



# SUNNY HOME MANAGER SUNNY BACKUP



Simple | Precise | Comprehensive

Intelligent energy management in the household



- **Higher profits and faster amortization of your PV plant**
- **Up to 10 percent less power consumption**
- **Automatic access to favorable electricity prices**
- **Free standard access to the Sunny Portal**
- **Future-proof investment**

## Versatile System with Many Benefits

The Sunny Home Manager increases your lucrative self-consumption of solar energy, but it does much more than that. It provides you with intelligent energy management in your household. In combination with the Sunny Backup system, it even allows you to store solar power.

Its use of weather forecasts to predict solar power generation is unparalleled. The Sunny Home Manager is also the first system ever to take time-of-use electricity rates into account, ensuring comprehensive load management. In this way, the device can adjust the power consumption in your home to the current power of your PV plant, as well as to the energy supply in the power distribution grid at any given time.

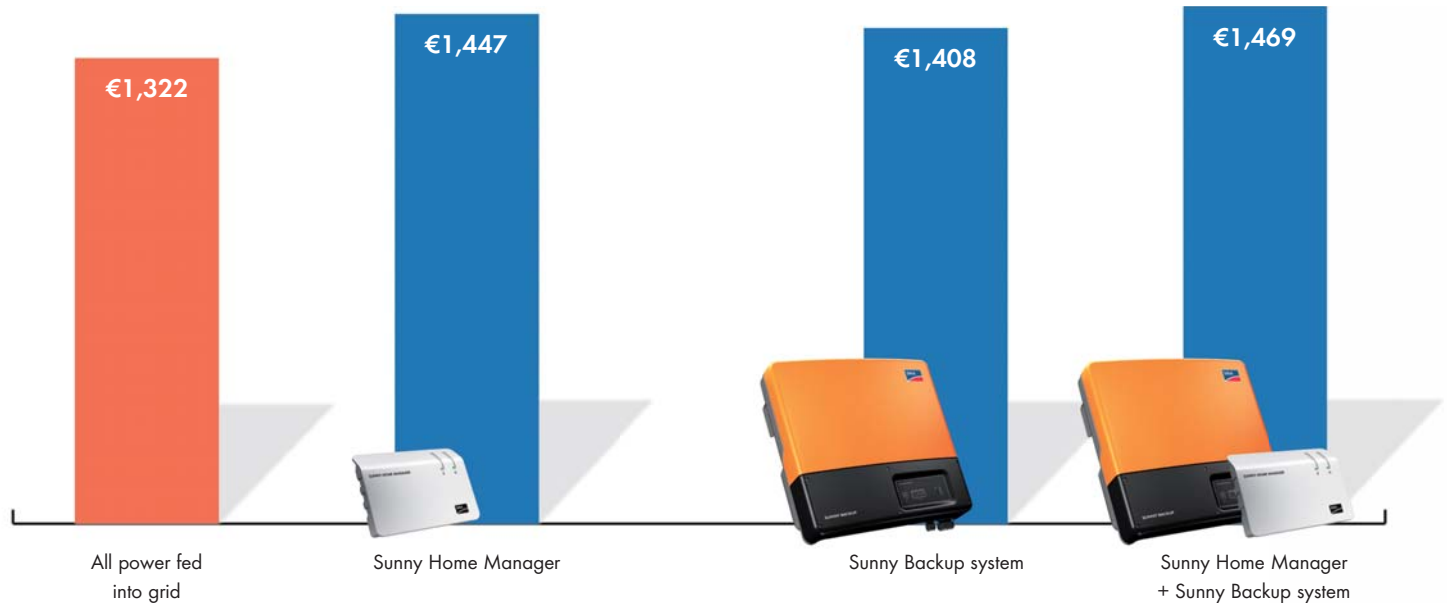
The Sunny Home Manager can control any standard, off-the-shelf household appliance via *Bluetooth*<sup>®</sup> radio-controlled sockets. It is also designed for future communication standards for home automation and is therefore ultimately future-proof.

# Sample calculation based on German incentives

A typical four-person household with a 5 kWp PV plant will have a self-consumption rate of approximately 30%. With Sunny Home Manager's intelligent load management, this rate can be increased to up to 45%. This means that you receive up to 9.5 cents more<sup>\*</sup> for every kilowatt hour of solar power you consume and see a quicker return on your investment. Furthermore, the bonus increases accordingly when energy prices go up.

If you also have a Sunny Backup system, you can increase your self-consumption rate to up to 65%. The average reimbursement for all kilowatt hours generated is then around 3.2 cents<sup>\*\*</sup> more than when all your power is fed into the grid. At the current feed-in tariff, this represents a considerable increase of 11%.

Annual yield with 4,600 kWh of solar power generation  
and a reimbursement rate of 28.74 cents



With automatic load management based on time-of-use electricity rates, users also benefit from lower prices on electricity drawn from the grid, and can reduce their overall energy costs.

Users also profit from the convenient live display and analysis of all consumption data, because studies show that people who are more conscious about their consumption generally consume up to 10% less energy.

- \* With an assumed electricity price of 23.8 cents and the 2010 renewable energy promotion regulation in accordance with the German Renewable Energy Sources Act (EEG)
- \*\* With the efficiency of the storage system taken into account



## Simple

You can access and operate your Sunny Home Manager easily via your web browser – using your smartphone or PC, from home or on the road. There are automated functions and default charts and graphs for those who prefer convenience, and a wide range of configuration options for more advanced users. Installation is also a breeze. All you need is a data connection to your electricity meter and internet access, and you will be automatically connected to the Sunny Portal. Loads are managed effortlessly via *Bluetooth*<sup>®</sup> radio-controlled sockets that also act as repeaters.

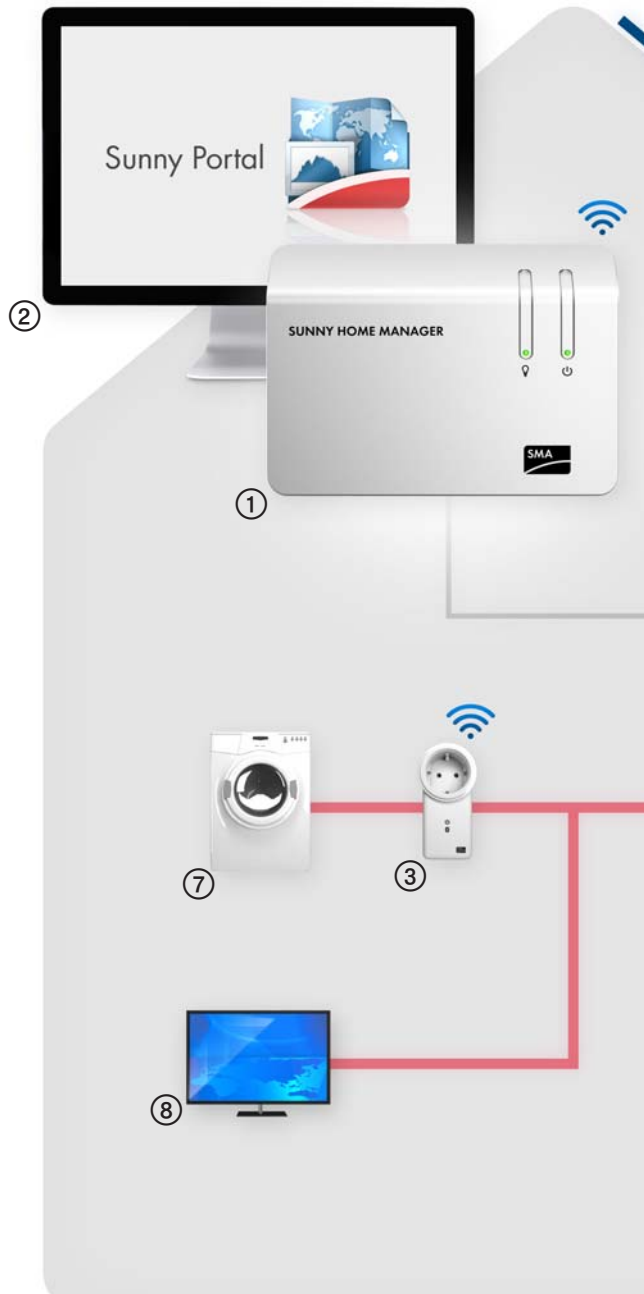
## Precise

The Sunny Home Manager analyzes the data from up to three electricity meters and can keep exact track of all the energy flows in the home. Since it has analog as well as digital meter interfaces, it is capable of processing energy flow data down to the second – that is important for effective appliance control. Add to this the *Bluetooth*<sup>®</sup> radio-controlled sockets that determine the exact energy requirements (load profile) of the connected appliances and you have excellent planning capabilities.

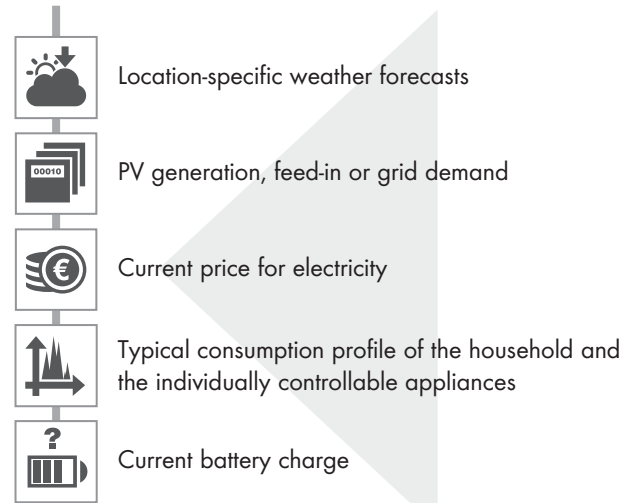
## Comprehensive

The Sunny Home Manager picks up location-specific weather forecasts, takes time-of-use electricity rates into account and provides free standard access to the Sunny Portal with a multitude of evaluation and analysis functions. When combined with the Sunny Backup system, it provides users with a powerful battery bank and a secure power supply with protection against outages. In addition to automatically controlling loads, the device also provides visual prompts that recommend the best switch-on times for electric appliances.

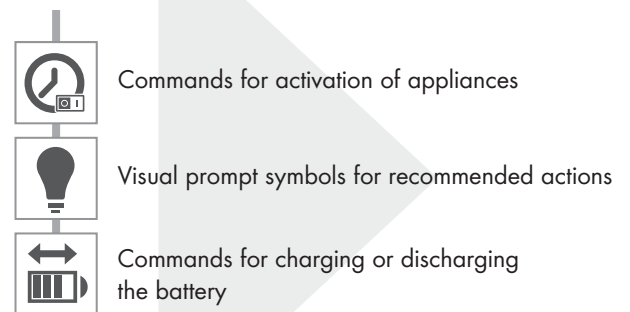
# Intelligent Energy Management



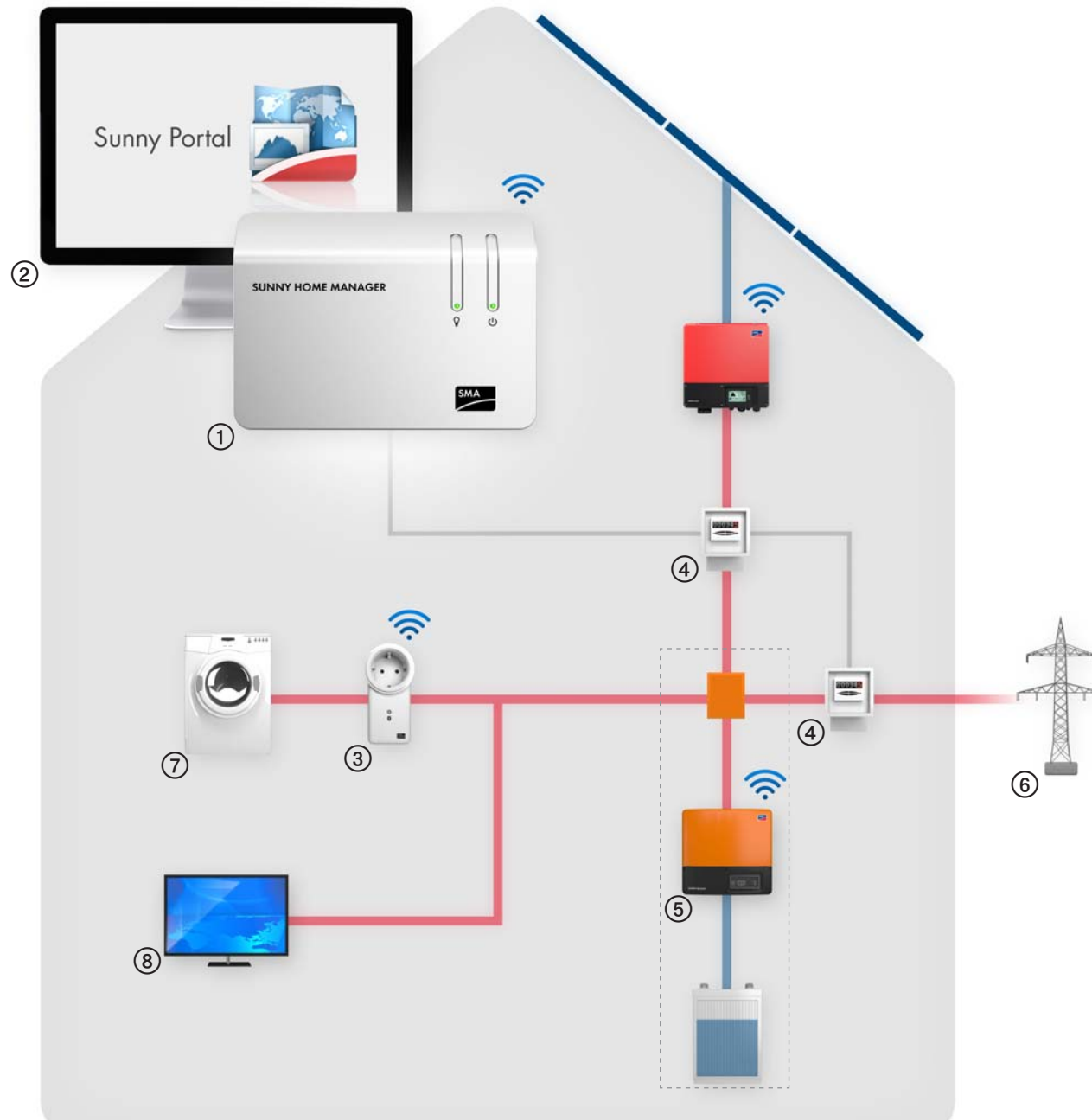
## What information does the Sunny Home Manager process?



## What does the Sunny Home Manager deliver?



# Intelligent Energy Management



## ① Sunny Home Manager

As central energy manager, it analyzes various input parameters and provides for optimal timing of power generation and consumption.

## ② Sunny Portal

The Sunny Home Manager is operated and configured via the Sunny Portal that can be accessed using any web browser. The live display of all energy values provides further incentive to save energy.

## ③ SMA Bluetooth® radio-controlled sockets

Appliances that are not on a fixed schedule can be activated via the Sunny Home Manager at just the right moment via up to ten radio-controlled sockets.

## ④ Electricity meters

Up to three electricity meters can be connected to the Sunny Home Manager via S0 or D0 interfaces. As a result, the device keeps tabs on all the energy flows in the home, by using the digital interface with a particularly high resolution.

## ⑤ Sunny Backup system

This system provides for temporary storage of solar power and also offers a grid-quality power supply with protection against outages.

## ⑥ Power distribution grid

The load on the grid is reduced through self-consumption, because the household needs less energy and at the same time does not have to feed as much solar power into the grid. If a lot of power is available in the grid, the Sunny Home Manager can also take this into account in controlling appliances, thus further reducing the costs of drawing power from the grid.

## ⑦ Controlled appliances

Washing machines and dishwashers, as well as heat pumps and hot-water tanks are not tied to particular switch-on times. For intelligent load management, the Sunny Home Manager can activate them by remote control – depending on the current level of solar power generation or the current price for electricity.

## ⑧ Uncontrolled appliances

Stoves, TVs, computers, and many other appliances are not controlled by the Sunny Home Manager. However, appliance control planning does automatically take their typical switch-on times into account.

# Intuitive Usability

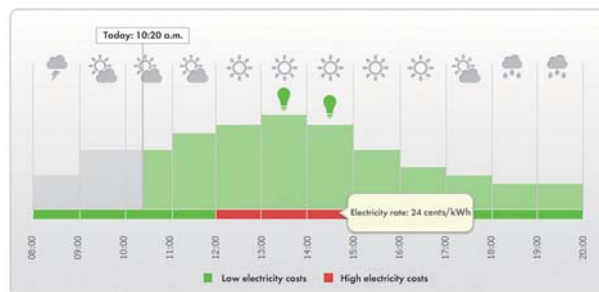
The Sunny Home Manager is operated and configured via the Sunny Portal. Therefore, users have the utmost flexibility when it comes to choosing how and where they access it - any web browser and internet connection will do. In addition to the special pages for the Sunny Home Manager, users can also access all of the standard functions of the Sunny Portal for analysis, visualization and presentation of the plant data.

## Current status



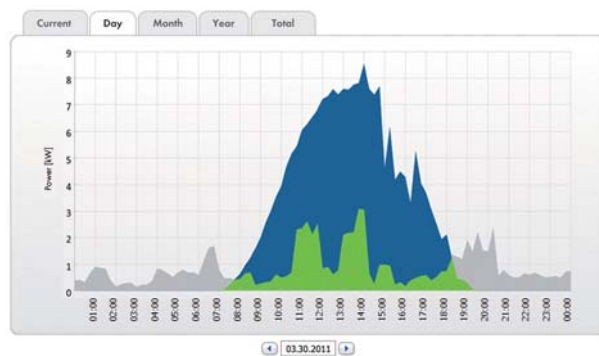
The status screen shows the current energy data as an animated real-time graph and also as values.

## Forecasts and recommendations



The planning screen displays the weather forecast for the plant's location and the corresponding generation forecast for the coming hours. In addition to an automatically generated timetable for the controlled appliances, the Sunny Home Manager also provides visual prompts to encourage and increase self-consumption.

## Energy balance



The analysis page displays the energy balance for the desired time period and facilitates a variety of generation, consumption, and self-consumption analyses.

# System Solutions in Comparison

The Sunny Home Manager and the Sunny Backup system can be used separately to increase the rate of self-consumption. But used together, they provide comprehensive energy management.

Whether separate or combined, the Sunny Backup system provides the same secure power supply with outage protection.

	Sunny Home Manager	Sunny Backup	Sunny Home Manager + Sunny Backup
Increases self-consumption rate by managing loads with radio-controlled sockets	●		●
Increases self-consumption rate by temporarily storing surplus solar power		●	●
Takes weather forecasts into account	●		●
Takes time-of-use electricity rates into account	●		●
Free standard access to the Sunny Portal	●		●
Detailed plant monitoring via Sunny Portal	●		●
Live display of all energy flows in the home	●		●
24-hour uninterrupted power supply in grid quality		●	●
Possible increase of self-consumption rate (in percentage points)	15	25	35*
Possible increase in reimbursement for every solar kWh as compared to feeding all power into the grid (in cents)**	2.7	1.9	3.2
* The increase in the self-consumption rate is not exactly proportional because there is some overlap. However, battery use is reduced (longer service life and better backup availability).	** With an assumed electricity price of 23.8 cents, 30% "natural" self-consumption, and the 2010 renewable energy promotion regulation in accordance with the German Renewable Energy Sources Act (EEG)		





## Pioneering Grid Integration

Energy generated from photovoltaics has two distinct advantages: it is primarily decentralized, and it is generated at a time that correlates well with the grid load that peaks in the middle of the day. Solar power reduces these daily spikes and thus helps relieve the grid infrastructure and reduce the need for expensive peak-load power plants.

High self-consumption rates can increase this grid relief and ensure that the expansion of the low voltage grid can be avoided even if there is an additional increase in installed PV power. High self-consumption rates can be achieved by scheduled load management, but also by the temporary storage of solar power for later use. With the Sunny Backup system and the Sunny Home Manager, SMA provides innovative and mature product solutions for both scenarios.

However, the decisive factor is a reliable forecast of photovoltaic power – for intelligent load management in the household as well as for planning use for conventional power plants in the power distribution grid. This forecasting has been available since the beginning of 2011 based on yield data gathered from more than 26,000 SMA plants – and the Sunny Home Manager is the first device to implement it.

Given the overall increasing proportion of fluctuating power generators, timing consumption and generation at the grid level also makes sense. The Sunny Home Manager facilitates this capacity to handle time-in-use electricity rates.

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