



sun | powerpack

Energy storage
for using the self-produced energy

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How does solar energy work?

HOPPECKE has been developing and producing energy storage systems for numerous applications fields. Among these are the energy supply of drive systems (trak), energy storage solutions for stable energy grids and secured energy supply (grid) and the safeguarding of the supply system on boards of railway and metro systems (rail). HOPPECKE focuses on quality and reliability in these partially sensitive fields as well as on comprehensive counselling and professional engineering, on which many customers in Germany and throughout the world are relying. For many years, HOPPECKE has been using the long-term experience for the development and production of storage systems in the field of using self-produced energy (sun). The increasing use of renewable energy enhances the importance of rechargeable energy stores. HOPPECKE develops saleable future concepts and contributes to the solution of the big challenges of today's society that arise from the realisation of the climate protection goals. We offer a wide range of different individual solutions: For detached houses, for commerce and industry and for energy stores in energy supply grids.

All relevant technologies (lead acid, lithium ions and fibre structure nickel) are produced by the same company – i.e., for each customer requirement the best solution as well as a personal contact.

Our products and processes are continuously optimised in order to meet the requirements of our customers and of the market. Intensive activities in research and development in the field of lithium-ions technology and battery management electronics are the basis of sun | powerpack premium. The highest security paired with a reliable and compact design that offers this durable storage system with excellent cycle performance. Another result of a continuous enhancement is the new sun | powerpack classic. The used lead technology has been further optimised. The result: Perfect cycle performance and easy handling at assembling and servicing on the basis of proven and robust battery technology.

HOPPECKE offers products and solutions designed for the market and the target groups. Please contact us; your matter is our incentive.

It is basically very simple: Solar cells transform sunlight into electricity via photovoltaics. They generate direct current, which is transformed into the generally used domestic electricity by an inverter. In order to generate as much electricity as possible, solar cells are compiled in solar modules and the solar modules in solar plants that can then be mounted on rooftops.

Feeding into the grid

Everybody who generates solar energy in Germany may feed it into the grid and receives a fixed feed-in remuneration for each kWh according to the EEG (Renewable Energy Law). A second counter in the house measures the quantity of the fed-in energy.



Feeding in, consuming...

Instead of feeding the energy into grid, it is also possible to use it. When the sun comes up in the morning, you can make your coffee, blow-drying your hair, listen to the radio, do the vacuum cleaning and make dinner etc. with your own generated solar energy.

... or storing

The special HOPPECKE solar batteries allow storing your solar energy temporarily. The stored energy can be used in the evening or at night to run your electrical devices, e.g., the dishwasher or the washing machine, TV or refrigerator. If the battery is discharged, you will obtain your energy automatically from the public grid.

Become independent!

Own consumption is profitable

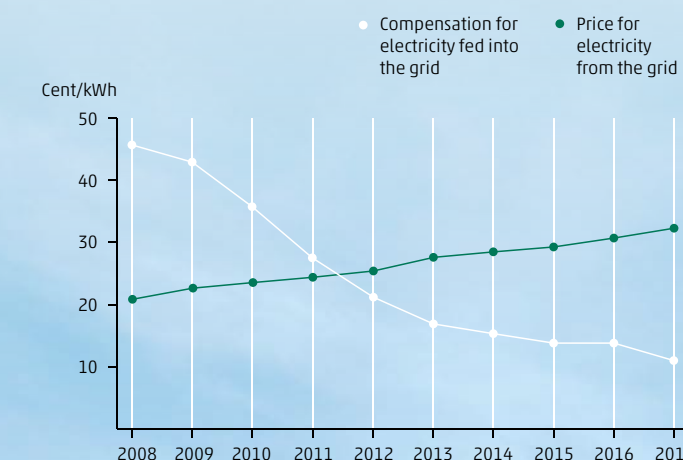
Homeowners who run their own solar plant save about 30% of the electricity costs when consuming the generated solar energy in their own house. If the energy is stored in an own solar battery, the savings can be increased up to 70%.

Guard yourself against blackouts!

If you store your solar energy, you can use it with the respective inverter in case of a power blackout. You will then become absolutely independent!

Your contribution to the energy turnaround

Additionally, storing your solar energy relieves the public grid, increases the availability of the solar energy and contributes thus directly to the energy turnaround.



Whereas the remuneration of the fed-in solar energy decreases continuously according to law, the utility companies are increasing the purchasing price for electric energy annually. The electricity rate exceeded the fed-in remuneration for the first time in summer 2011. This trend will continue in future: The disparity between the energy costs and the feed-in remuneration will increase.



sun | powerpack classic

sun | powerpack classic is based on the proven lead technology combined with an appealing and up-to-date design. The awarded AGM-technology of HOPPECKE has been optimised particularly for this application, for instance by adapting the material of the electrode. The result: Improved price-performance ratio at a comparable cycle performance compared to batteries of the design OPzV (battery with liner plate).

The sun | powerpack classic offers many benefits for the installer and user. Installing and servicing of the system is even simpler. Additionally, it is the first choice for price-oriented and environmentally conscious customers.

Technical data at a glance

Energy content (kWh)	5.5 – 22.0
Rated voltage (V)	24 and 48
Battery technology	Lead battery with HOPPECKE ESS-technology

Your benefits from HOPPECKE

- **Highest security**
by using industrially proven components
- **Improved design**
compact and appealing
- **Proven technology**
sophisticated and reliable
- **Cycle-resistant solution**
2,500 cycles at 50% discharge depth –
service life of design of 10 years (at 20°C)
- **German quality standards**
- **Easy handling and assembly**
by "Plug and Store" concept
- **Maintenance-free**
no re-filling of water required during the service life
- **Highest flexibility**
by combinability with different battery inverters
- **Recyclable**
thanks to high degree of reusable raw materials

- ✓ The proven top seller of the lead technology:
Already more than 5,000 systems in use
- ✓ The best solution for environmentally conscious customers
- ✓ Wide range of applications, offers high flexibility with
numerous capacity graduations

sun | powerpack premium

sun | powerpack premium is an innovative solution designed for the changing requirements of the market for a higher service life and more safety. These lithium-ion batteries offer a much higher cycle service life as lead batteries.

sun | powerpack premium contains a battery management system specially developed and proven by HOPPECKE that guarantees the highest security during the operation and installation. The battery management system controls the whole battery. The system will be switched off automatically in difficult situations.

The installer will adore the "Plug and Store" concept. The compact dimensions as well as the flexibility in selecting the installation site will delight owners of low-energy consumption houses. The integrated display allows calling up the relevant operating and system data independently from the inverter.

Technical data at a glance

Energy content (kWh) 5 - 30

Rated voltage (V) 51.2

Battery technology Lithium ions (LiFePO)

Your benefits with HOPPECKE

- **Highest security**
guarantees the integrated battery management system with redundant switch-off mechanism
- **Durability**
at discharge depths of up to 80% max. 7,000 cycles – service life up to 20 years
- **High cycle resistance**
even at maximum discharge performance
- **High efficiency of the system**
for a maximum use of energy
- **Eligible**
according to the support programme of KfW (*) – 10 years of replacement guarantee at current market value
- **Made in Germany and VDE tested**
- **Fast-charging**
full charge within an hour possible
- **Easy handling and installation**
thanks to "Plug and Store" concept
- **No additional investments**
neither active cooling nor ventilations at the installation site required
- **Space-saving design**
thanks to compact dimensions and wall fastening
- **Extendible**
by combination of individual storage systems
- **Intelligent communication**
with inverter

- ✓ Lithium-ion technology for a long life
- ✓ Multi-level safety concept
for an optimal and safe operating control
- ✓ Space-saving wall fastening & system "Plug and Store" ready-for-connection
- ✓ High level of efficiency of the system

(*) According to the respectively valid support programme

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stores. Current sales information
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