

HOME SOLAR SYSTEMS

MARCH 2018

GRID-TIE PV SYSTEM WITH HOME MANAGER

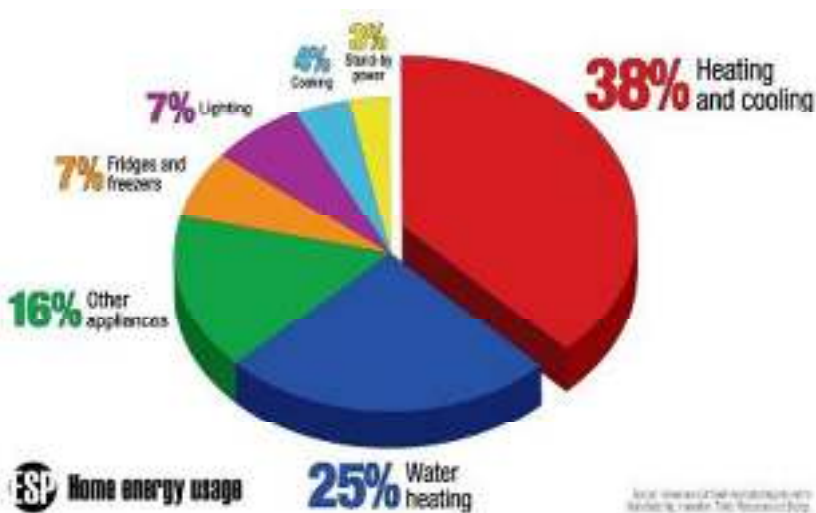
Our **Turnkey Installed** PV system are designed as an energy efficiency mechanism that feeds power directly into the power supply of the house, no batteries.

Our systems are designed with a unique built -in Power Management system, called the **SMA Home Manager**. It uses a power meter to actively manage how the power produced by the PV panels is supplied to the house.

A prepaid or new council digital metering system does not allow for Grid Tie. The **SMA Home Manager** acts as a Power Limiter to ensure that the system does **not Nett supply** as this would debit the meter.

The system has a **web-based monitoring capacity** that can be managed and viewed online through **SMA Sunny Portal**

These systems allow for the inclusion of Bi-directional Inverters like **SMA Sunny Island** or the **Victron Multi-plus with deep cycle or Lithium batteries** to provide **self consumption** or **Home UPS** systems that will enhance energy savings and provide backup support should there be power outages (see self-consumption and Home UPS brochure).



WARRANTIES

INVERTERS 5 Year Warranty

PANELS 25 Year Warranty

WORKMANSHIP 1 Year Warranty

PACKAGE OPTION 1

- **3KW SMA GRID TIE SYSTEM WITH ENERGY METER**

- 10 x 330W Photovoltaic Panels
- 1 x **SMA Sunnyboy SB2.5-1VL-40** Inverter (**Built in Home Manager**)
- 1 x Cable, Fuses, Parts
- 1 x PV Frame
- 1 x **SMA Energy Meter**
- 1 x Comms Setup and Meter Installation
- 1 x COC and Engineer Report



10 x 330w Panels



SB2.5-1VL-40 Inverter



SMA Energy Meter

3KW Grid-tie PV System Performance Stats Example

System overview			
10 x JinkoSolar Holding Co. Ltd. JKM-325M-72 (CA) (UL) (04/2013) (PV array 1)			
Azimuth angle: 180°, Tilt angle: 25°, Mounting type: Roof, Peak power: 3.25 kWp			
1 x SB 2.5-1VL-40			
Technical data			
Total number of PV modules:	10	Performance ratio (approx.):*	82.5 %
Peak power:	3.25 kWp	Spec. energy yield (approx.):*	1772 kWh/kWp
Number of inverters:	1	Line losses (in % of PV energy):	---
Nominal AC power:	2.50 kW	Unbalanced load:	2.50 kVA
AC active power:	2.50 kW	Annual energy consumption:	3,600.00 kWh
Active power ratio:	76.9 %	Self-consumption:	1,395.59 kWh
Annual energy yield (kWh/kWp):	1772 kWh/kWp	Self-consumption percentage:	78.8 %
Energy efficiency factor:	82.5 %	Self-consumption ratio (kWh/kWh):	38.8 %

OPTION 2

5KW SMA GRID TIE SYSTEM WITH HOME MANAGER

- 16 x 330W Photovoltaic Panels
- 1 x SMA STP 5000TL Inverter
- 1 x Cable, Fuses, Parts
- 1 x PV Frame
- 1 x Energy Meter
- 1 x Comms Setup and Meter Installation
- 1 x COC and Engineer Report



330w Panels



STP 5000TL Inverter



Energy Meter

5KW Grid-tie PV System Performance Stats Example

Project number: ---		Grid voltage: 230V [230V / 400V]	
System overview			
16 x JinkoSolar Holding Co. Ltd. JKM-325M-72 (CA) (UL) (04/2013) (PV array 1) Azimuth angle: 100°, Tilt angle: 25°, Mounting type: Roof, Peak power: 5.20 kWp			
1 x STP 5000TL-20			
Technical data			
Total number of PV modules:	16	Annual energy yield (approx)*:	9,631.60 kWh
Peak power:	5.20 kWp	Energy usability factor:	100 %
Number of inverters:	1	Performance ratio (approx)*:	86.2 %
Nominal AC power:	5.00 kW	Spec. energy yield (approx)*:	1852 kWh/kWp
AC active power:	5.00 kW	Line losses (in % of PV energy):	---
Active power ratio:	96.2 %	Unbalanced load:	0.00 VA

MONITORING SYSTEM

MONITOR AND ACT UNDERSTAND YOUR ENERGY GENERATION AND CONSUMPTION

- Do you know how much energy is required to wash a load of laundry?
- Do you know that your beloved refrigerator actually uses three times more energy than an A++ refrigerator?
- Are you aware that on a sunny day, your PV system produces more energy than you actually use?

Being connected to all major household appliances, Sunny Home Manager can tell you and allow you to adjust your consumption habits. This is the first step in reducing your energy bill and being more ecologically conscious by actually using energy when the sun provides it.

WHAT SUNNY HOME MANAGER HAS TO OFFER

- Clear visualization of key energy flows in the household
- Energy balance diagrams which show PV generation, charging/discharging of the storage battery
- Energy mix (electricity from photovoltaics, battery, utility grid) as used by individual household appliances
- Historic energy consumption charts with various view selections



ENERGY BALANCE

The analysis page shows the energy balance for a specified time period and provides analysis for generation, consumption, self-consumption and battery usage.

[> ENERGY BALANCE WITH SUNNY PORTAL](#)

SWITCH AND MANAGE ENERGY MANAGEMENT WITH THE SMA SMART HOME AUTOMATICALLY REDUCES YOUR ENERGY BILL



Once you know where energy comes and goes in your home, you can let Sunny Home Manager do what it is designed to do... manage energy.

Having access to all key household appliances, the optional battery-storage system and the PV generation unit, the Sunny Home Manager always knows how much energy is available and where it is needed. Aided by a weather forecast from internet data and individual adaptation to local conditions, it is able to accurately predict solar irradiation for a few hours into the future and supply the connected household appliances with low cost PV energy. Thanks to the Sunny Home Manager's self-learning function, appliances such as the heat pump run exactly when there is sufficient sunlight available, making it possible to cover electric power demand by solar production.

The online Sunny Portal shows the status of the PV system and displays energy availability and consumption forecasts. It indicates the scheduled operating periods of the household appliances that Sunny Home Manager factors into its energy planning. So you know that the washing machine will be finished at 4 p.m. and that the laundry will have been washed almost entirely using solar power. It also gives tips on how you could use additional excess PV energy.

The diagrams in the Sunny Portal display the power consumption for connected household appliances together so that you can see exactly when Sunny Home Manager started the dishwasher or how much solar power the heat pump used near the pump month.

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SMA ENERGY METER



SMA ENERGY METER
UNIVERSAL RECORDING OF MEASURED VALUES FOR INTELLIGENT ENERGY MANAGEMENT

Now also available for applications > 63 A thanks to external current transformers.

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The powerful measurement solution for intelligent energy management within the SMA Smart Home: The SMA Energy Meter takes phase-exact and balanced electrical measured values as a grid feed-in and purchased electricity meter and communicates these values via Speedwire. Thanks to its ability to quickly acquire measured values, the SMA Energy Meter is the ideal supplier of data for intelligent energy management within the SMA Smart Home. All PV generation data, purchased electricity and grid feed-in can be transmitted via standard Ethernet cable to the Sunny Home Manager, for example, or to the Sunny Boy Smart Energy. This, in turn, facilitates optimal energy monitoring, effective load and battery management and reliable active power limitation of the grid feed-in point while taking self-consumption into account.

Easy-to-Use

- Quick plug and play installation
- Graphic visualization of current measured values in Sunny Portal

Flexible

- Space-saving top-hat rail mounting in household distribution thanks to compact enclosure
- Use of standard Ethernet cables for Speedwire communication
- Universal deployment options regardless of existing energy meter
- Easily and flexibly combined with SMA Smart Home components

High Performance

- Fast three-phase reading of measured values for effective energy management

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ONLINE ENERGY EXCHANGE REAL-TIME DATA

Subproject 1

1 x SB 3.5-1V-M
PV system section 1

Within the PV system

Webconnect

External

1 x Sunny Portal



PV power generation

4.41
kW



Total consumption

4.89
kW



Purchased electricity

0.48
kW

Self-sufficiency quota

90 %



Self-consumption rate

100 %



Consumption



Generation



..... Limiting of the active power feed-in

Daily consumption	34.45 kWh
External energy supply	23.52 kWh
Internal power supply	10.93 kWh

Daily yield	10.99 kWh
Self-consumption	10.93 kWh
Grid feed-in	0.05 kWh

