

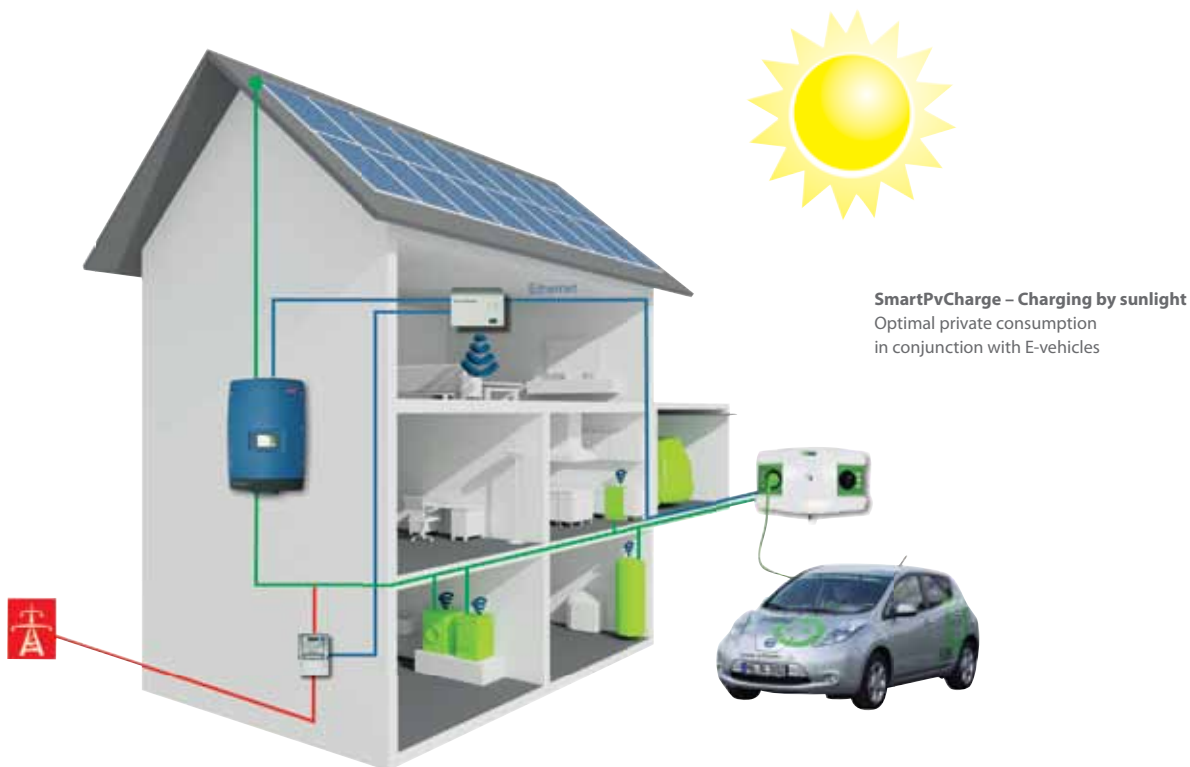
SmartPvCharge

The ecological solution for managing mobility!

The integration of renewable energies, relief of networks, 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 energies. A high percentage of private consumption is, however, prerequisite to the future profitability of photovoltaic plants in the household and industrial locations. Unfortunately, in industrial locations, it is not always possible to regulate energy consumption according to PV irradiation and, even within the general household, "Demand Side Management" (time influenced consumption of energy) can only be implemented to a limited extent.

Combining the electric car with an optimized charging process **SmartPvCharge**® is an ideal means of regulating the consumption of power. An electric car powered by the **SmartPvCharge**® system can facilitate a consumption percentage of over 80% over the long term due to high storage capacity and the time-oriented flexibility of the charging process. At the same time, sustaining a flexible approach to charging levels can facilitate the achievement of "CO2-neutral" mobility:

Fill up - but keep it green!



P-CHARGE Wallbox Duo

TECHNICAL DATA

- 2 independent charging outlets, charging socket IEC 62196-2 Type 2
- 3-phase input voltage 400V AC
- output power 22 kW (2 x 11 kW)
- RCBO 16A per charging outlet, charging contactor, active power meter
- Motorized locking system for the charging sockets

CONFIGURATION P-CHARGE WALLBOX

- EWS Box (communication module according to Mode 3 IEC 61851-1) Mode 3)
- 3 RGB LED buttons per charging outlet for operation and status display
- RFID card reader for the activation (optional)
- Interface network capable via Ethernet
- Integrated HTML page for visualization and configuration

OPTIONAL FEATURES

- emergency release module
- also available as 32A variant

MECHANICAL PROPERTIES

- innovative twin-sheet plastic housing (ABS)
 - easy to install
 - technical components on aluminium carrier plate
- protection class: IP44

RELATED DESIGNS

- Stand Alone
- Carport
- Private
- Customized designs on request



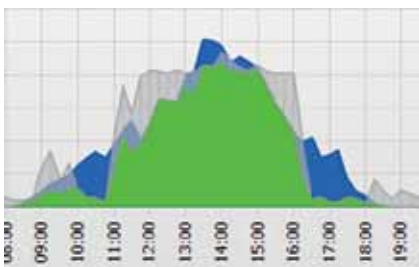
Measurements in mm
H / W / D: 335 / 700 / 170
Weight: approx. 25 kg

Compact and robust for wall mounting

SmartPvCharge

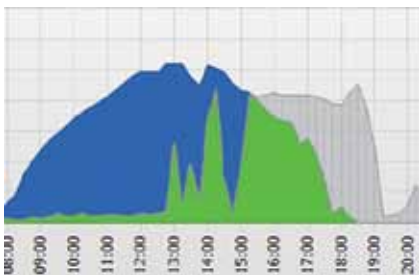
Optimization potential on the basis of real measurements (Model household Schletter, Oct 2012)

Prerequisite to the use of **SmartPvCharge**[®] is an electric vehicle which can be used for domestic purposes and which can be parked for long periods for charging at a PV plant. In many cases, (e.g. for use as a second car), it is possible to recharge the vehicle between two short journeys and at periods of optimum radiation to maintain the desired user profile without restriction. A purely random charging process would, in the case of standard-sized PV plants result in a higher percentage use of electricity from the grid in order to sustain a consistent level of charge. **SmartPvCharge**[®] monitors the generation of PV-electricity along with the household consumers and releases 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 energy generated from the sun!** The priority of the charging process can, of course, be adjusted to meet immediate demand, with the effect that if a vehicle needs to be charged quickly, the process can be induced irrespective of the irradiation levels.



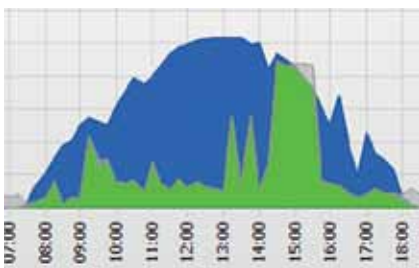
Example 1: Own consumption curve on 17/10/2012 (no SmartPVCharge)
(blue = PV-yield, grey = Grid supply, green = Own consumption)
Charging energy 6.5kWh, Total yield PV 27.8kWh

Principle of operation: In this example, 6.5kWh represents the total energy available for charging. No further optimization is possible in this case, although the charging process is triggered automatically, i.e. the car simply needs to be connected when parked and the system controls the rest.



Example 2: Own consumption curve on 11/10/2012 (no SmartPVCharge)
Charging energy 18.5kWh, Total yield PV 23.6kWh

Again, in this case, the SmartPvCharge system would start the charging process automatically but not to the full available charging capacity. Drawing energy from the mains grid (grey) can be completely avoided if the intelligent charging process is used to reduce charging power at the start and end of the process while maintaining charging energy levels to almost 100%



Example 3: Own consumption curve on 08/10/2012 (no SmartPVCharge)
Charging energy 16.0kWh, Total yield PV 36.2kWh

Depending on the availability of the vehicle, the charging process could be triggered earlier and the car charged fully using solely PV energy. If the vehicle is previously unavailable, then a part-charge can be initiated on its return using PV or, as in this case, without SmartPvCharge, the process can be regulated to begin charging with PV energy and can be topped up using electricity from the grid if necessary.

Prerequisite for the deployment of **SmartPvCharge**[®]:

- Charging process in accordance with IEC 61851 (Schletter Wallbox with EWS Box)
- Activation using an appropriate Home Management System

Deployment of the **SmartPvCharge**[®] is not exclusive to the household; The system can also be implemented in industrial locations with one or several electric vehicles, in parking areas, in parking garages, at airports, shopping centers etc. The system can optimize the private consumption of generated energy and load management for the entire charging infrastructure across the building management system.