

# REAL VALUE

LEADING SOLAR POWER SOLUTIONS  
FROM GERMANY



SolarWorld | Product Catalog 2014

# REAL VALUE



## REAL VALUES PAY

Over the past few decades, we have used solar power to create the basis for a clean and reliable power supply around the world. As a global company, we create value for our customers, shareholders, employees and for society.

Our customers can count on our **quality** worldwide. And top quality is and remains the best guarantee for long-term security and for consistent yields from a solar

power system. We offer advanced, robust and easy to install **system solutions** to suit every kind of roof. That is how we help our customers to increase their competitiveness. We are a reliable and trustworthy business **partner**. Our goal is to inspire our customers. Since the company was founded, **sustainability** has played a key role in our business activities and we take care to use ecological, economic and social resources responsibly.

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## Future-proof – Leading solar power solutions from Germany

The energy transition is in full swing and solar technology continues to undergo dynamic changes. With our expertise and innovative power, we are developing products and services that provide real added value to our customers.

We offer advanced, top-quality complete solutions that help our customers increase their competitiveness.

Our new, high-performance lithium-ion battery SunPac LiOn is a variable storage solution for new and existing solar power systems. The compact battery cabinet is easy to configure and connect with other devices. Combined with the Sontrol eManager, the SunPac LiOn is a powerful homemade power package for your customer that is easy to use.

We are creating value for tomorrow, today.

**Quality is measurable:** We constantly test the quality of our products. Various independent test facilities regularly award us top marks.



### SOLARWORLD PRODUCTS AND SERVICES: POWERFUL DOWN TO THE SMALLEST DETAIL

- |   |   |
|---|---|
| <p>» <b>35 YEARS OF EXPERTISE:</b> As a PV pioneer, we have been producing top quality for over 35 years with expertise and passion, focussed on crystalline solar power technology from the beginning.</p> <p>» <b>OPTIMAL SYSTEM SOLUTIONS:</b> With our diverse range of products, we offer system solutions for all solar energy applications. But we never rest on our laurels with our technical developments. Instead, we equip you perfectly for the future, today.</p> <p>» <b>COMPREHENSIVE TESTS:</b> Intensive tests that greatly exceed international standards are the key to our holistic approach to quality assurance. In this way we ensure that only premium quality products leave our factories.</p> | <p>» <b>BEST PROTECTION:</b> Whether free system insurances or real-time yield monitoring, we offer many additional services that safeguard the smooth operation of solar power systems.</p> <p>» <b>THE MOST CUSTOMER-FRIENDLY GUARANTEES:</b> The most customer-friendly guarantees – We provide long-term security: linear performance warranty of 25 years for the Sunmodule Plus series, linear performance warranty of 30 years for our glass-glass module Sunmodule Protect, a 10-year product workmanship warranty, and a number of other guarantees on quality and service.</p> <p>» <b>A STRONG PARTNER:</b> Personal consultation, professional system planning, guaranteed quality: We offer everything one would expect from a reliable partner.</p> |
|---|---|

\* in accordance with the applicable SolarWorld service certificate upon purchase | [www.solarworld.com/service-certificate](http://www.solarworld.com/service-certificate)





## *SolarWorld solar power modules – quality modules made in Germany*

With more than 35 years of production experience, SolarWorld has been one of the global market leaders for many years and played a key role in the development of crystalline solar power technology from the very beginning. From silicon to modules, all stages of production take place at our German production sites in Freiberg and Arnstadt. This is precisely how SolarWorld ensures the best quality throughout the entire production process. After all, only the best solar power system also offers a secure investment. And if you invest in the most efficient product, you can look forward to long-term yields. SolarWorld makes the decision for your customers easy and ensures the best quality – starting with the module.



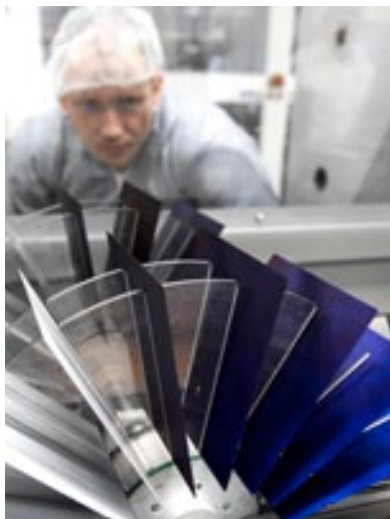
SolarWorld AG relies on Germany as its center of excellence for solar technology, thereby ensuring sustainable product quality.



The TUV Rheinland Power controlled inspection mark guarantees that the nominal power indicated for a Sunmodule Plus is inspected at regular intervals and thus ensured. The deviation relative to the TUV value is maximum of 2 percent.



The positive power tolerance guarantees utmost system efficiency. Only modules achieving or exceeding the designated nominal power in performance tests are dispatched. The power tolerance ranges between -0 Wp and +5 Wp.





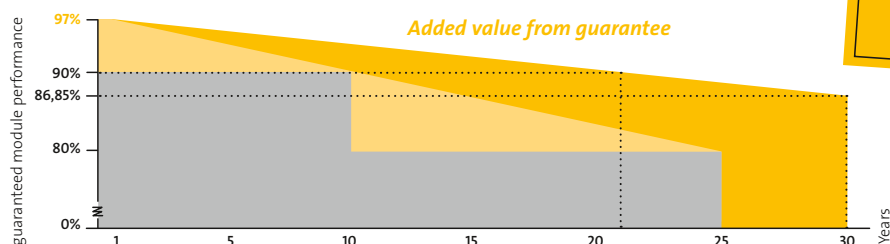
## Valuable guarantees – For your peace of mind

Our performance guarantees promise top value for customers and confirm our high quality standards. With our 25-year linear performance guarantee for all solar modules in the Sunmodule Plus series, our new 30-year linear performance guarantee for the glass-glass module Sunmodule Protect and our 10-year product workmanship warranty, we undertake to deliver top product performance and maximum long-term security.

Guaranteed to deliver: We promise our customers reliability.

### Linear performance guarantee\*

- Linear performance guarantee from SolarWorld: Sunmodule Protect
- Linear performance guarantee from SolarWorld: Sunmodule Plus
- Standard tiered guarantee



**30-YEAR PERFORMANCE GUARANTEE FOR THE SUNMODULE PROTECT**  
 Yearly linear degradation in performance of only 0.35%  
 Guaranteed module performance:  
 90% after 21 years  
 86.85% after 30 years

\* in accordance with the applicable SolarWorld service certificate upon purchase  
[www.solarworld.com/service-certificate](http://www.solarworld.com/service-certificate)



### Sunmodule<sup>+</sup> Plus

With its linear performance warranty covering a period of 25 years, SolarWorld guarantees a maximum performance degradation of 0.7 %. The service certificate offers comprehensive protection for your investment in the long term.



### Sunmodule<sup>+</sup> Protect

SolarWorld is setting new standards with the groundbreaking 30-year linear performance guarantee: The maximum degradation of just 0.35% p.a. ensures a guaranteed module performance of 90% after 21 years, and 86.85% after 30 years.







Sunmodule Plus SW 250–255 poly

Sunmodule Plus SW 200 Vario poly

Sunmodule Plus SW 260–280 mono

Sunmodule Plus SW 250–275 mono black

## Sunmodule<sup>®</sup> Plus – Performance and Efficiency

We invest all our expertise and passion into the manufacture of top quality products. Our crystalline solar power modules are subject to German quality standards, comprehensive quality assurance controls and extensive product tests, and have been impressing our customers for 35 years.

For high satisfaction – long-term.

### ADDITIONAL PRODUCT BENEFITS

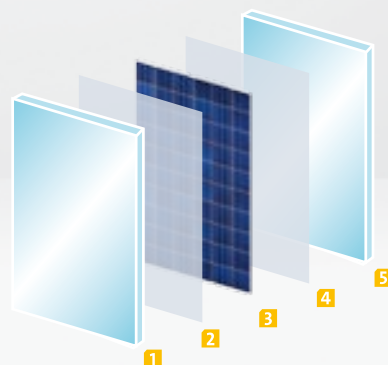
- >> Fully automated production at highest quality level
- >> SolarWorld solar power modules are frost and hail-proof
- >> Proven salt spray resistance for use near the coast
- >> DLG and TUV-tested resistance to ammonia: ideally suited for use in agriculture
- >> Maximum pressure load up to 5.4 kN/m<sup>2</sup> for high snow loads

### Technical data

	SW 250–255 POLY	SW 200 VARIO POLY	SW 260–280 MONO	SW 250–275 MONO BLACK
Length x width x height:	1675 x 1001 x 31 mm	1357 x 1001 x 31 mm	1675 x 1001 x 31 mm	1675 x 1001 x 31 mm
Frame:	Silver anodised aluminum	Silver anodised aluminum	Silver anodised aluminum	Black anodised aluminum
Weight:	21.2 kg	17.4 kg	21.2 kg	21.2 kg
Cells per module:	60	48	60	60
Cell dimensions:	156 x 156 mm	156 x 156 mm	156 x 156 mm	156 x 156 mm
Power sorting:	-0/+5 Wp	-0/+4 Wp	-0/+5 Wp	-0/+5 Wp



Sunmodule Protect SW 250–255 poly | Front and rear sides



- 1 2-mm-thick solar glass with anti-reflection coating
- 2 Ethylene vinyl acetate (EVA)
- 3 Solar cell matrix
- 4 Ethylene vinyl acetate (EVA)
- 5 2-mm-thick solar glass with printed reflection grid

## Sunmodule<sup>®</sup> Protect – *Durability and long-term stability*

The new Sunmodule Protect series is the latest addition to the SolarWorld AG range. It has set new benchmarks when it comes to service life, mechanical durability, degradation behavior and its groundbreaking performance guarantee. The Sunmodule Protect offers even better protection against environmental factors through the innovative use of the latest glass technology on the front and rear sides of the module – and without adding any extra weight!

The benefit: Even higher quality with the same easy mounting and handling.

### PRODUCT BENEFITS

- » 30-year linear performance guarantee
- » Energy-yield-over-service-life ratio substantially exceeds that of conventional glass-film panels
- » Embedding the cells in glass-glass ensures optimal protection against mechanical loads and environmental factors
- » Same weight and dimensions as the Sunmodule Plus – compatible with all standard SolarWorld mounting systems
- » Stable aluminum frame for easy mounting
- » Reliable junction box attached at the rear

### Technical data

#### PROTECT SW 250–255 POLY

Length x width x height:	1675 x 1001 x 31 mm	Cells per module:	60
Frame:	Silver anodised aluminum	Cell dimensions:	156 x 156 mm
Weight:	21.2 kg	Power sorting:	-0/+5 Wp



Sunmodule SW 50–55 poly RMA



Sunmodule SW 80–85 poly RNA



Sunmodule SW 145–150 poly R6A

## Sunmodule® – Resilience and reliability

SolarWorld's fully automated production facility in Freiberg also produces solar modules for powering small decentralized applications. These off-grid modules meet the same durability, quality and performance requirements as the standard SolarWorld sets for the Sunmodule Plus series, so they meet the highest SolarWorld quality standards. The stable module design and range of sizes means there is a suitable module for every off-grid solar power system.

For long-lasting performance – worldwide.

### PRODUCT BENEFITS

- » Designed for battery systems
- » The diodes of the off-grid modules can be replaced without special tools
- » The module's permanent and laminated type plate ensures that the nominal power can no longer be falsified



### Technical data

	SW 50–55 POLY RMA	SW 80–85 POLY RNA	SW 145–150 POLY R6A
Length x width x height:	680 x 680 x 34 mm	958 x 680 x 34 mm	1508 x 680 x 34 mm
Frame:	Aluminum	Aluminum	Aluminum
Weight:	5.6 kg	7.6 kg	11.8 kg
Cells per module:	36	36	36
Cell dimensions:	62 x 156 mm	94 x 156 mm	156 x 156 mm
Power sorting:	+/-10 %	-5/+10 %	+/-5 %





## *SolarWorld kit – The individualized complete package*

With the SolarWorld kits, you'll receive special all-inclusive service. Our perfectly planned kits contain all the components required to construct and operate a solar power system. Quality SolarWorld modules, inverters, data loggers with power management, mounting systems, cables and accessories are all delivered to your chosen location – which saves time and money!

Tailored to your customers' individual needs and the building and on-site conditions, this customized system solution is pre-assembled and manufactured according to current standards and norms.

Perfect package, perfect service: Every SolarWorld kit comes with free system insurance for two years, which ensures the greatest security for your customers' investments. Service extra: With the SolarWorld Sunpass, both you and your customers always have an overview of all system details.

### **PRODUCT BENEFITS**

- » Planning, design and perfectly matched components from a single source
- » Customized, pre-assembled mounting kits for every system size
- » All-inclusive service from system insurance to system documentation
- » Delivered directly to the construction site upon request
- » Certified mounting system statics according to Eurocode 1

**SOLARWORLD KIT**  
PERFECTLY MATCHED COMPONENTS,  
EXCELLENT SOLARWORLD QUALITY



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## Technical data

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### EACH SOLARWORLD KIT INCLUDES THE FOLLOWING COMPONENTS:

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- > Solar modules: Sunmodule Plus or Sunmodule Protect (according to your selection)
  - > Inverters according to SolarWorld's standard configuration: Kostal or SMA
  - > SolarWorld mounting system: Sundeck, Sunfix plus, Sunfix aero, Suntub
  - > DC cable set: Suncable 1 x 4 mm<sup>2</sup> / 1 x 6 mm<sup>2</sup>
  - > Optional system monitoring and visualisation: Suntrol product family
  - > System documentation: Sunpass PDF and high-quality print version
  - > Free two-year insurance coverage with a term of either two or five years
  - > Optional: Suntrol LED / LCD display
  - > Optional: Battery storage system and consumption control
-



## SolarWorld Kit easy – The quick solution

With the SolarWorld Kit easy, you receive all pitched roof system components assembled on one pallet: high quality modules, the mounting system, cables and accessories, plus an optionally available inverter including integrated data logger and power management. The cleverly designed packaging makes it easy to handle the components at the construction site. The Kit easy also comes with the Sunpass and the optional two-year free system insurance. The system is available in four sizes: 3 kWp, 4 kWp, 5 kWp and 6 kWp.

We offer the Kit easy in the following versions:

Kit easy – The package with the proven Sunmodule Plus poly

Kit easy mono black – The package with the aesthetic Sunmodule Plus mono black

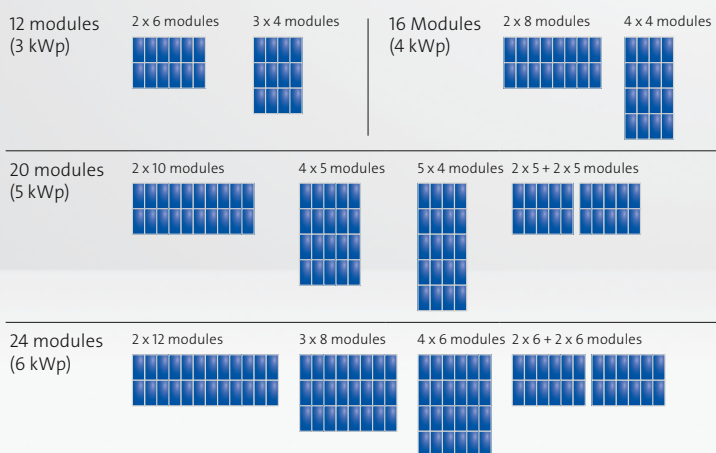
Kit easy Protect – The package with the durable and robust Sunmodule Protect

One system in 4 system sizes and 3 module versions – all-inclusive, simple and quickly mounted.

### PRODUCT BENEFITS

- » Great flexibility thanks to different package sizes and versions
- » Perfectly planned and assembled on one pallet – for easy handling at the construction site
- » Delivered directly to the construction site upon request
- » All-inclusive service from system insurance to system documentation





Mounting possibilities SolarWorld Kit easy



## Technical data

SUNMODULE PLUS SUNMODULE PLUS SUNMODULE PROTECT	SW 250 POLY SW 250 MONO BLACK SW 250 POLY	SW 250 POLY SW 250 MONO BLACK SW 250 POLY	SW 250 POLY SW 250 MONO BLACK SW 250 POLY	SW 250 POLY SW 250 MONO BLACK SW 250 POLY
Number of modules:	12	16	20	24
Total power:	3000 Wp	4000 Wp	5000 Wp	6000 Wp
Inverter:	KOSTAL PIKO 3.0	KOSTAL PIKO 4.2*	KOSTAL PIKO 5.5*	KOSTAL PIKO 5.5*
DC cable set:	Suncable 6 mm <sup>2</sup> , 60 m	Suncable 6 mm <sup>2</sup> , 60 m	Suncable 6 mm <sup>2</sup> , 120 m	Suncable 6 mm <sup>2</sup> , 120 m
Mounting system:	Sunfix plus single layer	Sunfix plus single layer	Sunfix plus single layer	Sunfix plus single layer
Shipping unit:	europallet (EUR)	europallet (EUR)	europallet (EUR)	industrial pallet (EUR 3)
Dimensions shipping unit:	120 x 80 x 224 cm	120 x 80 x 224 cm	120 x 80 x 224 cm	120 x 100 x 224 cm
Weight shipping unit:	390 kg	490 kg	600 kg	720 kg

\* The kit is also available with Kostal inverters, with SMA inverters or without inverters.

### EXTRAS

Sunpass**	System documentation as PDF and high-quality print version
Special insurance**	Two-year term free of charge, optional five-year term extension

\*\* only in selected countries

### STATIC REQUIREMENTS

Roof type:	Tiled roof	Roof battens	24 mm and 30 mm
Rafter distance:	according to planing documents	Schneelasten:	according to planing documents
Roof pitch:	15°–50°	Windlasten:	according to planing documents
Height of building:	according to planing documents		



## Sundeck<sup>®</sup> – *The perfect combination of aesthetics and efficiency*

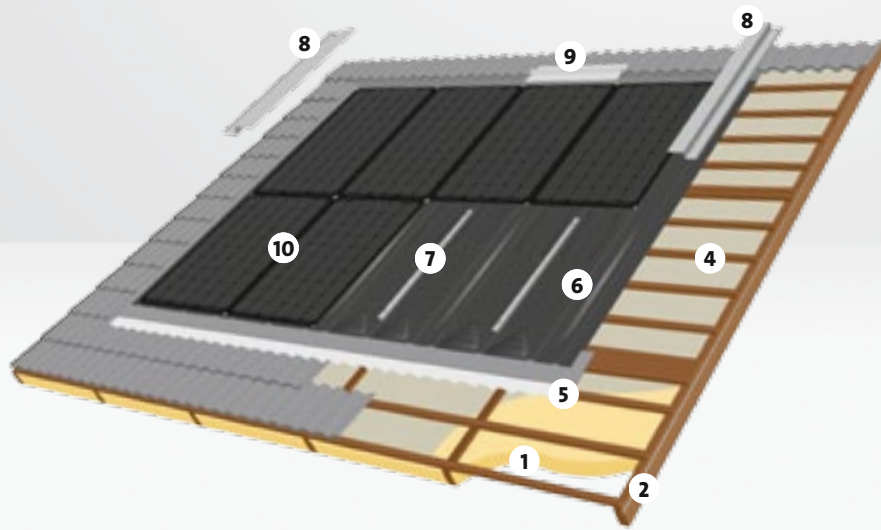
The elegant roof-integrated solution Sundeck always looks great, as the solar modules are installed at the same level as the rest of the roof. The black substructure and the Sunmodule Plus mono black modules combine to create a stylish unit. The substructure replaces the roof tiles, which saves your customers the cost of a conventional rooftop covering and makes the Sundeck ideal for renovations or new buildings with tiled or slate roofs. Regardless of whether it partially or totally covers the roof, the solar power system will make an attractive addition to the building. The Sundeck is also technically impressive, with its small number of perfectly matched system elements. The cleverly designed rain-proof substructure is attached directly to the roof battens, making it quick and easy to install. And, by the way: The Sundeck 8500 can withstand extreme snow loads and is suitable for combined loads of up to 8.5 kN/m<sup>2</sup>, thanks to its specially developed support profiles.

With proven performance and timeless elegance. Solar power production has never looked so good.

### PRODUCT BENEFITS

- » Elegant roof-integrated solution
- » Saves your customers the cost of a conventional rooftop covering
- » The sophisticated system elements do not require roof hooks, ensuring fast installation
- » TÜV certification for maximum safety
- » Guarantees high yields thanks to the special construction and optimum rear ventilation
- » Suitable for roof angles of 15 to 60 degrees
- » Heavy load version also available; perfectly suited for areas with high snow and wind loads

**SOLARWORLD KIT**  
PERFECTLY MATCHED COMPONENTS,  
EXCELLENT SOLARWORLD QUALITY



- 1 Existing roof insulation
- 2 Existing rafters
- 3 Existing roof covering
- 4 Existing battens over underfelt or sarking
- 5 Sundeck bottom flashings
- 6 Sundeck main sheets
- 7 Sundeck support profiles  
(only with Sundeck 8500 model)
- 8 Sundeck side covers (optional)
- 9 Sundeck ventilation grilles (optional)
- 10 Sunmodule Plus solar modules

*Sundeck in-roof system for tiles*

## Technical data

### DETAILS

- > Delivery as complete SolarWorld kit, including:
  - > Drainage sheet as a substructure (incl. fastening screws, sealing storm washers, module clamp specially matched to the system, cable clips and other clips with pre-assembled nails, equipotential bonding screws)
  - > Modules: Sunmodule Plus or Sunmodule Protect (according to your selection)
  - > Inverters
  - > Pre-assembled cables
- > Certified statics according to Eurocode 1 in the SolarWorld kit
- > Sundeck 8500: capable of bearing loads up to 8.5 kN/m<sup>2</sup> thanks to special support profiles
- > Hard roof covering in conjunction with Sunmodule Plus according to DIN EN 13 501-5 and in conjunction with DIN V 4102-3
- > TUV-certified safety with regard to the roof membrane thickness requirements
- > Low load on roof construction compared to conventional roof coverings
- > Allowable wind speed: 100 mph\*

\* Subject to technical feasibility. SolarWorld Technical Planning will prepare an individual assessment for every application.





## Sunfix<sup>plus</sup> – *The talented all-rounder for pitched roofs*

The Sunfix plus mounting system for pitched roofs is the multifunctional master of the SolarWorld mounting systems. Its versatile supporting structure makes it possible to install SolarWorld quality modules parallel with the roof surface on all kinds of pitched roofs. The solar power system subtly and elegantly blends into the roof's overall appearance thanks to the frame's sophisticated design. The customer-oriented solution: Sunfix plus mounting kits feature high-quality, versatile components that are assembled to perfectly suit your customers' needs. It was designed by SolarWorld specialists to deliver optimum stability and a long system service life. Perfectly planned and matched to the requirements of your customers, the system can be quickly and easily installed on-site. With Sunfix plus, modules can be safely installed without causing any damage to the rooftop cover and roof membrane and the system consists of top-grade components made of aluminum and stainless steel to ensure a long service life. The potential equalisation between the module and the mounting system in the overall system using the module and potential equalisation clamps is VDE-tested. What's more, poor weather conditions are no match for the Sunfix plus: The mounting system for pitched roofs can withstand heavy loads in areas subject to heavy snowfall and strong winds.

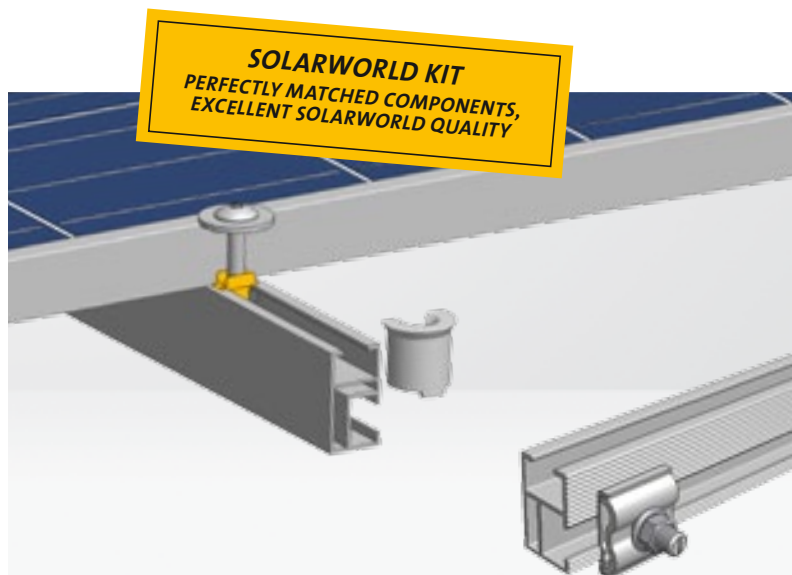
The talented all-rounder for pitched roofs – tried and tested 1000 times over and designed for universal use.

### PRODUCT BENEFITS

- » Suitable for all pitched roofs
- » Optimum rear ventilation for maximum yields
- » The overall system's potential equalisation is VDE-tested
- » Components are perfectly and individually matched
- » Pre-assembled components ensure straightforward and fast installation
- » Only high-quality materials are used ensuring stability and durability



*Fast installation thanks to the easily accessible screw fittings*



*Overall system's potential equalisation between the module and the mounting system using the module and potential equalisation clamps is VDE-tested*

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## Technical data

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### DETAILS

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- > Can be used as a single or double-layer system
- > Suitable for vertical and horizontal solar module installation
- > Low system weight starting from 2 kg/m<sup>2</sup>
- > Certified statics according to Eurocode 1 in the SolarWorld kit
- > Can be mounted against or with the roof pitch
- > Roof hook types available for a wide range of applications
- > Optionally available with theft protection
- > Allowable wind speed: 100 mph\*

\* Subject to technical feasibility. SolarWorld Technical Planning will prepare an individual assessment for every application.

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## Sunfix plus – *The talented all-rounder for flat roofs*

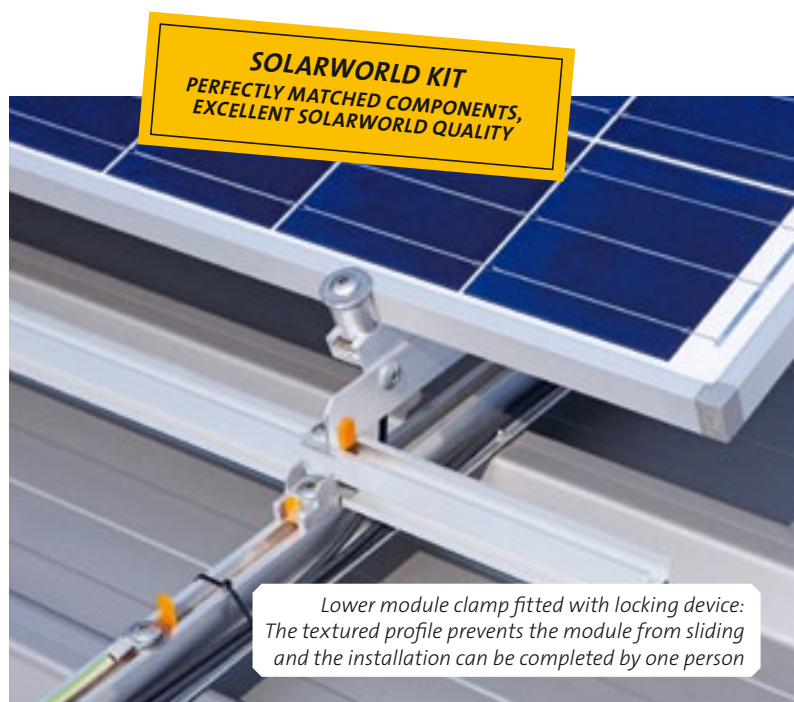
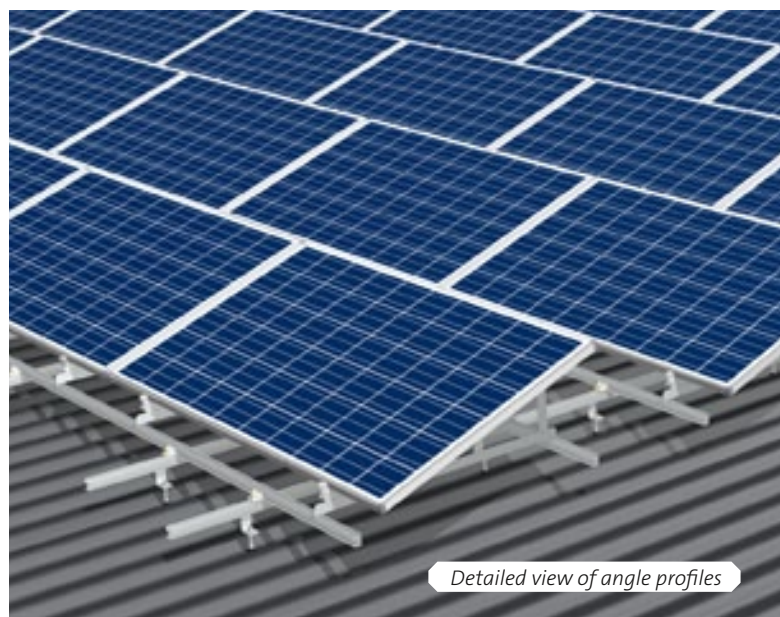
The Sunfix plus mounting system for flat roofs is suitable for all standard roof structures and turns any flat or slightly pitched roof into an effective high-yield surface for your customers. The supporting structure allows for the free-standing installation of SolarWorld quality modules both with and against the roof pitch. Module pitches of 15, 20 or 30 degrees ensure flexible installation on any roof, allowing you to optimise the efficiency of the solar modules. They can also be installed at up to 5 degrees at right angles to the roof pitch and easily individually aligned. Perfect pre-assembly: The pre-assembled SolarWorld Sunfix plus frames are made of three lightweight aluminum angle profiles that simply need to be bolted into place. SolarWorld quality right down to the smallest detail: All fixing and connecting elements are made of high-quality stainless steel or aluminum. The mounting profiles are installed in a single or double layer under the flat roof frame and the roof structure. This ensures the stability of the flat roof system.

The talented all-rounder for flat roofs – tried and tested 1000 times over and designed for universal use.

### PRODUCT BENEFITS

- » Suitable for all standard roof structures
- » Light aluminum frame ensures low roof load
- » Optimum use of space thanks to the wide range of installation options
- » Cost-efficient installation thanks to pre-assembled system
- » Few tools required due to standardised components
- » Flexible tilt angle for optimised module efficiency
- » Only high-quality components are used ensuring stability and durability





## Technical data

### DETAILS

- > Low mounting system weight starting from 6 kg/m<sup>2</sup>
- > Suitable for vertical and horizontal solar module installation
- > Can be used as a single or double-layer system
- > Certified statics according to Eurocode 1 in the SolarWorld kit
- > Optionally available with theft protection
- > Allowable wind speed: 90 mph\*

\* Subject to technical feasibility. SolarWorld Technical Planning will prepare an individual assessment for every application showing which components and/or ballast should be used.



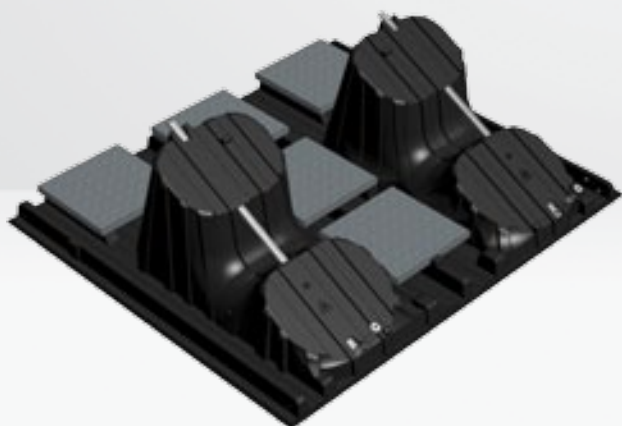
## Suntub® – *The flexible flat roof system*

The SolarWorld Suntub flat roof system is extremely versatile and easy to install. It is perfectly suited for roofs with a pitch of up to 6 degrees, for example, on company buildings or bungalows. Suntubs can be fitted with different module types. Each Suntub consists of paired plastic elements that are easily slotted together and can be weighted down with the required ballast. The best part: You do not need a frame for the installation. As with all SolarWorld kits, the perfectly matched components make it especially quick and easy to install. The optimised shape of the mounting system provides excellent rear ventilation and ensures that the solar modules deliver outstanding efficiency. Thanks to their special shape, Suntubs generate about 3 percent more energy than conventional flat-roof tub installation systems. Another advantage of the Suntubs is their aerodynamic design, which reduces wind resistance and keeps the roof load to a minimum.

The flexible solution for flat roofs that is easy to install.

### **PRODUCT BENEFITS**

- » Small number of individual components for very fast installation
- » Reduced ballast load and minimised roof loads through aerodynamic features
- » No penetration of the existing roof membrane or floor covering
- » Extremely stable thanks to a special profile that withstands wind and snow loads
- » Great module yield thanks to optimum shape and excellent rear ventilation
- » Easy to transport and install: Low dead weight, the plastic elements can be easily stacked and the aluminum profiles feature a proven clamping technique



*Each Suntub consists of paired plastic elements*

**SOLARWORLD KIT**  
PERFECTLY MATCHED COMPONENTS,  
EXCELLENT SOLARWORLD QUALITY



*The solar module is inserted from above and fastened using clamp connectors*

## Technical data

### DETAILS

- > Basic material: 100% recyclable UV-resistant HDPE
- > Modules: Sunmodule Plus or Sunmodule Protect (according to your selection)
- > Permitted roof pitch: 0° to 6°
- > Tilt of elements is 28°
- > Required ballast: Gravel, concrete slabs (recommended slab dimension 40 x 40 cm)
- > Can be used in temperatures ranging from: -40 °C to +85 °C
- > Allowable wind speed: 90 mph\*

\* Subject to technical feasibility. SolarWorld Technical Planning will prepare an individual assessment for every application showing which components and/or ballast should be used.





## Sunfix<sup>®</sup> aero – *Low-ballast flat roof system*

The name Sunfix aero says it all. The mounting system is installed without penetrating the roof membrane and forms a static interconnection that requires only minimal ballast. The aerodynamic, wind tunnel-tested system design ensures that the solar power system behaves like a Formula 1 racing car at high speeds: the mounting system literally clings to the roof surface. This reduces point and surface loads to a minimum. The different models (offering inclination angles of 10, 15 and 25 degrees) can be optimised according to their specific yield or system performance. At 0 degrees inclination, ballasting is the sole requirement while, at angles of 0 to 5 degrees, the position also needs to be secured subsequent to examining the general set-up. Adjustable screw connections and clamps on the long sides of the modules ensure increased stability and allow you to adapt the system to fit the building. The base and ridge gaps ensure optimum rear ventilation of modules and improved performance.

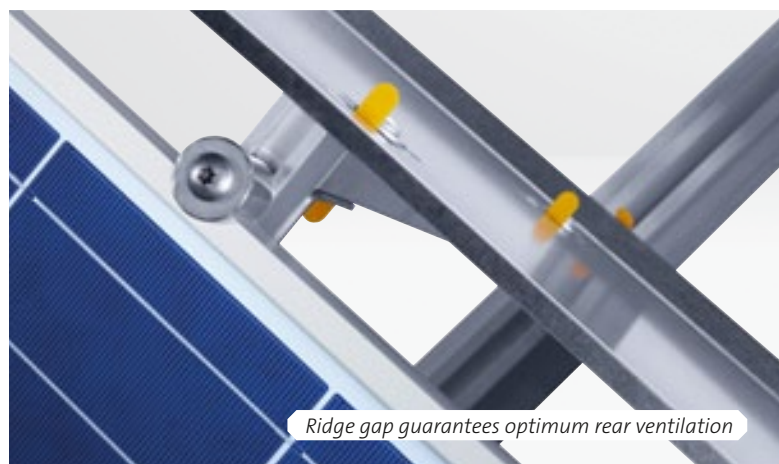
## Sunfix<sup>®</sup> aero duo – *Optimal use of space*

The Sunfix aero duo modules are arranged in tent-shaped pairs allowing for maximum utilisation of the available roof area. This double design, which reduces shading between module rows, increases the roof's yield. The modules are mounted at an angle of 10 degrees, ideally with an east-west alignment, in order to maximise the yield in relation to the roof surface area.

The low-ballast flat roof system for high yields.

### PRODUCT BENEFITS

- » The aerodynamic design means less ballast is required, so the system can be installed on roofs with low load reserves
- » No penetration of sensitive roof membranes
- » Quick and easy installation thanks to the pre-assembled, easily transportable system elements
- » Optional lightning protection available
- » Optimum rear ventilation through the base and ridge gap increases the solar module performance
- » Thanks to the reduced shading, the Sunfix aero duo permits a high density and optimum utilisation of the roof area, resulting in an increase of the total output up to 60 percent



## Technical data

	SUNFIX AERO	SUNFIX AERO DUO
Tilt angle:	10, 15, 25°	10°
Suitable for flat roofs with a pitch of up to:	5°	5°
System weight:	approx. 10 kg/m <sup>2</sup> (standardised with 25° version)	approx. 3 kg/m <sup>2</sup>
Frame / base static friction:	$\mu = 0.60$	$\mu = 0.60$
Suitable modules:	Sunmodule Plus or Sunmodule Protect (according to your selection)	Sunmodule Plus or Sunmodule Protect (according to your selection)
Minimum system size:	3 x 3 modules	1 x 2 modules
Allowable wind speed:	90 mph*	90 mph*
Allowable building height:	20 m	20 m

\* Subject to technical feasibility. SolarWorld Technical Planning will prepare an individual assessment for every application showing which components and/or ballast should be used.

## Comparison of the typical ballast load for a building height of 8–10 m\*

Sunfix <sup>plus</sup>	Suntub <sup>®</sup>	Sunfix <sup>aero</sup>	Sunfix <sup>aero</sup> duo
161 kg/m <sup>2</sup>	79 kg/m <sup>2</sup>	29 kg/m <sup>2</sup>	22 kg/m <sup>2</sup>



## SunCarport® – *Solar power system and protection against the elements in one*

Truly multitalented: The SunCarport not only protects your car from the wind and weather, it also creates an additional surface area for producing clean solar energy. Combined with a charging station, the SunCarport can even be turned into a solar refueling station for electric and hybrid vehicles. Just like every SolarWorld kit, the SunCarport features quality modules made by SolarWorld, a matching inverter and a robust mounting system.

What is more, the anodized aluminum and powder-coated stainless steel components make it virtually indestructible for a long service life. In addition to the standard versions, SolarWorld also offers carports with reinforced components for particularly heavy snow and wind loads.

Advancing truly sustainable electromobility with clean solar power.

### PRODUCT BENEFITS

- » Twice the benefits: A carport and solar refueling station in one
- » Combined with a charging station: Real, sustainable electromobility with clean solar power
- » Long-term weather resistance thanks to high-quality materials
- » Heavy load version also available; perfectly suited for areas with high snow and wind loads



**SOLARWORLD KIT**  
PERFECTLY MATCHED COMPONENTS,  
EXCELLENT SOLARWORLD QUALITY



SunCarport blue installed lengthwise



SunCarport black installed crosswise



SunCarport blue as a dual carport

## Technical data (Carports with a pitch of 10°)

	LENGTHWAYS AS A SINGLE CARPORT	CROSSWISE AS A SINGLE CARPORT	LENGTHWAYS AS A DUAL CARPORT
Generator:	9 Sunmodule Plus (3 x 3)	10 Sunmodule Plus (5 x 2)	15 Sunmodule Plus (5 x 3)
Generator output:	2.2–2.5 kWp*	2.5–2.8 kWp*	3.7–4.1 kWp*
Inverters:	SMA	SMA	SMA
Standard / heavy duty weight:	535 / 562 kg	717 / 748 kg	1100 kg
Width:	3220 mm	5241 mm	5241 mm
Length:	5098 mm	3412 mm	5098 mm
Front height:	2011 mm	2011 mm	2015 mm
Rear height:	3024 mm	2829 mm	3005 mm
Available as a:	<b>SUNCARPORT BLUE</b> The standard solution: SunCarport with Sunmodule Plus poly	<b>SUNCARPORT BLACK</b> The designer solution: SunCarport with Sunmodule Plus mono black	

\*depending on the module performance class



KOSTAL PIKO

## *Kostal inverters – Flexible and communicative*

SolarWorld supplies inverters made by Kostal that boast an impressive range of communication functions. The yield data can be transferred directly to the Suntrol Portal via Ethernet, where it can be easily monitored. One particularly practical feature is that the data logger is already integrated – a clear cost advantage for your customers.

Help your customers become even more energy independent: By combining the Kostal inverters with the SolarWorld Suntrol eManager, you can distribute energy intelligently throughout the house, which increases the consumption of self-generated electricity.

Equipped with multiple MPP trackers and a wide range of features, the inverters make it possible to flexibly plan both small and large solar power systems. SolarWorld has a solution for every roof.

### **PRODUCT BENEFITS KOSTAL**

- » Free yield monitoring via the Suntrol Portal
- » The integrated data logger saves additional costs
- » Active power management integrated as standard (100/60/30/0%)
- » Product range from 3–12 kW
- » Enables intelligent power distribution in combination with the Suntrol eManager



Suntrol Portal



Suntrol mobile

## Suntrol® – Keeping performance data in view

With Suntrol products from SolarWorld, you can display the yield of your solar power system clearly and monitor all the system data conveniently online. The Suntrol Internet portal provides system operators with an overview of all their performance data on a PC or smartphone at all times. Moreover, the monthly and annual yields are recorded and graphically evaluated. And if you use an electronic domestic supply meter, there is an added option for displaying your own energy consumption. This provides a precise overview of how much of your own electricity you have consumed and when, as well as tips on how to increase this amount. Efficient yield monitoring helps to quickly detect possible deviations and remedy their causes. This enables your customers to recognize any system errors before they receive their bill.

Make the Suntrol Portal work for you as a free advertising platform: Present your installations to potential customers.

🌐 [WWW.SUNTROL-PORTAL.COM](http://WWW.SUNTROL-PORTAL.COM)

## Suntrol® mobile – Around-the-clock monitoring

With Suntrol mobile, your customers can track their solar power system's performance data and current yield at all times, no matter where they are. The Suntrol mobile app is available for all standard Apple smartphones, tablet PCs and Android operating systems – and now there is even an online view for all devices.

### PRODUCT BENEFITS

- » Free portal for monitoring yields and the amount of electricity you produce
- » Fault warning system saves your customers money
- » Mobile system monitoring with Suntrol mobile for all smartphones and tablet PCs
- » Option for presenting your own reference systems with the Suntrol portal and Suntrol mobile
- » Visualization of SunPac battery system data
- » Free advertisement thanks to individual installers page on the Suntrol portal
- » One monitoring portal for different data logger and inverter manufacturer





Suntrol eManager



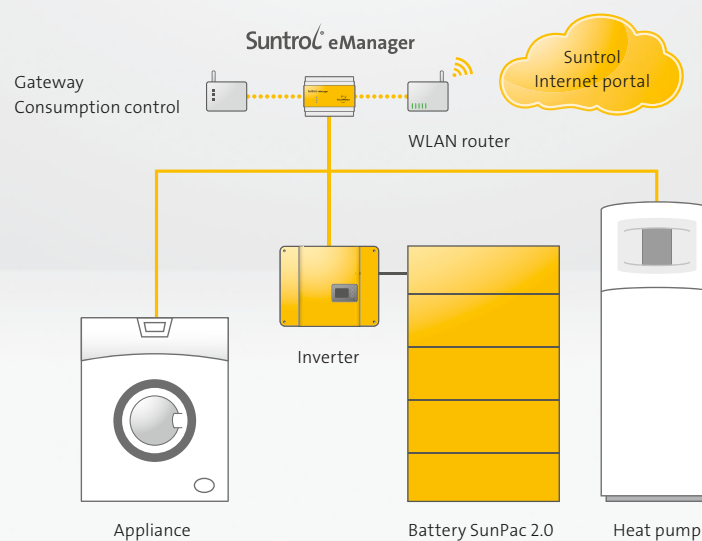
## Suntrol<sup>®</sup> eManager – *The individual energy management system*

The Suntrol eManager is the SolarWorld system for monitoring and intelligent distribution of energy in your home. With the Suntrol eManager, users can see at any time how much power their solar power system is producing or how much energy is required in the house. The eManager hardware is inconspicuously installed in the house distribution box. All data can be viewed online via the Suntrol Portal by means of PC, tablet or smart phone, and in the internal home network. Additional elements can be retrofitted individually and the application range of eManager can be extended with a variety of apps.

The result: Increased independence and lower electricity costs for your customers.

### PRODUCT BENEFITS

- » Time and cost savings due to easy commissioning and minimal configuration
- » Allows an intelligent combination of PV and heating systems
- » Hardware could be expand individually thanks to Suntrol eManager extensions
- » Compact DIN Rail housing allows an easy installation
- » Expendable functions via Apps
- » Local data logger as well as a gateway to the Suntrol portal
- » Two SO – interfaces for pulsed meters to measure the consumption



## Technical data

### GENERAL INFORMATION

Device voltage:	24 V (DC)
Housing:	Polycarbonate
Dimensions (W x H x D):	108 x 90 x 70 mm, 6 separation units
Installation type:	Mounting rail TS 35
Protection class:	IP20

### INVERTER COMMUNICATION

Communications interface RS485:	2x
Number of inverters that can be connected	10 per interface
Inverter mixed mode:	Yes, one manufacturer per interface
Ethernet:	1x RJ-45 10/100 Mbit
RS232:	1x
SO/Digital In:	2x
USB:	2x USB 2.0 host, USB port type A
Extension bus:	1, for up to 20 devices

## Extensions

### SUNTROL eMANAGER EXTENSION DIGITAL I/O

Areas of application:	Connecting heat pumps, ripple control receivers
Digital In /SO:	6x
Digital Out:	6x



Piko battery inverter | SunPac 2.0

## SunPac<sup>®</sup> 2.0 – *The battery system for more homemade power*

The smart battery system SunPac 2.0 stores solar power and makes it usable whenever it is needed – day or night. SunPac 2.0 integrates charging and discharging functions in a three-phase inverter. This means there's no need for an additional charge controller, which saves space and also increases efficiency. The three-phase connection makes it possible to supply the entire household with stored self-generated electricity. If more energy is available than is currently required, the battery is charged. This sustainable and innovative solution was ranked among the top ten best developments at the 2013 German Industry Awards.

A data logger is also integrated in the PIKO battery inverter. In conjunction with the Suntrol Portal, you can view the system yield, use of self-generated power and battery charge status. Best of all, because so many functions are integrated in the inverter, the system is much easier to install. SolarWorld supplies the system with a reliable and sophisticated lead-acid battery.

Safe and proven battery technology that enables your customers to use more of the electricity they generate themselves.

### PRODUCT BENEFITS

- >> Integrated homemade power control
- >> Simple, inexpensive installation
- >> Future-proof, as it has been constructed to adapt to new battery concepts
- >> High-quality lead-acid battery (VRLA) with energy management system
- >> 11.6 kWh of energy storage and 5.8 kWh of usable energy





*The inverter: The heart of solar power systems*



*Suntrol Portal: Clear system data visualization and monitoring*

## Technical data PIKO Battery

### BATTERY

Battery type:	HOPPECKE 12VOPzV blocsolar.power 70
Battery technology:	Maintenance-free, deep-cycle lead-acid battery
Cycle life (50% DoD):	2500
Total energy content (C10):	11.6 kWh
Max. output power:	approx. 2.7 kW
Number of 12 V block batteries:	19
Rated voltage:	228 V
Capacity (C100):	70 Ah
IP rating:	21

### SYSTEM

Total weight:	approx. 850 kg
Length:	900 mm
Width:	388 mm
Height:	1584 mm

### OPERATION CONDITIONS

Recommended operating temperature:	10–30 °C
Relative humidity	max. 85 %
Ventilation:	Supply and exhaust air grilles with 154 cm <sup>2</sup> cross-sectional area



## Suntool® – Professional design software

The Suntool software was developed by SolarWorld specifically for installers, planners, wholesalers and architects. Suntool enables you to plan solar power systems for virtually every roof surface in just a few minutes. All the necessary information can be entered into the user-friendly interface.

In just a few seconds, the program calculates the maximum possible number of solar modules as well as the number of inverters required and designs the best possible system configuration. It gives end customers a tailor-made solar power system and saves you valuable time.

The software also features detailed yield forecasts, result reports and a data sheet for kit planning. Regional irradiation data, cost and yield estimates are included in the calculations. System planning at the push of a button: Integrate all the documents from Suntool in your quotations.

### PRODUCT BENEFITS

- >> Quick and easy to use thanks to the user-friendly interface
- >> Straightforward document generation and management for professional quotations
- >> Always up-to-date with free online updates
- >> Makes it possible to plan two different performance classes (SW 200 poly und SW 250 poly) in one solar power system



## System requirements

- > Windows XP or higher (Windows 7; Windows Server 2003 Service Pack 2; Windows Server 2008; Windows Server 2008 R2; Windows Vista Service Pack 1; Windows XP Service Pack 3)
- > .net Framework 4.0
- > Windows Installer 3.1 or higher
- > Internet Explorer 6.0 or higher
- > Processor: 1 GHz or higher
- > RAM: at least 1 GB
- > Hard drive: at least 100 MB free storage space
- > Screen resolution: at least 1024 x 786
- > Internet connection for updates

## LICENCE TERMS

You must accept the licence terms prior to using the Suntool software. They are displayed automatically when the program starts. If you reject the contract, you can return the product and get your money back within two weeks after receiving the software. In such instances, you may not install or use the software.





## SunpasS® – *The quality and performance documentation*

Our kits come with comprehensive performance documentation. The Sunpass folder provides your customers with detailed and customized system documentation: From precise construction plans, to data sheets and warranty agreements.

Use the Sunpass folder to demonstrate that you install systems according to the latest technical requirements, and to offer additional services such as regular maintenance of your installation.

One folder for all documentation and important information about your company. Use the Sunpass as a sales tool and benefit from customer recommendations.

### **PRODUCT BENEFITS**

- » System data is compiled in advance to save time
- » Available as a folder and PDF document for added convenience
- » Comprehensive documentation of your professional work
- » Sustainably produced
- » Free delivery with every SolarWorld kit



Complete overview of all system information

## Content

### EACH SUNPASS INCLUDES THE FOLLOWING:

- > Concise documentation of the solar power system
- > Customer letter
- > Cover page with overview of essential system data
- > Certificate from a specialist installer verifying the correct installation
- > Individualised quality and performance documentation
- > Data sheets
- > Certification (including structural certificates)
- > User information
- > Warranty agreements
- > Frame and cable plans
- > Forms (yield data)
- > Special insurance certificate (free for two years, can be extended to five years upon request)
- > Additional record for all correspondence regarding the solar power system



## *Solar insurance – Peace of mind included*

Even after the solar power system is up and running, SolarWorld offers your customers real peace of mind. The customized insurance concept for all newly installed SolarWorld kits can be included with the overall package free of charge upon request. In collaboration with the ERGO insurance company, we have developed a package that covers property damage to the solar power system, as well as the associated risk of downtime. Yield losses resulting from reduced performance are also covered. SolarWorld offers the special insurance policy with a two or five-year term and it's free for the first two years. SolarWorld is the policy holder; the system operator is also insured by a framework agreement and is the beneficiary in case of damage.

Package service: Our free system insurance is an ideal addition to your service for long-term customer satisfaction.

### **PRODUCT BENEFITS**

- » Available upon request for all newly installed SolarWorld kits
- » Individual insurance for solar power system
- » Maximum security for your solar investment
- » Free two-year insurance coverage with a term of either two or five years
- » No minimum premium
- » Quick and simple application process
- » Insurance expires automatically after the term expires



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## *Targeted cover*

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### **A) THE ALL-RISKS INSURANCE**

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Covers unforeseeable property damage and loss of insured objects through theft, burglary or looting. In particular, the insurance covers damage caused by:

- Operating errors, ineptitude or wilful intent by third parties
- Short-circuit, overcurrent and overvoltage
- Failure of measuring, control or safety equipment
- Fire, lightning strike, explosion
- Water or moisture
- Storms, hail, frost, ice drift, flooding or snow load
- Animal bite

### **B) OPERATIONAL INTERRUPTION INSURANCE**

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Compensation for any lost electricity feed-in revenue if the functioning of the solar power system is interrupted or adversely affected by property damage or loss. The maximum compensatory payment is available as of the first day the system fails for a maximum of one year.

### **C) REDUCED YIELD INSURANCE**

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The reduced yield insurance offers unique extended coverage. A claim can be made if the level of the predicted annual energy yield is not reached by more than 10 percent due to insufficient solar irradiation.

### **D) CONSTRUCTION COVERAGE**

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This type of insurance is valid from the start of the installation phase, for maximum of 3 months. The construction coverage provides compensation for property damage caused by:

- A. Fire, lightning strike, explosion, impact or if an airplane crashes into the construction, or an airplane's parts or cargo fall from the sky.
- B. Storm or hail and loss due to theft of insured components securely connected to the building and burglary of securely stored insured items.

Requirements for the insurance:

- All details regarding the installer and system operator must be included in the documentation at the time the order is placed.
- Purchase of a complete SolarWorld roof kit or a SunCarport





## SUNCHARGER® – *The solar power system for your pocket* ⚡+🔋+☀️

The SolarWorld SunCharger is the world's first mobile device to combine a power supply, battery and solar generator in one. Cell phones, cameras and MP3 players obviously require power when you take them with you on holiday or business trips. SunCharger supplies power at all times, eliminates the need to carry around many different chargers and extends the operating time of your smartphone. Its integrated solar cell generates climate-friendly power, which allows you to power mobile devices using a USB cable. The high-performance silicon cells fitted on top of the device charge the SunCharger battery on demand and at any time. You can increase the solar cell area by opening the sliding device. SunCharger is your high-quality companion for a green lifestyle. Its modern design has even been honoured with a red dot design award.

Generate your own climate-friendly solar power and have a power supply with you all the time – with the SolarWorld SunCharger.

### PRODUCT BENEFITS

- » 3 in 1 – SunCharger is a power supply, additional battery and solar charger
- » Carry in place of your normal basic charger – you can use it anywhere, any time
- » Independence from the public grid
- » USB connection ensures compatibility with a wide range of devices
- » Green lifestyle product



## Technical data

### DETAILS

Dimensions (W x H x D)	78 x 115 x 23.8 mm
Weight	200 g
Solar cell area	10,470 mm <sup>2</sup>
Input voltage	100–240 V~ / 50–60 Hz / 130 mA
Output voltage	5 V
Output current	500 mA to 600 mA according to USB specifications
Internal battery capacity	≥ 1200 mAh
Rated battery voltage	3.7 V
Operating temperature	0°C to +40°C
Certification	VDE-tested, IEC 60950-1



reddot design award  
winner 2012



## *Find out more*

Do you have any questions about SolarWorld's quality standards or individual products? Then don't hesitate to contact us. We will gladly provide you with additional information and show you exactly how SolarWorld can prepare you for the solar future today.

***SIMPLY CALL US OR SEND US AN EMAIL:***

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