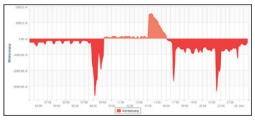
Eigenverbrauch maximieren
SMARTPVCHARGE

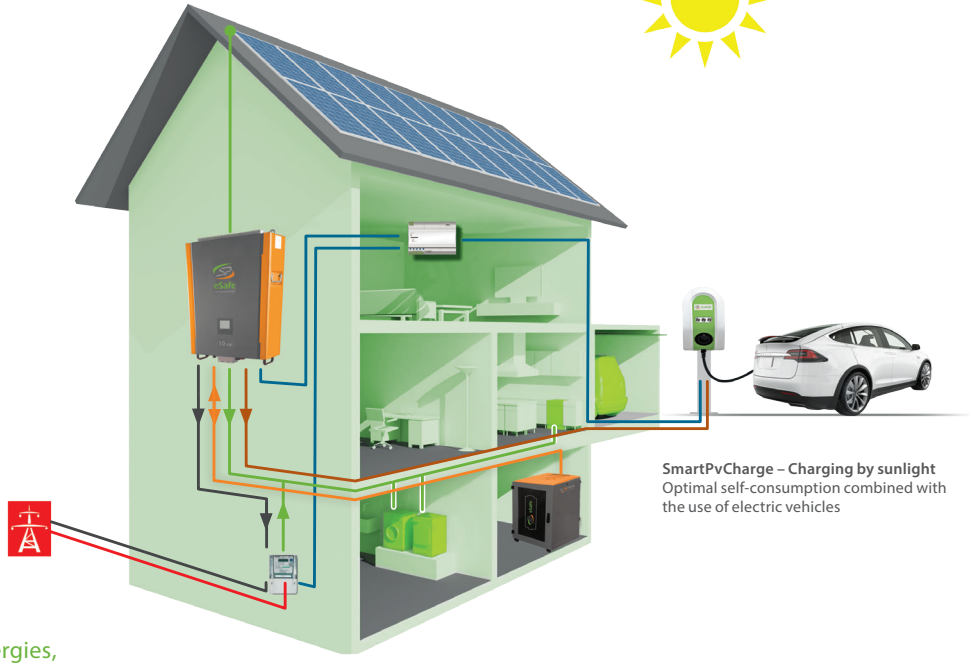
SmartPvCharge

The ecological solution for managing e-mobility!

2€ / 100 km with solar power!
CO_2-neutral and cost-efficient!



power fed into the grid
power taken from the grid



SmartPvCharge – Charging by sunlight
Optimal self-consumption combined with the use of electric vehicles

The integration of renewable energies, grid relief, network storage capacity or SmartGrids - these are the demands being made on the development of our „energy systems of the future!" The integration of PV plants into domestic buildings and business locations provides a keystone for the supply of renewable energy. A high percentage of self-consumption is, however, prerequisite to the future profi tability of photovoltaic plants in the household and industrial locations. Unfortunately, in industrial enterprises, it is not always possible to regulate energy consumption according to PV irradiation and, even within the general household, „Demand Side Management" (time-infl uenced consumption of energy) can only be implemented to a limited extent.

Combining the electric car in household with the charging process SmartPvCharge, is the ideal means of regulating the self-consumption of power. An electric car powered by the SmartPvCharge system can facilitate a PV self-consumption rate of over 80 % over the long term due to high storage capacity and the time-oriented fl exibility of the charging process. At the same time, sustaining a fl exible approach to charging levels can facilitate the achievement of „CO2-neutral" mobility:

„Fill up - but with sun only!"

Prerequisite to the use of SmartPvCharge is an electric vehicle that is used in the household and is parked for long periods for charging at a PV plant. In many cases, (e.g. for use as a second car in the household or as a commuter vehicle on the parking area of one's employer), it is possible to recharge the vehicle between two short journeys and at periods of optimum irradiation to maintain the desired user profi le without restriction. A purely time-oriented charging process would - in the case of usual PV plant sizes - result in a higher percentage use of electricity from the grid in order to sustain a consistent level of EV charging performance. SmartPvCharge monitors the generation of PV electricity along with the household energy consumers and initiates the charging process as soon as the minimum capacity becomes available. With increasing energy yield, the charging parameters are increased to maximum capacity and are regulated according to the irradiation. **This ensures that the vehicle is charged fully and exclusively with surplus PV energy, generated from the sun!** The priority of the charging process can, of course, be adjusted to meet immediate demand, with the eff ect that if a vehicle needs to be charged quickly, the process can be induced irrespective of the irradiation levels.

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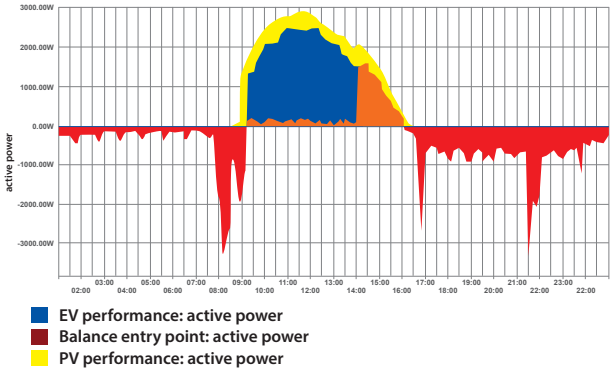
SmartPvCharge Packages

SmartPvCharge Premium *Item no.: 261902-002*

- Visualization of energy drawn from and supplied into the grid as well as vehicle charging and PV yield
- Charging history (start and stop) including logging of vehicle charging and PV yield as well as charging modes
- Performance overview for vehicle, building and PV plant
- Display of level of self-sufficiency and self-consumption rate



SPC Energy Meter *Item no.: 261902-003*

SmartPvCharge **Premium** can easily be upgraded with SPC Energy Meters.

SmartPvCharge Net *Artikel-Nr.: 261902-004*

On request! We will be happy to advise you!

- Can be integrated into existing monitoring systems
- Can be activated via appropriate Home Management Systems

User interface

Access via web browser

The user interface has been designed specifically for SmartPvCharge and thus allows for all methods of optimal consumption control required in combination with an electric vehicle.

From starting and stopping a time-regulated and demand-oriented charging process to providing power overviews to displaying detailed charging histories: A sophisticated visualization of power curves completes the SmartPvCharge user interface.

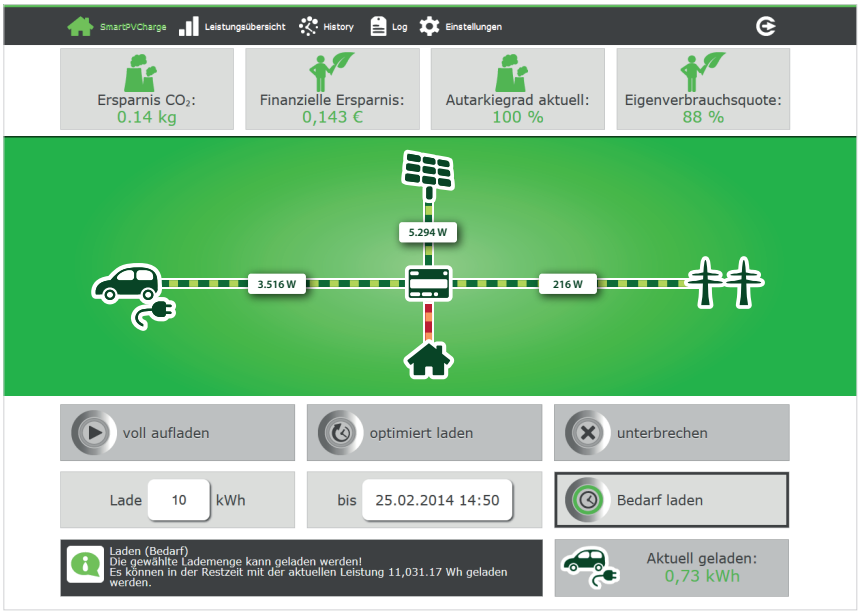


Fig.: SmartPvCharge Premium

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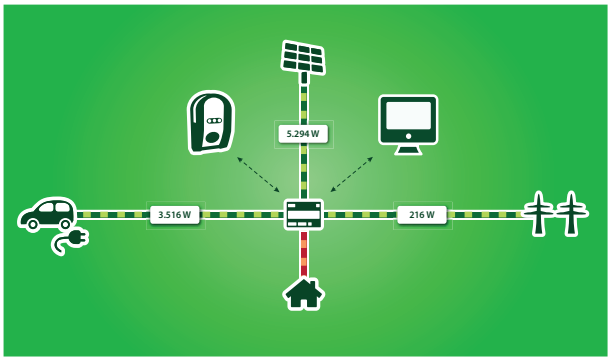
SMARTPVCHARGE

Operating options

SmartPvCharge and P-CHARGE Wallbox

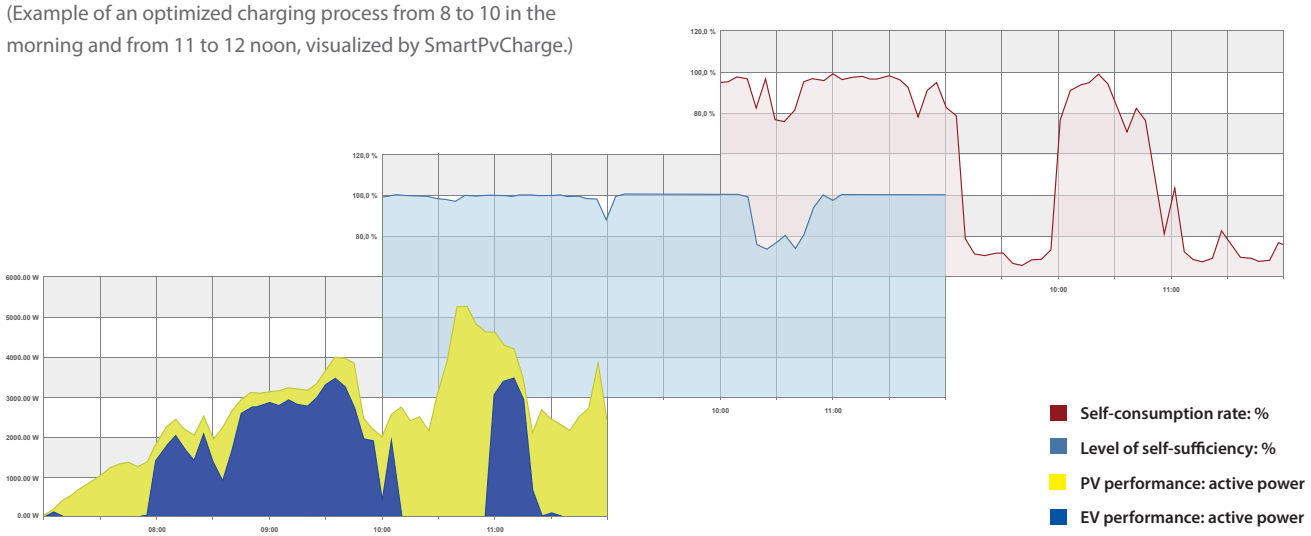
The charging process can be started or stopped either at the control elements of the P-CHARGE Wallbox or via the SmartPvCharge user interface. SmartPvCharge in combination with the Wallbox: The perfect solution and ideal means of regulating the consumption of PV plants and other renewable energy sources (such as wind, combined heat and power plants, hydro power) which are used to generate energy for self-consumption.



Visualization example

Active power, level of self-suffi ciency and self-consumption rate

(Example of an optimized charging process from 8 to 10 in the morning and from 11 to 12 noon, visualized by SmartPvCharge.)



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BASIS PREREQUISITES

- Vehicle used at the location of the PV plant
- Electric vehicle used for short distances
- Charging mode 3 in accordance with IEC 61851-1
- PV plant used for self-consumption
- In combination with or as upgrade and retrofitting for products
- of the P-CHARGE series with integrated EWS Box.

POTENTIAL

- Absolutely carbon-neutral mobility
- Very low operating costs (2 euros/100 km)
- Improves pro tability of the PV plant
- Perfect utilization of PV plants „according to the EEG“ (German Renewable Energy Act)

OPTIMIZATION PARAMETERS

- **High volumes of energy**
  The electric vehicle has a higher volume of energy than an electric stove, for example. Electric vehicles can absorb more energy and thus increase the self-consumption rate over the long term.
- **Time-oriented exibility**
  For short distances, the electric vehicle can be charged partially, and full-charging can be scheduled to take place on a sunny day.
- **Arbitrary prioritisation**
  The most urgent household procedures are carried out with a higher priority. If the complete range of the electric vehicle is required, then supplementary power can be drawn from the grid.
- **Interruptions**
  Household appliances mostly have xed program sequences. Interrupting the respective procedure usually is not possible or is uneconomical. The charging of an electric vehicle, however, can be interrupted and restarted at any time.
- **Variable control of energy supply**
  By implementing the IEC 61851-1 the volume of charging energy can be controlled at no additional nancial cost. True regulation of energy usage is therefore possible within certain parameters. This regulation behaviour of SmartPvCharge does not have any in uence on the life of the vehicle battery.

COMPATIBILITY WITH VEHICLE TYPES

- Nissan Leaf
- Mitsubishi iMiev
- Mitsubishi Outlander
- Opel Ampera
- Renault Zoe (may only be used to a restricted extent)
- BMW i3
- smart electric
- Tesla Model S
- and others...

Subject to change without notice.

Please take into account that if optimization requirements of various systems are temporally superposed (heterodyned) and interfere with each other, unexpected e ects may occur. Thus, time settings for the charging of the EV may, for example, only release the charging operation at those prede ned times, whereas the Home Energy Management System suggests other charging times according to energy surplus from the PV plant. In such cases, the EV charging time might be shortened, not thoroughly charging the vehicle and thus resulting in insu cient range. In order to avoid such undesirable e ects, the EV user should ensure that he does not generate contradictory settings. At present, SmartPvCharge may only restrictedly be used in combination with the EV model Renault Zoe, due to reasons of safety.

A product of SSL Energie GmbH
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