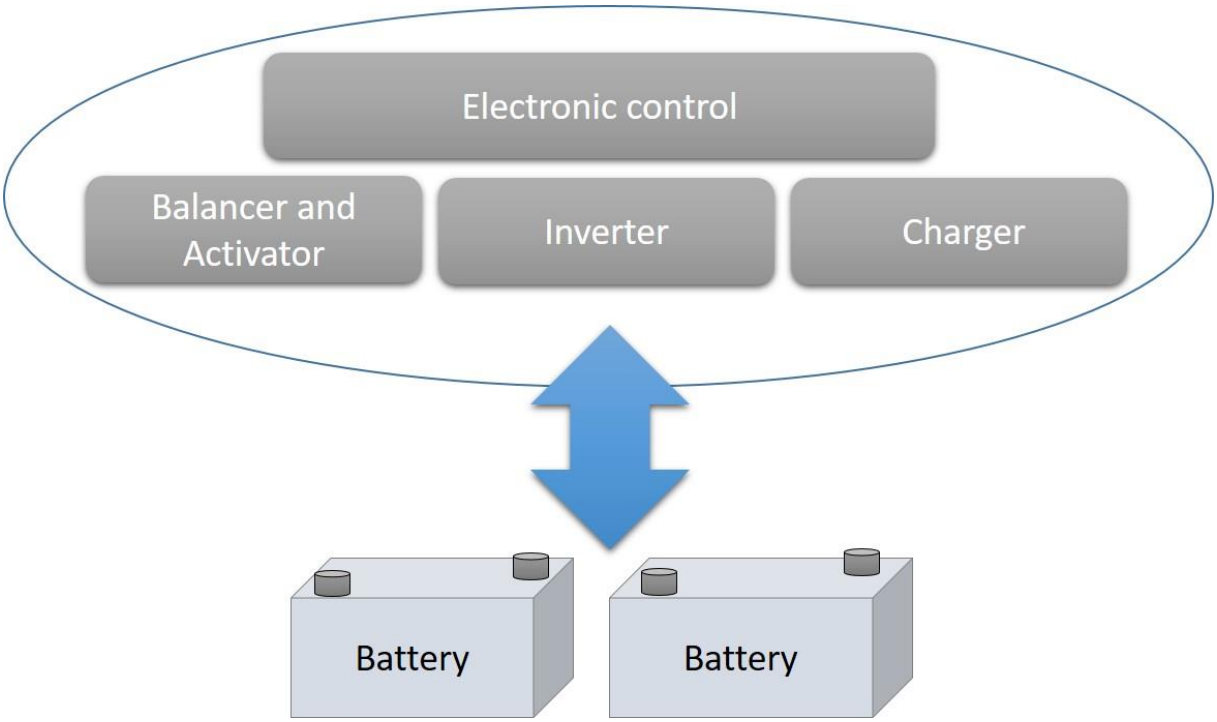

Figure 1 The scheme of a small battery storage system

With the battery storage you become more independent of rising electricity costs. Thanks to the simple but efficient technology, you can also use your self-produced solar power at night without significant losses.
This battery storage construction description enables you to build your own storage system within a few days with a certain amount of manual skill and know-how in the electrical and electronic field.

The most important thing before you start buying and assembling the right parts or kits is, of course, to study the contents of this book carefully.

Decentralized storage of electrical energy:
With the small do-it-yourself battery storage, you can free yourself increasingly from the usually rising electricity costs. The immense increase in energy consumption over the next 10 to 20 years alone will almost always increase the cost of high-quality energy. Thanks to the highly efficient electronics, you can also use your self-produced solar power at night safely and almost without losses.

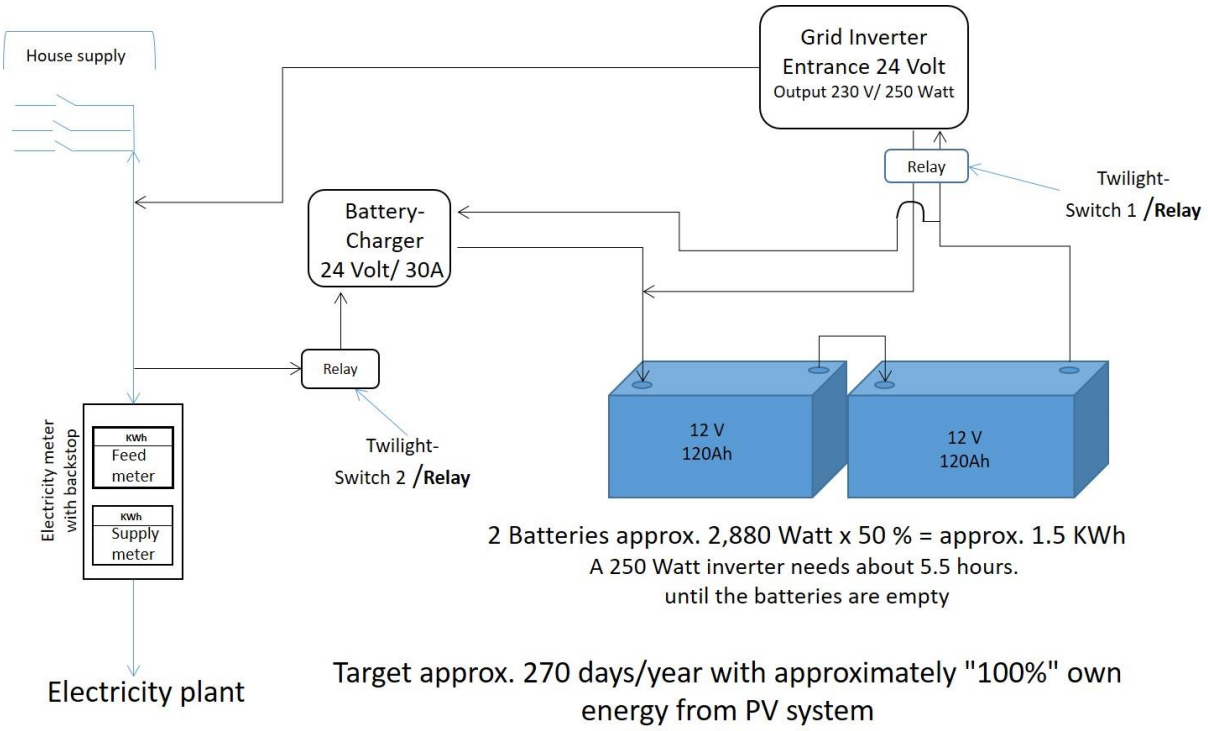

Figure 2 Home battery basic circuit diagram

In order to give you increasing independence, the decentralized storage of electricity in your house is an essential point. It is conceivable that, for example, a transformer station burns down directly at the "electricity supplier". Terrorist attacks on individual central electricity pylons, as well as hacker attacks on the control centres of the electricity suppliers can have devastating consequences.

See also
https://www.youtube.com/watch?v=3TG3BfjSnZY
https://www.youtube.com/watch?v=LLO9WxVO9s8
https://www.youtube.com/watch?v=JUmGFzWME3M

Generating and storing electricity yourself in order to use it "around the clock" "has now become easier".

To avoid mistakes and dangers, it is very important to study the content of the book before wasting costs, material, and time on avoidable mistakes.

"If you don't know the destination, no way is the right way"

This book not only describes the results of several years of development work in the field of low-cost battery storage technology - it is also an advisory handbook on how the interaction of the individual technologies and paths to an overall strategy is created, with the core topic of ensuring an optimally simple and energy-efficient electrical storage function.

The contents from the books "Heat pump easy DIY for 950,- €", "Free energy a phenomenon", "Before energy becomes luxury" as well as the collected experiences from use cases and further developments are the basis of this book. This could only be achieved through the active support and participation of committed people, to whom the author hereby expresses his gratitude:

Especially the colleagues from S-Energie Club

1 Prologue

1.1 What is it about?

Photovoltaic systems with own consumption or also small wind energy systems in the house area do not always produce electricity exactly when it is needed. For example, mainly in darkness or windless conditions etc. Local storage of regeneratively produced electricity is therefore of great importance.

On average, a single-family house inhabited by 3 people, for example, produces two to three times as much electricity per year with a 7 KWp photovoltaic system as the inhabitants consume.

The advantages of a self-built battery storage:

- Self-generated green electricity lowers your energy costs
- No danger of explosion with lead batteries
- Simple manageable technology and electronics
- Emergency power operation possible with additional special equipment
- No TÜV approval required
- Low maintenance due to high-quality materials
- Reliable technique due to mature technology

The following electricity consumption values are known from measurements and statistics:

A three-person household usually needs between 2 - 3 KWh at night, when the PV system is no longer generating electricity on approx. 270* days/year. In addition, a coverage of approx. 60% to 80% of the own demand on the 270 days per year is quite sufficient for a small battery storage target.

(*The remaining 95 days are bad weather days which are neglected for the calculation and during which the battery storage is not or only partially filled by the PV system)

On the basis of the objective of designing a small, inexpensive and uncomplicated battery storage system that can be expanded in terms of storage capacity by simple means, the following rough calculation results: