More independence with self-generated energy from the beginning



SOLENERGY STORAGE DC

Storage system for new PV-installations



SOLU energy RONIC

SOLENERGY STORAGE DC

USE THE ENERGY WHEN YOU NEED IT



+ Use in new installations
+ Suitable for all grid connected power sources
+ Emergency power and off-grid solutions

STORING ENERGY – WHY?

Safe money and protect the environment. Take advantage of the sun‘s energy and provide your complete household with self-produced power – even at night when the sun is not shining. With the right combination of PV-system, batteries and directly connected consumers you can produce, store and use your power efficiently for your own needs.

MAXIMIZE YOUR SELF-CONSUMPTION

When the sun shines, SOLENERGY STORAGE DC supplies first all consumers in the household. Excessive power will be buffered in the battery. In case the GridManager+ is installed, consumers directly connected to it will be supplied by the surplus energy from the integrated inverter - for example a heat pump, which converts the electrical energy into thermal energy. Alternatively, excessive energy will be fed into the grid.

OPTIMIZE SELF-CONSUMPTION

A STEP TOWARDS AUTONOMY

The SOLENERGY STORAGE DC system uses PV and batteries to provide the energy for local consumption. Each kWh of energy is first consumed and then stored – only excessive energy is fed into the grid.

MORE ENERGY PRODUCED THAN CONSUMED



Normal daylight operation: Solar energy is produced, directly consumed and remaining energy stored. If production exceeds self-consumption and storage, it will be fed into the grid.

NO SOLAR ENERGY PRODUCTION



Night time operation: No solar energy is produced, batteries supply the consumer needs in parallel with public grid supply if battery power is insufficient.

LESS ENERGY PRODUCED THAN CONSUMED



Operation on cloudy or rainy days: Solar energy produced is partially insufficient to provide consumer needs. In this case the batteries and public grid supply the complimentary power.

POWER OUTAGE OR OFF-GRID USE



Grid failure or off-grid operation: Solar energy is produced and both energy sources, PV and battery, supply energy to the consumer for all three phases in the house.

SOLENERGY STORAGE DC

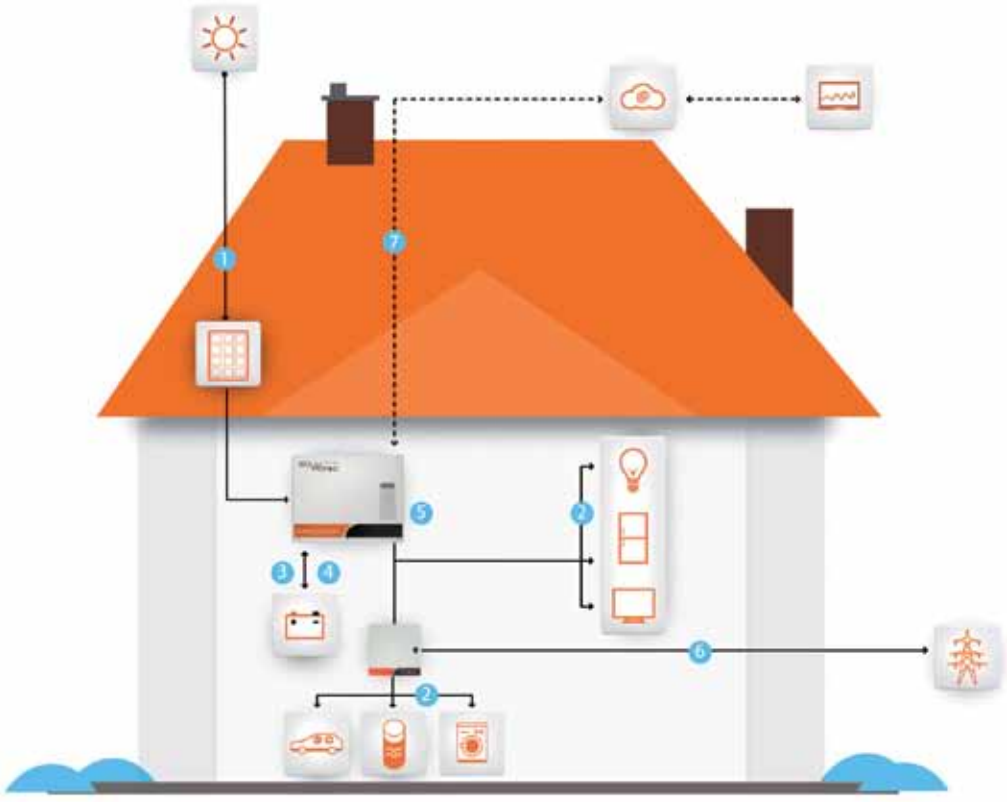
THE DC-COUPLED SYSTEM FOR NEW INSTALLATIONS

Rising electricity prices and ever more electronic devices at home increase the benefits of the highly efficient SOLENERGY STORAGE DC system. The typical power consumption of a private household is around 3000 to 4500 kWh per year. If the generated solar power is used directly and during daytime, only 20 to 30 % of this energy demand can be covered with a PV-system. The excess electricity is fed into the grid.

If you use a SOLENERGY STORAGE DC system with battery storage, the self-consumption can be increased up to 100 %. Then the self-sufficiency level is between 60 and 70 %, depending on the size of the battery storage. But large battery storages also make no sense. Therefore, the most commercially sound combination must be found. This is possible by using our modular lithium-ion storage system “SPICA”.

HOW DOES SOLENERGY STORAGE DC WORK?

SOLENERGY STORAGE DC is the heart of your intelligent energy distribution. The system consists of a solar hybrid inverter with integrated charging and discharging electronic for lithium lead- or nickel-iron batteries. And the energy management system ensures optimum distribution of energy in the house and provides online monitoring.



1 *Generated solar power*
2 *Self-consumption*
3 *Store into batteries*
4 *Self-consumption from batteries*
5 *Energy management*
6 *Feeding into the grid / energy supply form the grid*
7 *Online monitoring*

STORE YOUR SELF-PRODUCED ENERGY SAFELY

LITHIUM, LEAD OR NICKEL-IRON BATTERY STORAGE?

SOLENERGY STORAGE is flexible, various different batteries can be selected. As standard we offer lithium iron phosphate-batteries with a modular capacity of 2.5 to 16 kWh (available capacity). As currently the only one system on the market, SOLENERGY STORAGE can be used with lithium, lead or nickel-iron batteries.

LITHIUM-IRON-PHOSPHATE BATTERY

- High energy density, low space requirement
- High acquisition costs
- Low weight: 50 to 200 kg
- 80 – 90 % DoD
- Lifetime > 20 years
- Low capacity losses over time
- Temperature range: 0 to 40 °C
- Integrated battery management
- Maintenance-free
- No ventilation required



Lithium-Iron-Phosphate-Cell

LEAD AND LEAD-ACID BATTERY

- Low energy density, large space requirement
- Low acquisition costs
- High weight: 200 to 1000 kg
- 30 – 50 % DoD
- Lifetime 5 – 7 years
- High capacity losses over time
- Temperature range: 0 to 40 °C
- Requires periodic inspections
- Ventilation required

NICKEL-IRON BATTERY

- Low energy density, large space requirement
- Average acquisition costs
- Very high weight: 550 to 1100 kg
- 100 % DoD
- Lifetime > 20 years
- Temperature range: -50 to +60 °C
- Hardly any capacity losses over time
- Requires periodic inspections
- Ventilation required

PRODUCE, STORE AND CONSUME ENERGY



EFFICIENT BATTERY MANAGEMENT

SPICA-30 and -50 – The energy storage
Real time communication between the BMS and charge controller guarantee a safe and reliable operation of the SOLENERGY STORAGE system.

HARD FACTS

- Integrated, highly sophisticated BMS, designed and developed in Europe
- For a long battery life (> 20 years)
- High cycle stability (> 5000)
- Single cell monitoring: temperature and voltage
- Overall monitoring: Current, voltage and temperature
- Charge balancing between cells
- State of charge (SOC)
- Scalable systems
  (from 2.5 to 16 kWh available energy)

MECHANICAL LAYOUT

- Rugged and small metal housing
- Wall or floor mounted
- Easy installation and connection
  (power and communication cables)
- Easy to transport
- Modular expandable
  (up to 4 units)

ALL IN ONE: SOLENERGY ENERGYMANAGER DC

Energy production, battery charger and energy management
This hybrid device is a DC charge controller and solar inverter in one, offering grid parallel, off-grid and battery parallel operation. In addition, all energy sources can be used simultaneously. Switching to different power sources belong to the past.



POWER ELECTRONIC

Energy production from PV

- High efficiency and modularity
- Integrated booster (for module voltages > 80V)
- Dual MPP-tracker technology
- Compact design

BATTERY CHARGER AND DISCHARGER

Battery charger (DC/DC)

- Stores PV-energy directly in the battery
- Fast CAN communication with BMS
- Stable and monitored charging and discharging
- Rated power for charging / discharging (DC/DC):
  2.5 kW, peak up to 4 kW

ENERGY DISTRIBUTION

Energy management for more self-sufficiency

- Control center, data processing and data logging
- Internal and external CAN-Bus communication
- Adjustable grid feed-in
- Controllable consumers

SIMPLE GRID SWITCHING – THE INTELLIGENT POWER DISTRIBUTOR: GRIDMANAGER+

A small box meters the power consumption and grid contribution on all three phases. It is installed between grid feed in and house distribution panel which makes it easy to integrate the storage system. Power outages are detected in real time. Switchover to emergency power operation is done faster than a wink.

- Automatic and rapid switchover to off-grid
- Battery and generator supply
- Controlled power feed-in to the grid: Depending on daytime, power generation and manual adjustment
- Self-consumption and energy storage prevails grid feed-in
- Direct connection of larger energy consumers like
  – Heat pumps
  – EV-charging devices
  – Washing machines
- Direct power supply with generator and battery power



TECHNICAL DATA

In PV-Generator Operation	EnergyManager SES DC-40	EnergyManager SES DC-50	EnergyManager SES DC-60
Max. recommended DC-power	3600 W	4800 W	6000 W
Nominal AC-output	3000 W	4000 W	5000 W
DC-voltage	80 – 500 V		
Max. input current	10,5 A		
Number of MPP-tracker	1	2	2
AC-output range	207 – 253 VAC (230VAC)		
Max. output current	14 A	18 A	22 A
Frequency range	45 – 65 Hz		
Euro ETA	97 %	97 %	97,5 %
Grid type	TN / TT		
In Battery Operation			
AC-nominal power	2500 W		
Max. AC-power	4000 W		
Max. output current	17,8 A		
Output voltage	230 V		
Frequency range	45 – 65 Hz		
Max. efficiency	97,4 %		
Grid type	TN / TT		

Subject to modifications and errors.

ABOUT SOLUTRONIC ENERGY

Solutronic Energy mainly focuses on research and development, production and sales of intelligent and efficient energy storage systems, solar inverters, generators and electronic components. Our team has a wealth of experience and competence in the sector grid integration and grid feed in, thus providing high quality and well-designed system solutions.

Please visit us on our homepage:
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