

Product Catalogue

Photovoltaic
Wind Generators

009
01

CATALOGUE 2009
NO 1

OutBack
POWER



ET
Solar

Sundaya

HOPPECKE
POWER FROM INNOVATION

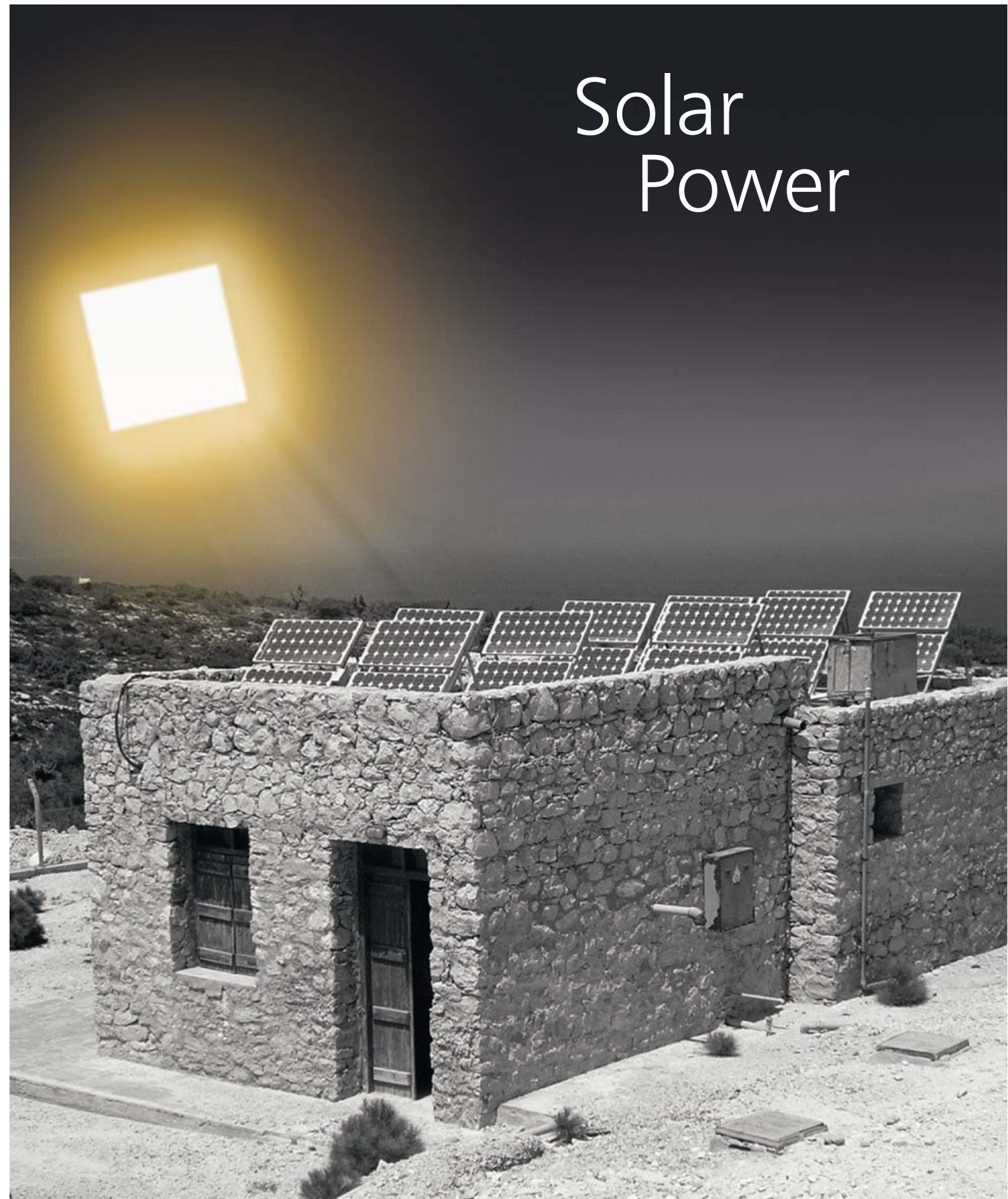
seca
Electronics

Southwest Windpower
Renewable Energy Made Simple














SUNTECH

SMA

Solar Power



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Contact

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Order Form

Contact

Company address		Delivery address	
Name		Name	
Contact person		Contact person	
Address		Address	
Postcode / City		Postcode / City	
Country		Country	
Phone		Phone	
Fax		Fax	
E-mail			
www			
Customer Number (if available)			

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Signature and stamp of order	Annotations	
		Payment Conditions: According to our business conditions.
		Shipping Costs: According to our business conditions.
Place and date:		

General Information



Dear Business Partner

You hold in your hands the very thing that can lead to a change in how you will do business in the future. Our catalogue reflects the range of services, components and systems that we can provide as your partner for the off-grid supply of solar systems. For the selection of products and their integration into reliable and efficient systems we exclusively rely on established brands and many years of experience of our teams operating world wide. The performance of our products and quality of our services pointing the way (forward) in our field and we have no reason to fear comparison with conventional energy supply systems.

Our new corporate design and visual appearance can be seen in this catalogue. It is based on the idea to utilise the power of the sun to our all benefit and may help you, together with the new tab system of the catalogue, to find the products and services you require more easily and quicker.

We wish you every success in the realisation of your goals and we would be delighted if we could contribute by providing you with specialist advice, the right products and tailored solutions.

Our kindest regards,



Tobias Zwirner for the Phaesun team



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Technical questions
on off-grid systems or components? Do not hesitate
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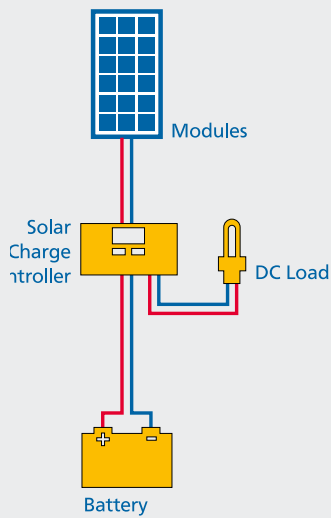


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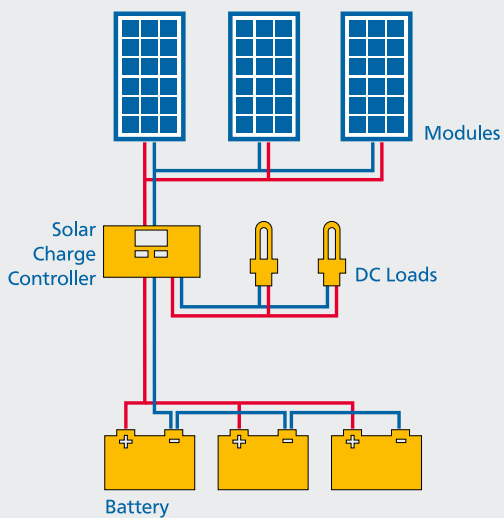
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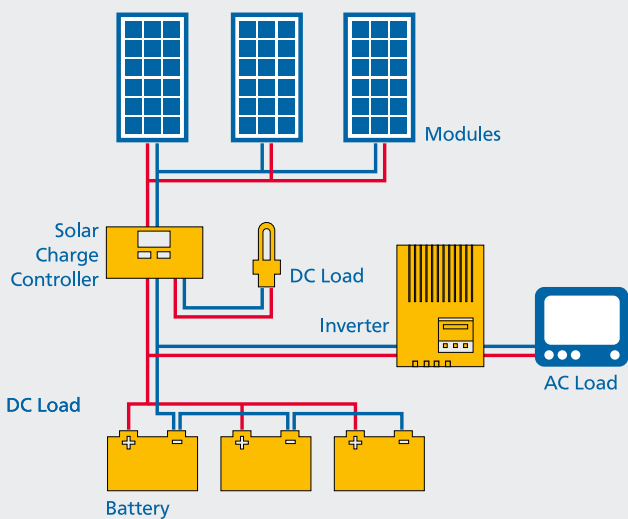
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Small DC Systems (SHS)**Description:**

- Telemetry uses
- Home uses
- Holiday houses
- Garage lighting
- Recreational uses

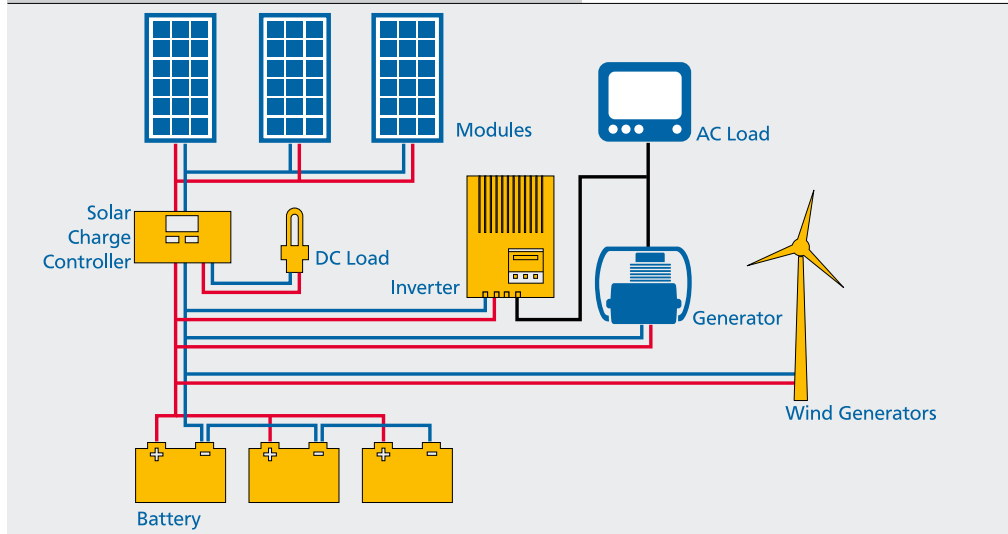
Large DC Systems**Description:**

- Industrial uses
- Home uses
- Recreational uses

Independent Systems**Description:**

- DC and AC loads possible
- Home uses
- Industrial uses

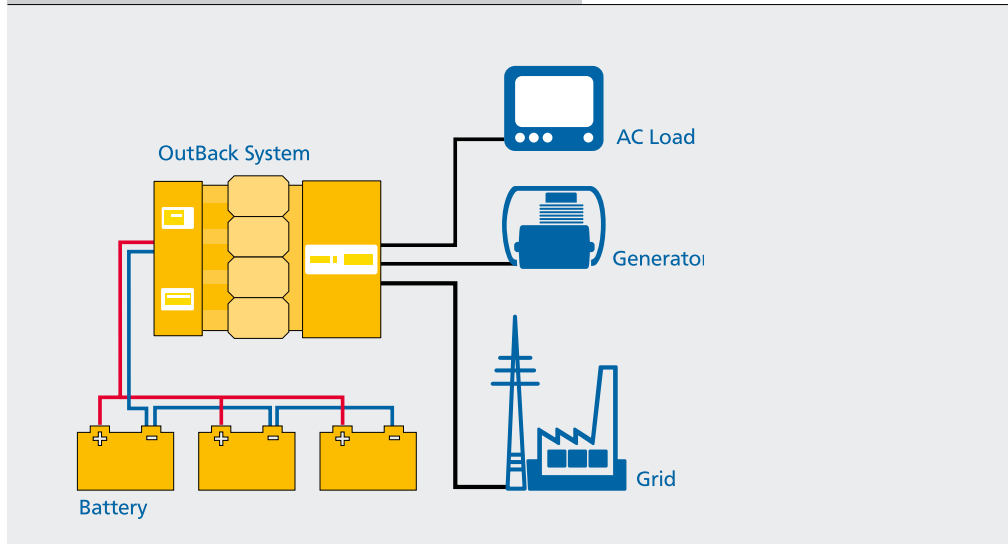
Hybrid Systems



Description:

- PV and Generator or Wind Turbine
- DC and AC loads possible
- high reliability

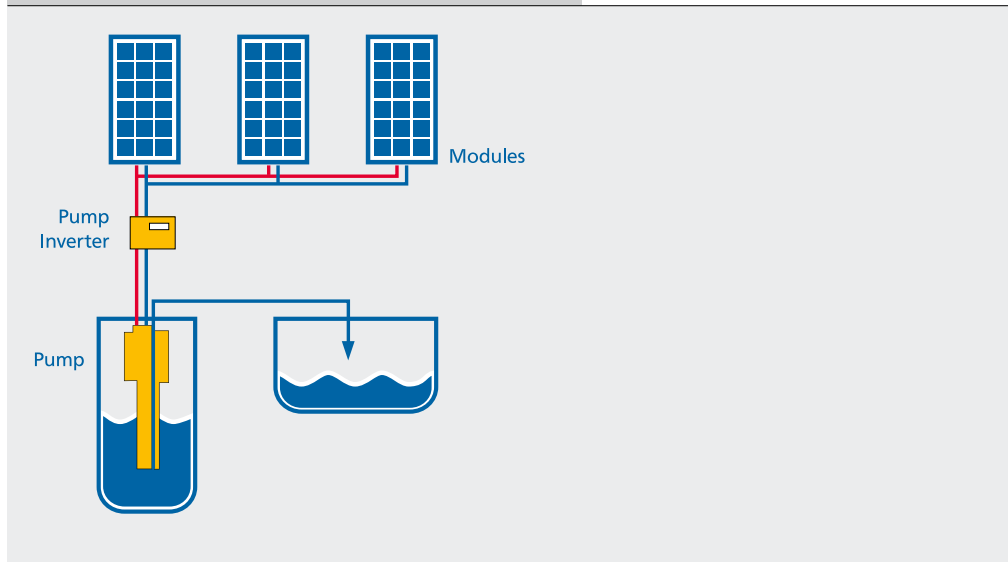
Backup Systems



Description:

- for regions with unreliable public grid
- storage of the power from the public grid
- in times of no public grid, power from the battery

Pump Systems



Description:

- direct use of the power
- no energy storage
- Water pumping

Quality through experience and expertise

Reliability and efficiency are of prime importance wherever solar energy is used. This applies firstly to technical components and in particular to the design and installation of off-grid systems. Since each and every project results in specific individual conditions, project realisation demands the consideration of various factors which must be implemented appropriately with the correct parts, dimensions and performance data. We realise projects with the very best and latest technology purchased from renowned component manufacturers with years of production and development experience. And since we can always draw on extensive experience, our systems satisfy the highest requirements.

The off-grid competencies of Phaesun GmbH are based on a team of outstanding specialists: The detailed know-how of our experts enables them to provide tailor-made comprehensive solutions and support for our customers – from demand analysis and specific composition of components right up to precise installation and maintenance of the system.

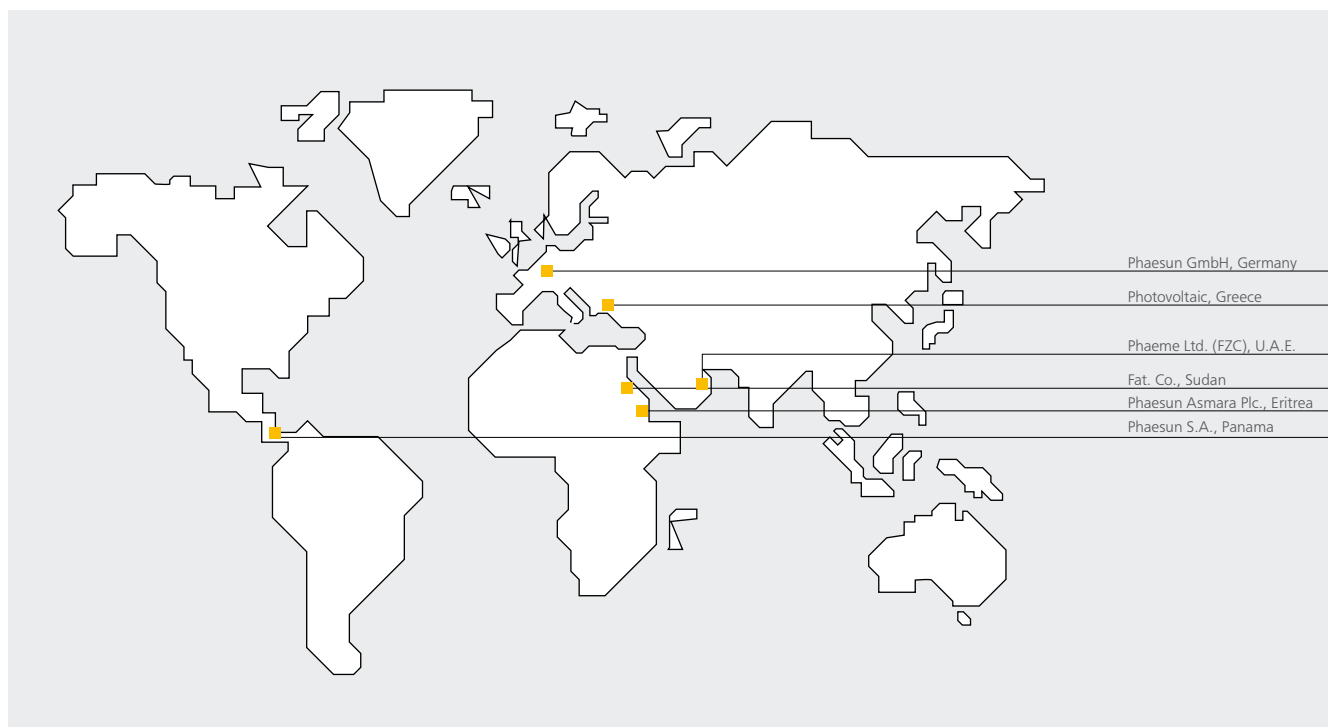
Phaesun*
STAND-ALONE SOLAR SOLUTIONS

Phaesun team and our Kuwait Agent commissioning a Solar Power System for „SCADA“ RTU in an oilfield (Kuwait 10/2008).

Through our experience and expertise we are able to give technical advice to our customers on design, engineering and installation of small and medium sized photovoltaic systems.

- 
- Multi-national specialist team
 - Extensive experience in the off-grid sector
 - Extensive experience in the field of international project management
 - Individual sub-sector specialisation
-
- International company structure
 - Knowledge of local climate and energy data
 - Excellent communication and processing skills thanks to our own regional sites (customs duties, taxes, logistics)

Phaesun Representations



Phaesun Asmara Plc., Eritrea



Phaeme Ltd. (FZC), U.A.E.



Photovoltaic, Greece



Fat Co., Sudan



Phaesun S.A., Panama



Phaesun GmbH, Germany

A hand is holding a rectangular solar panel, tilted upwards. The panel is dark with a grid of thin, light-colored lines. The background is a bright, hazy sky with a large, glowing sun in the upper left corner, creating a lens flare effect. The overall image has a clean, modern aesthetic with a blue and yellow header bar at the top.

Modules

Modules

Suntech Crystalline Solar Modules



High quality solar modules from Suntech. The modules are highly efficient and guarantee an 80% level of performance for 25 years. Suntech's emphasis on product quality and international management standards has not only helped Suntech obtain a range of operating certificates, meet a range of test standards including IEC 61215:1993, CE certification, TÜV certification, ISO 9001:2000 quality system certification but also established Suntech's reputation as a trusted PV manufacturer throughout the region. Suntech has developed a line of PV cells with increased energy efficiency without increasing cell manufacturing costs.



Article	Description	Dimensions	Weight	Article No.
Mono Crystalline Solar Modules				
Suntech STP 005S-12/Db	(5 Watt / 12 V)	216 x 306 x 18 mm	800 g	106.401
Suntech STP 010S-12/Kb	(10 Watt / 12 V)	310 x 368 x 18 mm	1,5 kg	106.404
Suntech STP 020S-12/Cb	(20 Watt / 12 V)	656 x 306 x 30 mm	2,5 kg	106.410
Suntech STP 030S-12/Lb	(30 Watt / 12 V)	665 x 410 x 20 mm	3,2 kg	106.412
Suntech STP 045S-12/Rb	(45 Watt / 12 V)	537 x 668 x 30 mm	4,5 kg	106.417
Suntech STP 060S-12/Sb	(60 Watt / 12 V)	771 x 665 x 30 mm	6,2 kg	106.421
Suntech STP 070S-12/Sb	(70 Watt / 12 V)	771 x 665 x 30 mm	6,2 kg	106.423
Suntech STP 075S-12/Bb	(75 Watt / 12 V)	1195 x 541 x 30 mm	8 kg	106.424
Suntech STP 080S-12/Bb	(80 Watt / 12 V)	1195 x 541 x 30 mm	8 kg	106.425
Suntech STP 085S-12/Bb	(85 Watt / 12 V)	1195 x 541 x 30 mm	8 kg	106.426
Suntech STP 120S-12/Tb	(120 Watt / 12 V)	1482 x 676 x 35 mm	12 kg	106.427
Suntech STP 130S-12/Tb	(130 Watt / 12 V)	1482 x 676 x 35 mm	12 kg	106.428
Multi Crystalline Solar Modules				
Suntech STP 005-12/Db	(5 Watt / 12 V)	216 x 306 x 18 mm	800 g	106.437
Suntech STP 010-12/Kb	(10 Watt / 12 V)	310 x 368 x 18 mm	1,5 kg	106.440
Suntech STP 020-12/Cb	(20 Watt / 12 V)	656 x 306 x 18 mm	2,5 kg	106.446
Suntech STP 030-12/Lb	(30 Watt / 12 V)	426 x 680 x 18 mm	3,2 kg	106.454
Suntech STP 045-12/Rb	(45 Watt / 12 V)	537 x 665 x 30 mm	4,5 kg	106.459
Suntech STP 060-12/Sb	(60 Watt / 12 V)	771 x 665 x 30 mm	6,2 kg	106.469
Suntech STP 080-12/Bb	(80 Watt / 12 V)	1195 x 541 x 30 mm	8 kg	106.473
Suntech STP 085-12/Bb	(85 Watt / 12 V)	1195 x 541 x 30 mm	8 kg	106.474
Suntech STP 130-12/Tb	(130 Watt / 12 V)	1482 x 676 x 35 mm	12 kg	106.476

ET Solar Modules

ET Modules deliver
excellent performance
with high efficiency



ET Module Features:

- Manufactured in an ISO 9001:2000 certified plant
- High efficiency, high safety, high reliability
- Output power tolerance of $\pm 3\%$
- 25-year limited warranty on power output, 5-year limited warranty on materials and workmanship



Photovoltaics is our passion

ETSolar Crystalline Solar Modules



The ETSolar solar module product line spans a range from 50 to 280 watts. All modules are designed and manufactured to meet international safety and performance certifications. The modules feature heavy duty anodized frames to give strength, convenient mounting access and weather resistant junction boxes for easy and safe field interconnection. The ET-M536 series offers high power performance for PV systems and withstands extreme operating conditions. The modules are produced on a high quality production line, operated by well-trained employees.



Article	Description	Dimensions	Weight	Article No.
ETSolar ET-M53605	(5 Watt / 12V)	301 x 176 x 34 mm	1,2 kg	104.270
ETSolar ET-M53610	(10 Watt / 12V)	283 x 299 x 34 mm	1,7 kg	104.271
ETSolar ET-M53620	(20 Watt / 12V)	662 x 299 x 34 mm	2,7 kg	104.272
ETSolar ET-M53925	(25 Watt / 12V)	633 x 427 x 34 mm	3,5 kg	104.273
ETSolar ET-M53930	(30 Watt / 12V)	633 x 427 x 34 mm	3,5 kg	104.274
ETSolar ET-M53640	(40 Watt / 12V)	645 x 542 x 34 mm	4,6 kg	104.275
ETSolar ET-M53645	(45 Watt / 12V)	838 x 427 x 34 mm	4,6 kg	104.276
ETSolar ET-M53650	(50 Watt / 12V)	980 x 445 x 35 mm	5 kg	104.291
ETSolar ET-M53655	(55 Watt / 12V)	980 x 445 x 35 mm	5 kg	104.292
ETSolar ET-M53670	(70 Watt / 12V)	1217 x 555 x 36 mm	8,2 kg	104.279
ETSolar ET-M53675	(75 Watt / 12V)	1217 x 555 x 36 mm	8,2 kg	104.280
ETSolar ET-M53680	(80 Watt / 12V)	1217 x 555 x 36 mm	8,2 kg	104.281
ETSolar ET-M53685	(85 Watt / 12V)	1217 x 555 x 36 mm	8,2 kg	104.295
ETSolar ET-P636100	(100 Watt / 12V)	1482 x 676 x 35 mm	12 kg	104.282
ETSolar ET-P636110	(110 Watt / 12V)	1482 x 676 x 35 mm	12 kg	104.296
ETSolar ET-P636120	(120 Watt / 12V)	1482 x 676 x 34 mm	12 kg	104.297
ETSolar ET-P636125	(125 Watt / 12V)	1482 x 676 x 34 mm	12 kg	104.298
ETSolar ET-P636130	(130 Watt / 12V)	1482 x 676 x 34 mm	12 kg	104.299
ETSolar ET-P636140	(140 Watt / 12V)	1482 x 676 x 34 mm	12 kg	104.302

Istar Solar Modules

Our recommendation for up-to-date solar modules.



Istar Polycrystalline Solar Modules

These photovoltaic modules are composed of 36 high efficiency polycrystalline solar cells produced with the most innovative technologies of isotropic texturization and antireflecting coating. Istar Solar® manufactures top quality modules by using only guaranteed and certified materials. These modules are in fact made of solar cells encapsulated between sheets of ethylene vinyl acetate (EVA), highly transparent, antishock, tempered glass which protects the module against mechanical and climatic effects, such as hail, ice etc. The particular texturization of the glass enables a maximum concentration and diffusion of the light on the solar cells. This enable us to guarantee very good module performances, power and working conditions even if in lower sunlight levels worldwide. The white tedlar back sheet contributes to a further protection of the module and the electrical contacts against the action of climatic agents like humidity.



To speed up your order please use our order or inquiry form! You find it in the front of this catalogue and on www.phaesun.com > Components > Downloads



Istar Solar Polycrystalline Solar Modules

These photovoltaic modules are composed of 36 high efficiency polycrystalline solar cells produced with the most innovative technologies of isotropic texturization and antireflecting coating. Istar Solar® manufactures top quality modules by using only guaranteed and certified materials. These modules are in fact made of solar cells encapsulated between sheets of ethylene vinyl acetate (EVA), highly transparent, antishock, tempered glass which protects the module against mechanical and climatic effects, such as hail, ice etc. The particular texturization of the glass enables a maximum concentration and diffusion of the light on the solar cells.

This enable us to guarantee very good module performances, power and working conditions even if in lower sunlight levels worldwide. The white tedlar back sheet contributes to a further protection of the module and the electrical contacts against the action of climatic agents like humidity. Furthermore the strong anodized aluminium frame with corners and pre-drilled mounting holes makes the module extremely easy to install. The modules are equipped with a special waterproof junction box Tyco with protection degree IP55.

Modules made in Europe, especially for projects and tenders.



NEW

Made in European Union
TÜV Safety Class II

CE IEC 61215 Standard 2nd Ed

Article	Description	Dimensions	Weight	Article No.
Istar IS10P	(10 Watt / 12 V)	365 x 310 x 35 mm	1,6 kg	105.900
Istar IS20P	(20 Watt / 12 V)	365 x 550 x 35 mm	3 kg	105.901
Istar IS30P	(30 Watt / 12 V)	350 x 675 x 35 mm	5 kg	105.902
Istar IS40P	(40 Watt / 12 V)	550 x 675 x 35 mm	5 kg	105.903
Istar IS50P	(50 Watt / 12 V)	645 x 675 x 35 mm	6 kg	105.904
Istar IS60P	(60 Watt / 12 V)	645 x 675 x 35 mm	6 kg	105.905
Istar IS70P	(70 Watt / 12 V)	785 x 675 x 35 mm	8 kg	105.906
Istar IS75P	(75 Watt / 12 V)	1190 x 550 x 35 mm	9,3 kg	105.907
Istar IS90P	(90 Watt / 12 V)	1190 x 550 x 35 mm	9,3 kg	105.908
Istar IS100P	(100 Watt / 12 V)	1205 x 675 x 35 mm	9,3 kg	105.909
Istar IS110P	(110 Watt / 12 V)	1205 x 675 x 35 mm	9,3 kg	105.910
Istar IS120P	(120 Watt / 12 V)	1205 x 675 x 35 mm	6 kg	105.911
Istar IS3000P-125	(125 Watt / 12 V)	1490 x 675 x 35 mm	13 kg	105.912
Istar IS3000P-130	(130 Watt / 12 V)	1490 x 675 x 35 mm	13 kg	105.913
Istar IS3000P-135	(135 Watt / 12 V)	1490 x 675 x 35 mm	13 kg	105.914
Istar IS3000P-140	(140 Watt / 12 V)	1490 x 675 x 35 mm	13 kg	105.915

Schott Solar Amorphous Solar Modules

The future-oriented ASI®-Technology is the result of many years of experience, the latest know-how, and modern manufacturing processes. ASI®-F modules combine state-of-the-art solar module technology with proven encapsulation, offering decisive advantages:

More energy: Independent surveys have shown that - under realistic conditions such as unfavourable lighting situation or high temperature - our ASI®-technology produces approximately 20% more energy per rated Wp than crystalline modules.

Excellent value for money: The optimal use of raw materials and automated manufacturing processes ensures favourable prices, high performance and environmental viability for all ASI®-F modules.

Robust encapsulation: The proven ASI®-F encapsulation ensures high resistance against UV, temperature and weather, even in the most extreme conditions. The torsion-proof aluminium dished frame with integrated corner links offers optimal protection against mechanical wear or damage.

Simple mounting: All ASI®-F modules have a junction box for variable circuiting. The oblong holes in the aluminium frame allow easy and universal mounting.

Top quality and safety: The proven ASI®-F modules "Made in Germany" stand for high, stable performance and longevity:

- 10 years power guarantee
- IEC 61646 certified
- ISO 9001 and ISO 14001 certified production

SCHOTT
solar



CE IEC 61646 Standard

Article	Description	Dimensions	Weight	Article No.
Schott Solar ASI-F 2/12	(2,3 Watt / 12 V)	293 x 144 x 22 mm	600 g	101.613
Schott Solar ASI-F 5/12	(5,2 Watt / 12 V)	330 x 293 x 22 mm	1,2 kg	101.615
Schott Solar ASI-F 10/12	(10,3 Watt / 12 V)	330 x 581 x 22 mm	2,1 kg	101.617
Schott Solar ASI-F 32/12	(32,2 Watt / 12 V)	1005 x 605 x 32 mm	10,1 kg	101.618

The ultimate portable power supply - foldable solar modules!

Foldable CIGS Solar Modules

Phaesun*
STAND-ALONE SOLAR SOLUTIONS

Features:

- Flexible and durable solar cells based on the revolutionary CIGS technology: a proven innovation used in space, military and large grid installation
- Designed to provide years of reliable service with patented high performance flexible photovoltaic cells
- Lightweight less than 1-lb. each panel
- Offers higher cell efficiency than other flexible solar cell technologies at a reduced cost
- Functions with many devices even in cloudy and rainy skies
- It can be mounted to curved surfaces
- Fully Weatherproofed
- UV resistant
- Easily folds into a planner-size pack that fits virtually anywhere including backpacks, glove boxes, purses, cargo pant pockets
- Can be easily installed on any backpack, tents or jackets

Camouflage version on request



Article	Description	Dimensions	Weight	Article No.
ME ² Solar Module 6,5 W	(6,5 Watt / 12 V / incl. cabke kit)	749 x 229 x 0,8 mm	200 g	106.700
ME ² Solar Module 12 W	(12 Watt / 12 V / incl. cabke kit)	749 x 457 x 0,8 mm	400 g	106.701
ME ² Solar Module 25 W	(25 Watt / 12 V / incl. cabke kit)	1048 x 546 x 0,8 mm	770 g	106.702
ME ² Solar Module 30 W	(30 Watt / 12 V)	1130 x 546 x 2,5 mm	830 g	106.703
ME ² Solar Module 62 W	(62 Watt / 12 V)	1333 x 762 x 2,5 mm	1,45 kg	106.704

Foldable Solar Modules Accessories



Car Charger Receptacle -

- Acts like car cigarette lighter and enables device specific car charger plug to connect and charge device
- Used to charge 12V batteries and devices
- Can be used with Foldable 650, 1200, and 2500
- 10Amp, 12VDC with integrated strain relief

Car Charger Plug:

- Used with solar panel to trickle charge vehicle or boat batteries while plugged into vehicle or boat cigarette lighter
- Can be used with Foldable 650, 1200, and 2500
- 10Amp, 12VDC with integrated strain relief and 2Amp internal fuse

8' Extension Cable:

- Used with any other cable kit accessory cable to extend the distance between device/battery and solar panel
- 16 AWG, jacketed PVC cable. Less than 1% loss with a single Xpedition 55 Watt attached and less than 4% with 2 in parallel

Battery Clamps:

- Used to attach directly to 12V lead acid battery for charging
- Recommended to be used with 8' Extension Cable attached
- When using with Xpedition products, 7Amp Charge Controller (PN 14598) recommended
- Battery Clamp fully insulated 20Amp, 12VDC, Black (-), Red (+)

Barrel Plug:

- Used for charging with direct connection into devices having a barrel plug receptacle (i.e. Xantrex PowerPacks)

Charge Controller:

- 7 A Charge Controller
- 12 V DC
- Plug and Play (special plugs for the Foldable Solar Module Range)



Car Charger Receptacle



Car Charger Plug



8' Extension Cable



Battery Clamps



Barrel Plug



Charge Controller

NEW

Article	Description	Dimensions	Weight	Article No.
ME ² Solar Accessory Cable Kit	(includes all 5 cables above)	–	–	106.715
ME ² Solar Y-cable Multi Panel	(Connector cable to connect up to 4 modules)	–	–	106.716
ME ² Solar 8' Extension Cable	–	–	–	106.712
Solar Charge Controller	(7 A / 12 VDC)	92 x 64 x 25 mm	100 g	302.888

Electronics



Electronics

Steca Solsum Solar Charge Controller



High performance microcontrolled „low cost“ charge controller with integrated deep discharge and over voltage protection, LED-state of charge display, temperature compensated overcharge protection by integrated sensor and battery charge according to IU-characteristic line. The Solsum X.0C are high performance microcontrolled „low cost“ charge controller as Solsum 6.6C and 8.8C with integrated total discharge warning (no deep discharge protection).



Article	Description	Dimensions	Weight	Article No.
Steca Solsum 6.6C	(6 A module current / 6 A load current / 12/24 V)	130 x 88 x 39 mm	164 g	105.418
Steca Solsum 8.8C	(8 A module current / 8 A load current / 12/24 V)	130 x 88 x 39 mm	164 g	105.419
Steca Solsum 10.10C	(10 A module current / 10 A load current / 12/24 V)	130 x 88 x 39 mm	164 g	101.462
Steca Solsum 5.0C	(5 A module current / 12/24 V)	130 x 88 x 39 mm	164 g	105.420
Steca Solsum 8.0C	(8 A module current / 12/24 V)	130 x 88 x 39 mm	164 g	105.421

Steca PR 0303/0505 Solar Charge Controller



Modified PWM charging series regulator with electronic fuse and manual load switch. The LED display shows the charging by a solar module, the state of charge of the battery in three colors. Big terminals ensure an easy installation.



Article	Description	Dimensions	Weight	Article No.
Steca PR 0303	(3 A module current / 3 A load current / 12 V)	146 x 90 x 33 mm	160 g	101.260
Steca PR 0505	(5 A module current / 5 A load current / 12 V)	146 x 90 x 33 mm	160 g	101.261

OutBack Power Systems

- ▀ **RUGGED** For Installation in the Harshest Environments
- ▀ **DEPENDABLE** Power When You Need It Most
- ▀ **FLEXIBLE** Works With Wind, Solar, Hydro – Any R.E. Source!
- ▀ **MODULAR** Expandable Systems From 2kW to 30kW
- ▀ **EXPERIENCE** Power Electronic Design for More Than 25 Years!



FX/VFX Inverter/Charger



MATE



FLEXware PV



FLEXnet DC



FLEXmax 60 FLEXmax 80



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Steca PR 1010/1515/2020/3030 Solar Charge Controller



High performance microcontrolled charge controller. Apart from the base functions deep discharge and overvoltage protection, this charge controller range offers a multitude of comfortable additional functions as e.g. LC-display, temperature compensation, exact state of charge (SOC) display (PR Series only),

compensation of voltage drop between battery and charge controller, hard and software fuse, automatic voltage adjustment (12/24V), and many more.



Article	Description	Dimensions	Weight	Article No.
Steca PR 1010	(10 A module current / 10 A load current / 12/24 V)	187 x 96 x 44 mm	350 g	104.514
Steca PR 1515	(15 A module current / 15 A load current / 12/24 V)	187 x 96 x 44 mm	350 g	104.515
Steca PR 2020	(20 A module current / 20 A load current / 12/24 V)	187 x 96 x 44 mm	350 g	104.516
Steca PR 3030	(30 A module current / 30 A load current / 12/24 V)	187 x 96 x 44 mm	350 g	104.517

Steca Solarix PRS Solar Charge Controller



The simplicity and high performance of the new Steca Solarix PRS solar charge controller make it particularly attractive. Here, Steca's latest algorithms are employed in order to guarantee optimal battery maintenance. The Solarix PRS charge controllers are equipped with an electronic fuse, thus ensuring the optimal protection. They operate on the serial principle, and separate the solar module from the battery in order to

protect it against overcharging. The Solarix PRS charge controllers are universal charge controllers: they can be used with lead-acid batteries or gel batteries without the need for complex configuration settings. For larger projects, the charge controllers can also be equipped with special functions: night light function, selectable charging plateau and deep discharge protection voltages ...



Article	Description	Dimensions	Weight	Article No.
Steca Solarix PRS 1010	(10 A module current / 10 A load current / 12/24 V)	187 x 96 x 45 mm	350 g	101.475
Steca Solarix PRS 1515	(15 A module current / 15 A load current / 12/24 V)	187 x 96 x 45 mm	350 g	101.476
Steca Solarix PRS 2020	(20 A module current / 20 A load current / 12/24 V)	187 x 96 x 45 mm	350 g	101.477
Steca Solarix PRS 3030	(30 A module current / 30 A load current / 12/24 V)	187 x 96 x 45 mm	350 g	101.478

Steca PR 2020-IP Solar Charge Controller



The PR 2020-IP design is based on Steca's PR charge controller series with a customer designed LCD which shows the accurate state of charge (SOC) in percent and as battery gauge symbol. The heart of the controller is the integrated circuit called ATONIC II, which contains the improved regulation software based on a self learning algorithm. The PR 2020-IP controller operates in harsh environments like salt, moisture and dust.



Article	Description	Dimensions	Weight	Article No.
Steca PR 2020-IP 65	(20 A module current / 20 A load current / 12 V)	122 x 55 x 147 mm	350 g	101.463

Steca Solarix 2401/4401 Solar Charge Controller



The Steca Solarix 2401 and 4401 controllers complete the product range of the PR and PRS 30 Amps controller to 40 Amps solar current, available in 12, 24 and 48 V. The load current is limited to 10 Amps. The charging procedures are based on voltage levels which can be individually adjusted by four buttons behind the front cover.



Article	Description	Dimensions	Weight	Article No.
Steca Solarix 2401	(40 A module current / 10 A load current / 12/24 V)	188 x 128 x 49 mm	550 g	101.464
Steca Solarix 4401	(40 A module current / 10 A load current / 48 V)	188 x 128 x 49 mm	550 g	101.465

Steca PR 0606/1010N Solar Charge Controller



Solar charge controller with time controlled night light function contains all basic functions of a comfortable charge controller as deep discharge and over load protection, LED, etc. and additionally integrated programmable timer function for the time controlled switching of loads (e.g. lamps).



Article	Description	Dimensions	Weight	Article No.
Steca PR 0606N	(6 A module current / 6 A load current / 12/24 V)	146 x 94 x 28 mm	120 g	101.220
Steca PR 1010N	(10 A module current / 10 A load current / 48 V)	146 x 94 x 28 mm	120 g	101.221

Steca Tarom Solar Charge Controller



The presently leading charge controller product range referring to equipment and performance. Apart from the basic functions of an ordinary solar charge controller (deep discharge and over load protection), this product range offers countless possibilities related to programmability, data processing, system configuration, unit-by-unit expansibility and performance. In addition to a lot of characteristics, a two lined

LC-display, integrated data logger, PC connection, programmable operating points, exact state of charge (SOC) display, Ah counter and a lot more can be mentioned.



Article	Description	Dimensions	Weight	Article No.
Steca Tarom 235	(35 A module current / 35 A load current / 12/24 V)	188 x 128 x 49 mm	534 g	101.222
Steca Tarom 245	(45 A module current / 45 A load current / 12/24 V)	188 x 128 x 49 mm	534 g	101.223
Steca Tarom 440	(40 A module current / 40 A load current / 48 V)	188 x 128 x 49 mm	534 g	101.466

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Steca Power Tarom Solar Charge Controller



The presently leading charge controller product range referring to equipment and performance. Apart from the basic functions of an ordinary solar charge controller (deep discharge and over load protection), this product range offers countless possibilities related to programmability, data processing, system configuration, unit-by-unit expansibility and performance. In addition to a lot of characteristics, a two lined

LC-display, integrated data logger, PC connection, programmable operating points, exact state of charge (SOC) display, Ah counter and a lot more can be mentioned. All technical data and features as with the above mentioned Tarom product group, but for considerably higher capacities IP 65 protection (splash water protection) for the outdoor assembly.



Article	Description	Dimensions	Weight	Article No.
Steca Power Tarom 2070	(70 A module current / 58 A load current / 12/24 V)	330 x 330 x 157 mm	10 kg	101.225
Steca Power Tarom 2140	(140 A module current / 116 A load current / 12/24 V)	360 x 330 x 157 mm	10 kg	101.226
Steca Power Tarom 4055	(55 A module current / 46 A load current / 48 V)	330 x 330 x 157 mm	10 kg	101.227
Steca Power Tarom 4110	(110 A module current / 92 A load current / 48 V)	360 x 330 x 157 mm	10 kg	101.228
Steca Power Tarom 4140	(140 A module current / 70 A load current / 48 V)	360 x 330 x 157 mm	10 kg	104.099

Steca PL 2085 Solar Charging Station



The PL 2085 is a solar charging station which charges up to 8 lead acid batteries simultaneously. The microprocessor controlled charging station recognizes the connection sequence of the batteries. The battery which is connected first is charged first and as soon as the first battery is full, it switches over to the second battery etc. Each battery terminal of maximum 5 Amps is a separate DC / DC converter with maximum power point tracking (MPP) of the solar generator. Up to two battery terminals can

be connected in parallel on the same battery. These terminals are protected against wrong polarity, short circuit, no load operation and overload. Batteries are charged to predefined IU constant current charging procedures until end of charge voltage is reached. Battery charging starts even from run down batteries at voltages higher than 5V. At night the charging station works in a energy saving mode and no battery data is lost.



Article	Description	Dimensions	Weight	Article No.
Steca PL 2085	(12 VDC / 8 channels à 5 A charging current)	365 x 227 x 75 mm	2 kg	101.246

Steca Solarix MPPT Charge Controller

The new Steca charge controller Solarix MPPT is a maximum power point tracker to optimally charge batteries. It is specially designed to connect PV-modules which are used in grid-connected systems. It is a simple and reliable device providing maximum flexibility in module configuration. It is also possible to use thin film modules with this device. The latest technology

guarantees professional battery care combined with modern design and outstanding protection features.


NEW

Article	Description	Dimensions	Weight	Article No.
Steca Solarix MPPT 2010	(12/24 VDC / 20 A Module / 10A Load / LED)	190 x 150 x 70 mm	900 g	106.799

I'm really great.

Steca Solarix MPPT 2010 – clearly shaped, amazing content, competitive price.



Steca Solarix MPPT 2010 amplifies the world wide best selling Steca Solarix solar charger family: now with maximum power point charge algorithm!

Optimizes battery charging and control of DC appliance.

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Sundaya Apple Solar Charge Controller



The Apple is a charge discharge regulator with an unique battery forced health improvement feature (FHI©). The apple is equipped with an alarm to warn the user when battery is close to forced disconnect. The Apple uses latest technology ultra efficient switching components which results in extreme low voltage drop and almost no heat generation. The unit has very sturdy terminals.



Article	Description	Dimensions	Weight	Article No.
Sundaya Apple 5	(5 A module current / 5 A load current / 12 V)	Ø120 x 40 mm	100 g	101.994
Sundaya Apple 10	(10 A module current / 10 A load current / 12 V)	Ø120 x 40 mm	100 g	101.995
Sundaya Apple 15	(15 A module current / 15 A load current / 12 V)	Ø120 x 40 mm	100 g	101.996
Sundaya Apple 20	(20 A module current / 20 A load current / 12 V)	Ø120 x 40 mm	100 g	104.537
Sundaya Apple 5 & cable set	(5 A module current / 5 A load current / 12 V)	Ø120 x 40 mm	100 g	104.531
Sundaya Apple 10 & cable set	(10 A module current / 10 A load current / 12 V)	Ø120 x 40 mm	100 g	104.532
Sundaya Apple 15 & cable set	(15 A module current / 15 A load current / 12 V)	Ø120 x 40 mm	100 g	104.533

OutBack PV MPPT Charge Controller



The FLEXmax family of charge controllers is the latest innovation in Maximum Power Point Tracking (MPPT) charge controllers from OutBack Power Systems. The innovative FLEXmax MPPT software algorithm is both continuous and active, increasing your photovoltaic array power yield up to 30% compared to non-MPPT controllers. Thanks to active cooling and intelligent thermal management cooling, both FLEXmax charge controllers can operate at their full maximum current rating, 60 Amps or 80 Amps respectively, in ambient temperatures as high as 104°F (40°C).

Included in all of the FLEXmax Charge Controllers are the revolutionary features first developed by OutBack Power, including support for a wide range of nominal battery voltages and the ability to step-down a higher voltage solar array to recharge a lower voltage battery bank. A built-in, backlit 80 character display shows the current status and logged system performance data for the last 128 days at the touch of a button. The integrated OutBack network communications allows FLEXmax series Charge Controllers to be remotely programmed and monitored via a MATE system display and provides unrivaled complete system integration.



NEW

OutBack FLEXmax 60



OutBack FLEXmax 80

Article	Description	Dimensions	Weight	Article No.
OutBack FLEXmax FM 60 Charge Controller	(60A / 12 - 60 VDC battery / 140 VOC)	140 x 100 x 400 mm	5,4 kg	107.699
OutBack FLEXmax FM 80 Charge Controller	(80A / 12 - 60 VDC battery / 140 VOC)	140 x 100 x 413 mm	5,6 kg	107.700

Western MPPT Charge Controller



Western Co. charge regulators for lighting have been properly studied for PV street lamps with either SOX (low pressure sodium) and LED lamps. Their circuit has got a switching system with microcontroller for recharge of sealed or flooded lead acid 12Volt/24Volt (according to the version 12 or 24V) Pb batteries and search of the MPPT maximum power point of PV modules (switching Western Enhanced for a maximum exploitation of efficiency during recharge phase). A temperature sensor (which must be installed as near as possible to the battery) allows to adapt the recharge voltage to the variations of environment temperature as reported in the graphic at the end of this manual. This guarantees the best use of battery even in conditions of

large thermal excursions and make these charge regulators suitable for outdoor applications. The recharge circuit needs to measure the battery voltage but, owing to the voltage drop on cables that connect regulator and battery, such measure is as more distorted as longer are the cables. For this reason there is an auxiliary input for the revelation of remote battery voltage that we advise to connect if the cables' length between SPB-LB and battery is > of 1.5 metres. All these expedients guarantee an optimum recharge and, therefore, a maximum life duration of the battery.



NEW

Article	Description	Dimensions	Weight	Article No.
MPPT Charge Regulator SPB-LB12	(10 A / output 12 V / switch controlled)	200 x 160 x 95 mm	1,5 kg	102.172
MPPT Charge Regulator SPB-LB24	(10 A / output 24 V / switch controlled)	200 x 160 x 95 mm	1,5 kg	103.881
MPPT Charge Regulator SPB-LR12	(10 A / output 12V / Radio controlled)	200 x 160 x 95 mm	1,5 kg	102.173
MPPT Charge Regulator SPB-LR24	(10 A / output 24 V / Radio controlled)	200 x 160 x 95 mm	1,5 kg	103.882
MPPT Charge Regulator SPB-LG12	(10 A / output 12V / GSM controlled)	200 x 160 x 95 mm	1,5 kg	102.174
MPPT Charge Regulator SPB-LG24	(10 A / output 24 V / GSM controlled)	200 x 160 x 95 mm	1,5 kg	103.883

Steca PA EV200 DC Relay

Steca PA EV200 relay increases the switching capacity of the PA 15 remote control from 15 A to 200 A (up to 10kW). The relay is connected to the load output of the PA 15 and interrupts for example, the battery supply voltage from a back-up generator when the battery is full.

The relay is hermetically sealed, intrinsically safe and operates in explosive & harsh environments like salt, moisture and dust with no oxidation or contamination of coils or contacts.



Article	Description	Dimensions	Weight	Article No.
Steca PA EV200 DC Relay Type A	(12/24 V / 9 - 36V / 200 A)	63 x 80 x 72 mm	430 g	101.469
Steca PA EV200 DC Relay Type B	(36/48 V / 32 - 95V / 200A)	63 x 80 x 72 mm	430 g	101.470

Steca Tarom PA 15 Receiver (for Steca Tarom)

The PA 15 unit is able to receive the SOC (state of charge) signal from the charge controller (Tarom product range) and depending on the configuration it cuts off loads or puts on additional generators. A charging management is the second feature of the PA 15 receiver. The programming of the PA 15 is made by a jumper connection terminal.



Article	Description	Dimensions	Weight	Article No.
Steca Tarom PA 15	–	87 x 98 x 34 mm	110 g	101.247

Steca PA IRS 1008/108 Motion Detector

The Steca PA IRS 1008/108 motion detector is connected to the load output of the night light charge controller. This supplies power to the light, which is then turned on for a few minutes when some movement is detected.

The Steca IRS 1008/108 stands out, above all, through its extremely low own consumption, and is therefore optimal for use in solar power systems.



Article	Description	Dimensions	Weight	Article No.
Steca PA IRS 1008/108	(12 V / reach 7 m - 180° / IP 65)	–	100 g	105.472

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Steca PA Shunt Regulator (for Steca Tarom)



Intelligent hall shunt for Tarom and Power Tarom regulator. Contactless current sensor measuring of all battery currents. Potential free shunt.

A RJ45 interface communication with Tarom controllers for exact SOC calculation. Parallel operation with several PA HS200 is possible.



Article	Description	Dimensions	Weight	Article No.
Steca PA HS 200	–	100 x 60 x 25 mm	120 g	101.264

Steca PA Tarcom Data Logger (for Steca Tarom)



Stecas data logger PA Tarcom is connected to three RJ45 data loop of the Tarom or Power Tarom charge controller or via the PA HS200 shunt. It is available in different versions as a simple RS232 serial interface (PA Tarcom 01) to log and read out data directly to a PC or laptop, as a data logger connected with integrated analogue modem (PA Tarcom RM), as a data logger with an optional telephone link for phone

calls (PA Tarcom RMT) and as a datalogger with a built in GSM modem for remote monitoring (PA Tarcom GSM). The PA Tarcom data logger is shipped with software.



Article	Description	Dimensions	Weight	Article No.
Steca Tarcom DAT Serial	(System 12/24/48 V / Operation 8 - 65 V)	130 x 82 x 38 mm	150 g	101.269
Steca Tarcom DAT RM/RMT Modem	(System 12/24/48 V / Operation 8 - 65 V)	130 x 82 x 38 mm	150 g	101.467
Steca Tarcom DAT GSM	(System 12/24/48 V / Operation 8 - 65 V)	130 x 82 x 38 mm	150 g	101.468

Steca PA RC100 Remote



Remote control for Steca Solarix PRS Solar Charge Controller.



Article	Description	Dimensions	Weight	Article No.
Steca PA RC100 Remote Control	–	–	150 g	106.798

Studer Xtender range

The Xtender range is meant for highly performing systems from small hybrid to village power.



The Xtender Series consist of inverters-chargers offering outstanding performances for highly demanding users.

Starting from 2kW the Xtenders are scalable up to 72kW and are supplied plug & play.

The built-in Smart-Boost function provides a power assistance to the AC source in case the grid or the genset can not cope with a surge demand.

Parallel and 3-phase configurations are implemented by means of the remote control RCC-02 which offers also a setting range of 500 possible parameters.



Off-Grid Solutions from SMA



The SMA Solar Technology AG, with its headquarters in Niestetal, Germany, and with eight international subsidiaries on four continents, develops and sells solar inverters, central components of every solar power system. The SMA Group has over 2.500 employees currently.

Today we are present in all the world's important markets of the future. SMA is the only manufacturer in the world to supply state-of-the-art solar inverters for both grid-connected and stand-alone solar installations regardless of the type of solar module or the plant capacity.

SMA is setting new industry standards in decentralised and renewable energy supply technology for more than 25 years and has made a major contribution to the development of the solar technology. SMA products are also regularly awarded top marks by independent consumer organisations: The patented Sunny Boy solar inverters have been voted number one several times by Stiftung

Warentest, Germany's leading consumer advocacy group.

Its extensive experience with grid-connected photovoltaic systems has also given SMA access to key technologies of the future: the Sunny Island inverter makes it possible to provide a power supply in remote and off-grid areas. This could allow electrical energy to be supplied to many of the approximately two billion people who do not have electricity at present. The decentralised energy supply based on renewable energies consists of modular elements, providing a wide range of possible system configurations. Reliable decentralised energy supply systems can be easily designed and maintained by means of modular AC supply units. The necessary components (e.g. photovoltaic modules, wind and hydro generators, gensets, batteries) can be integrated in form of modular elements, enabling variable system concepts depending on individual needs.

HEADQUARTERS

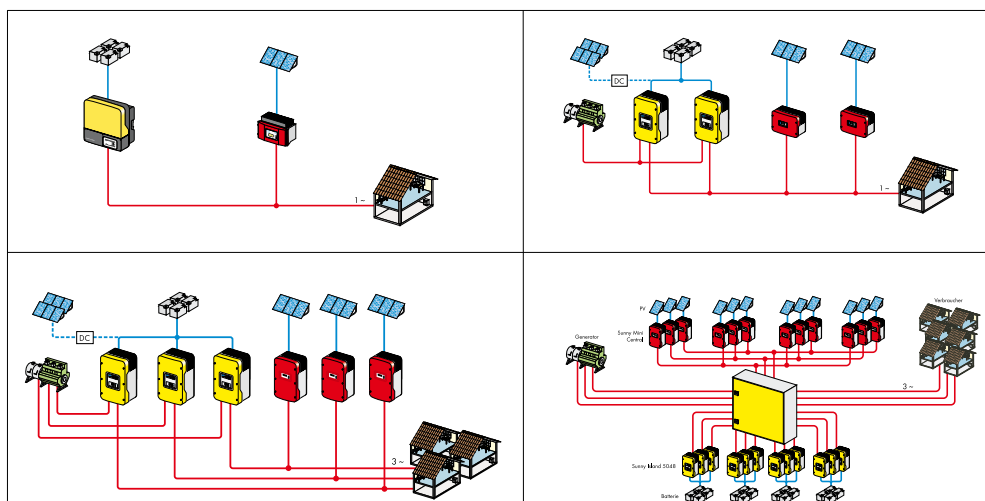
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SOLAR TECHNOLOGY

**Sunny Island**

Battery Inverters in power range
of 2 up to 5 kW

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Grid connected backup supply
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**Sunny Island Multiclust Systems**

Clustering up to 100 kW

**Sunny Boy / Sunny Mini Central**

Photovoltaic inverters

**Windy Boy**

Wind inverters

**Sunny Webbox**

Communication and remote control
equipment

System design, advice and support
recommendations by SMA experts

Commissioning assistance by own technicians,
including training of the users

Training courses, seminars and workshops
in german and english

Check out the new SMA
Solar Technology category

NEW



Studer Stand Alone Inverter Line AJ

Simple and reliable inverters with a pure sine wave for 230 or 115 V AC. These units can be used for multiple applications in cars, summer houses, on the road, in boats, etc. just in all places without net supply. Moreover, this product range shows multiple equipment features such as overheating protection, overcharge protection, short circuit protection, etc., as well as an integrated solar charge controller as an additional option.



AJ 275 / AJ 350 / AJ 400



AJ 500 / AJ 600 / AJ 700



JT8 Remote control



AJ 1000 / AJ 1300



AJ 2100 / AJ 2400

Article	Description	Dimensions	Weight	Article No.
Studer Inverter Lines AJ 275 / AJ 350 / AJ 400				
Studer AJ 275-12	(WR 12 V / 220 V / IP30 / 200 VA)	142 x 169 x 84 mm	2,3 kg	101.300
Studer AJ 275-12-S	(WR 12 V / 220 V / IP30 / 200 VA / 7 A SCC)	142 x 169 x 84 mm	2,3 kg	101.301
Studer AJ 350-24	(WR 24 V / 220 V / IP30 / 250 VA)	142 x 169 x 84 mm	2,3 kg	101.302
Studer AJ 350-24-S	(WR 24 V / 220 V / IP30 / 250 VA / 7 A SCC)	142 x 169 x 84 mm	2,3 kg	101.303
Studer AJ 400-48	(WR 48 V / 220 V / IP30 / 300 VA)	142 x 169 x 84 mm	2,3 kg	101.304
Studer Inverter Lines AJ 500 / AJ 600 / AJ 700				
Studer AJ 500-12	(WR 12 V / 220 V / IP30 / 400 VA)	142 x 252 x 84 mm	4,5 kg	101.305
Studer AJ 500-12-S	(WR 12 V / 220 V / IP30 / 400 VA / 15 A SCC)	142 x 252 x 84 mm	4,5 kg	101.306
Studer AJ 600-24	(WR 24 V / 220 V / IP30 / 400 VA)	142 x 252 x 84 mm	4,5 kg	101.307
Studer AJ 600-24-S	(WR 24 V / 220 V / IP30 / 400 VA / 15 A SCC)	142 x 252 x 84 mm	4,5 kg	101.308
Studer AJ 700-48	(WR 48 V / 220 V / IP30 / 400 VA)	142 x 252 x 84 mm	4,5 kg	101.309
Studer Inverter Lines AJ 1000 / AJ 1300				
Studer AJ 1000-12	(WR 12 V / 220 V / IP30 / 800 VA)	142 x 440 x 84 mm	8,5 kg	101.310
Studer AJ 1000-12-S	(WR 12 V / 220 V / IP30 / 2000 VA / 30 A SCC)	142 x 440 x 84 mm	8,5 kg	101.311
Studer AJ 1300-24	(WR 24 V / 220 V / IP30 / 800 VA)	142 x 440 x 84 mm	8,5 kg	101.312
Studer AJ 1300-24-S	(WR 24 V / 220 V / IP30 / 2000 VA / 30 A SCC)	142 x 440 x 84 mm	8,5 kg	101.313
Studer Inverter Lines AJ 2100 / AJ 2400				
Studer AJ 2100-12	(WR 12 V / 220 V / IP30 / 2000 VA)	273 x 415 x 117 mm	19 kg	101.314
Studer AJ 2100-12-S	(WR 12 V / 220 V / IP30 / 2000 VA / 30 A SCC)	273 x 415 x 117 mm	19 kg	101.315
Studer AJ 2400-24	(WR 24 V / 220 V / IP30 / 2000 VA)	273 x 415 x 117 mm	19 kg	101.316
Studer AJ 2400-24-S	(WR 24 V / 220 V / IP30 / 2000 VA / 30 A SCC)	273 x 415 x 117 mm	19 kg	101.317
Remote control for inverters of the following types: 101.310 - 101.317				
Studer AJ JT8 Remote Control	(with 10 m coverage)	–	–	101.318

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Steca Solarix PI Sinus Stand Alone Inverter Range



In developing the Solarix PI stand-alone inverter, Steca has brought about some innovations which are unprecedented in this form. These are, above all, parallel switching, the novel operating concept which uses a single rotary switch, direct communication in order to calculate the state of charge (SOC) with Tarom and Power Tarom, and the electronic fuse. Furthermore, Steca's many years of experience have come into play for deploying these inverters specifically in photovoltaic systems. This comes through, for instance, in the way that a most diverse range of appliances is provided with a stable energy supply, while the inverter's own consumption remains low.



Steca Solarix PI 550

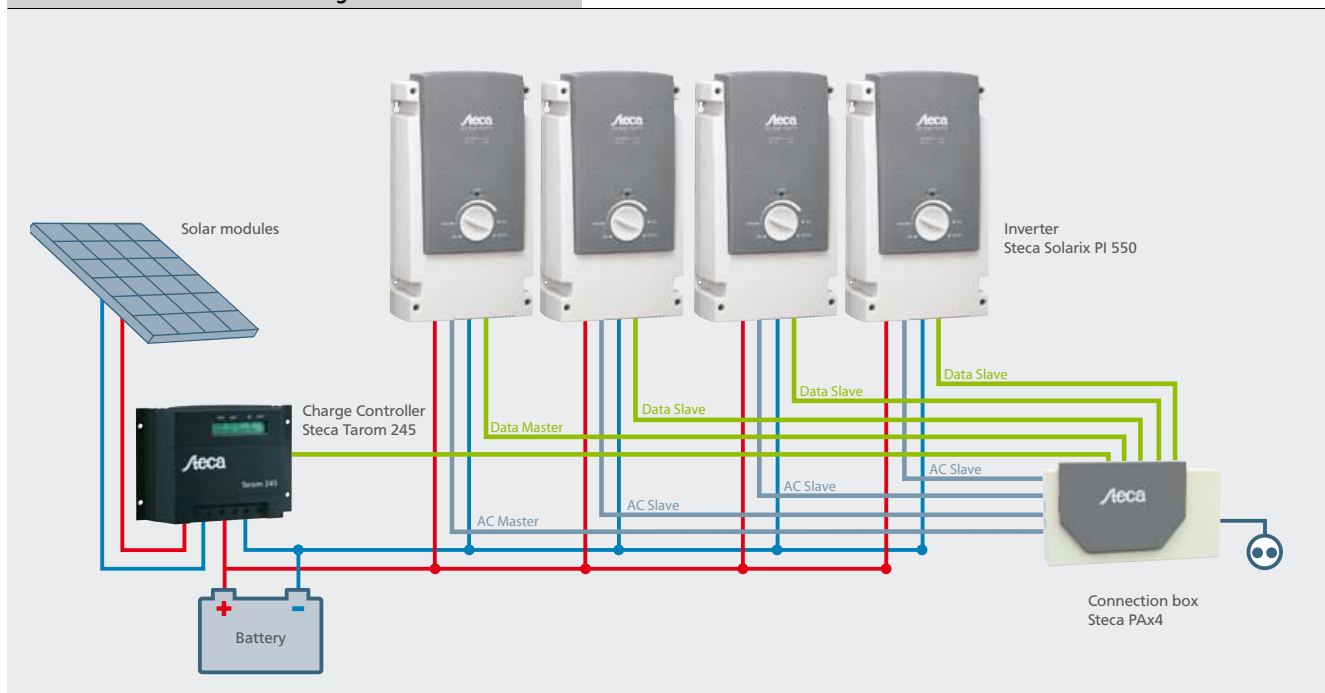
NEW



Steca PAX4 Connection Box

Article	Description	Dimensions	Weight	Article No.
Steca Solarix PI 550	(WR 12 V / 230 V / 50 Hz / IP20 / 550 VA)	400 x 215 x 130 mm	5,5 kg	101.490
Steca Solarix PI 1100	(WR 24 V / 230 V / 50 Hz / IP20 / 1100 VA)	400 x 215 x 130 mm	8,5 kg	101.491
Steca PAX4 Connection Box	(for connection of 4 inverter)	–	2 kg	101.492

Steca Solarix PI and Tarom: Communication with Tarom charge controllers



Steca Solarix Sinus Stand Alone Inverter Range

The Steca Solarix Sinus Inverters are innovative stand alone inverters with a pure sine wave and completely new performance characteristics. These inverters are available with and without integrated solar charge controller with the approved AtonIC-technology.

AtonIC microcontrollers are especially characterized by a state of charge (SOC) of the accumulator which is unique in this price category.



Article	Description	Dimensions	Weight	Article No.
Steca Solarix Sinus 550 I	(WR 12 V / 230 V / 50 Hz / IP20 / 550 VA)	320 x 244 x 120 mm	5,5 kg	101.319
Steca Solarix Sinus 550 I-60	(WR 12 V / 230 V / 60 Hz / IP20 / 550 VA)	320 x 244 x 120 mm	5,5 kg	101.320
Steca Solarix Sinus 550 I-L60	(WR 12 V / 115 V / 60 Hz / IP20 / 550 VA)	320 x 244 x 120 mm	5,5 kg	101.321
Steca Solarix Sinus 550 RI	(WR 12 V / 230 V / 50 Hz / IP20 / 550 VA / 15 A SCC)	320 x 244 x 120 mm	5,5 kg	101.322
Steca Solarix Sinus 550 RI-60	(WR 12 V / 230 V / 60 Hz / IP20 / 550 VA / 15 A SCC)	320 x 244 x 120 mm	5,5 kg	101.323
Steca Solarix Sinus 550 RI-L60	(WR 12 V / 115 V / 60 Hz / IP20 / 550 VA / 15 A SCC)	320 x 244 x 120 mm	5,5 kg	101.324
Steca Solarix Sinus 900 I	(WR 24 V / 230 V / 50 Hz / IP20 / 900 VA)	320 x 244 x 120 mm	7,5 kg	101.325
Steca Solarix Sinus 900 I-60	(WR 24 V / 230 V / 60 Hz / IP20 / 900 VA)	320 x 244 x 120 mm	7,5 kg	101.326
Steca Solarix Sinus 900 I-L60	(WR 24 V / 115 V / 60 Hz / IP20 / 900 VA)	320 x 244 x 120 mm	7,5 kg	101.327
Steca Solarix Sinus 900 RI	(WR 24 V / 230 V / 50 Hz / IP20 / 900 VA / 15 A SCC)	320 x 244 x 120 mm	7,5 kg	101.328
Steca Solarix Sinus 900 RI-60	(WR 24 V / 230 V / 60 Hz / IP20 / 900 VA / 15 A SCC)	320 x 244 x 120 mm	7,5 kg	101.329
Steca Solarix Sinus 900 RI-L60	(WR 24 V / 115 V / 60 Hz / IP20 / 900 VA / 15 A SCC)	320 x 244 x 120 mm	7,5 kg	101.330

I've got team spirit.

Steca Solarix PI – the team player in off-grid solar systems.

Steca Solarix PI expandable flexibility for as many AC loads as you like. Steca Solarix PI can be connected in parallel:
up to four Solarix PI assure maximum reliability in any situation.

Steca Solarix PI won't let you down!



You will find all the most important brands for off-grid inverters in the Phaesun product range!

RIPEnergy Swing Pro Stand Alone Inverter Range

RIPEnergy
The power conversion company

The series SWING Pro pure sinewave inverter supplies a 230 VAC output voltage either from a 12 or 24 VDC power source. The shape is pure sinewave - as from the grid. The inverter design is based on proven 50 Hz-technology. Extra input and output filtering reduce EMI to extremely low levels. Reliability features include an input fuse, thermal shutdown, current limiting and output short circuit shutdown with

automatic recovery. The input and output is fully isolated. The superb overload capability supplies short time peak power to start heavy equipment such as pumps and compressors. Remote ON/OFF function is easy to install with an external switch.



IEC Socket included

Article	Description	Dimensions	Weight	Article No.
Swing pro 200-12-230	(200 VA / 230 VAC / 12 VDC / 50 Hz)	230 x 119 x 71 mm	1,2 kg	302.153
Swing pro 200-24-230	(200 VA / 230 VAC / 24 VDC / 50 Hz)	230 x 119 x 71 mm	1,2 kg	302.154
Swing pro 200-48-230	(200 VA / 230 VAC / 48 VDC / 50 Hz)	230 x 119 x 71 mm	1,2 kg	302.155
Swing pro 350-12-230	(350 VA / 230 VAC / 12 VDC / 50 Hz)	230 x 119 x 71 mm	1,4 kg	302.156
Swing pro 350-24-230	(350 VA / 230 VAC / 24 VDC / 50 Hz)	230 x 119 x 71 mm	1,4 kg	302.157
Swing pro 350-48-230	(350 VA / 230 VAC / 48 VDC / 50 Hz)	230 x 119 x 71 mm	1,4 kg	302.158

RIPEnergy Jazz Pro Stand Alone Inverter Range

RIPEnergy
The power conversion company

The series JAZZ Pro pure sinewave inverter supplies a 230 VAC output voltage either from a 12, 24 or 48 VDC power source. The shape of the output voltage is pure sinewave - as from the grid. All new High Frequency Switching Design offers high power and reliability in a compact package and light weight. Extra input and output filtering reduce EMI to extremely low levels. Reliability features include an input fuse, thermal shutdown, current limiting and output short

circuit shutdown with automatic recovery. The input and output is fully isolated. The superb overload capability supplies short time peak power to start heavy equipment such as pumps and compressors. It is equipped with a power save circuitry using the auto sense method to detect a load connected to the output. Optional features include a remote control.



IEC Socket included

Article	Description	Dimensions	Weight	Article No.
Jazz pro 700-12-230	(700 VA / 230 VAC / 12 VDC / 50 Hz)	299 x 178 x 80 mm	2,8 kg	302.159
Jazz pro 700-24-230	(700 VA / 230 VAC / 24 VDC / 50 Hz)	299 x 178 x 80 mm	2,8 kg	302.160
Jazz pro 700-48-230	(700 VA / 230 VAC / 48 VDC / 50 Hz)	299 x 178 x 80 mm	2,8 kg	302.161
Jazz pro 1000-12-230	(1000 VA / 230 VAC / 12 VDC / 50 Hz)	299 x 178 x 80 mm	3,8 kg	302.162
Jazz pro 1000-24-230	(1000 VA / 230 VAC / 24 VDC / 50 Hz)	299 x 178 x 80 mm	3,8 kg	302.163
Jazz pro 1000-48-230	(1000 VA / 230 VAC / 48 VDC / 50 Hz)	299 x 178 x 80 mm	3,8 kg	302.164

RIPEnergy HipHop Pro Stand Alone Inverter Range

RIPEnergy
The power conversion company

The series HIPHOP Pro pure sinewave inverter supplies a 230 VAC output voltage either from a 12, 24 or 48 VDC power source. The shape of the output voltage is pure sinewave - such as from the grid. All new High Frequency Switching Design offers high power and reliability in a compact package and light weight. Extra input and output filtering reduce EMI to extremely low levels. Reliability features include an input fuse, thermal shutdown, current limiting and output short circuit shutdown with automatic

recovery. The input and output is fully isolated, The superb overload capability supplies short time peak power to start heavy equipment such as pumps and compressors. It is equipped with a power save circuitry using the auto sense method to detect a load connected to the output. Optional features include a remote control.



IEC Socket included

Article	Description	Dimensions	Weight	Article No.
HipHop pro 1500-12-230	(1500 VA / 230 VAC / 12 VDC / 50 Hz)	413 x 278 x 102 mm	7,2 kg	302.165
HipHop pro 1500-24-230	(1500 VA / 230 VAC / 24 VDC / 50 Hz)	413 x 278 x 102 mm	7,2 kg	302.166
HipHop pro 1500-48-230	(1500 VA / 230 VAC / 48 VDC / 50 Hz)	413 x 278 x 102 mm	7,2 kg	302.167
HipHop pro 2000-12-230	(2000 VA / 230 VAC / 12 VDC / 50 Hz)	413 x 278 x 102 mm	7,2 kg	302.168
HipHop pro 2000-24-230	(2000 VA / 230 VAC / 24 VDC / 50 Hz)	413 x 278 x 102 mm	7,2 kg	302.169
HipHop pro 2000-48-230	(2000 VA / 230 VAC / 48 VDC / 50 Hz)	413 x 278 x 102 mm	7,2 kg	302.170

RIPEnergy Stand Alone Inverter Accessories

RIPEnergy
The power conversion company

Article	Description	Dimensions	Weight	Article No.
Stand Alone Inverter Remote Control				
RIPEnergy Remote Control for PRO Series	(for Jazz, HipHop and Swing)	–	200 g	302.171
Phaesun 3 way Socket for con				
Phaesun 3 Way Socket 2m	(230 VAC)	20 x 60 x 40 mm	1 kg	102.527



Studer Inverter / Charger Line Compact

Innovative inverter/charger line with a perfect, pure sine wave in a well-designed casing, with CE conform electronics working very silent and reliable. The cables necessary for a simple installation are already included. The option of a remote control, an alarm output and an integrated charge controller is a special feature of this product line. These inverters can be used as standard stand alone inverters as well as in USB installations. The possibility of a use in parallel extends this product range from 1,3 to 3,5 KW.



Studer XPC



Studer C



Studer HPC

Article	Description	Dimensions	Weight	Article No.
Studer Inverter/Charger line XPC				
Studer XPC 1400-12	(WR 12 V / 230V / IP20 / 1100 VA / BC 0 - 45 A)	410 x 215 x 124 mm	11,7 kg	101.375
Studer XPC 2200-24	(WR 24 V / 230 V / IP20 / 1600 VA / BC 0 - 37 A)	410 x 215 x 124 mm	12,6 kg	101.376
Studer XPC 2200-48	(WR 48 V / 230 V / IP20 / 1600 VA / BC 0 - 20 A)	410 x 215 x 124 mm	12,6 kg	101.377
Studer XPC 1400-12S	(WR 12 V / 230 V / IP20 / 1100 VA / BC 0 - 45 A / SCC)	410 x 215 x 124 mm	11,7 kg	106.319
Studer XPC 2200-24S	(WR 24 V / 230 V / IP20 / 1600 VA / BC 0 - 37 A / SCC)	410 x 215 x 124 mm	12,6 kg	106.320
Studer XPC 2200-48S	(WR 48 V / 230 V / IP20 / 1600 VA / BC 0 - 20 A / SCC)	410 x 215 x 124 mm	12,6 kg	106.321
Studer Inverter/Charger line C				
Studer C 1600-12	(WR 12 V / 230 V / IP20 / 1300 VA / BC 0 - 55 A)	480 x 215 x 124 mm	16 kg	101.353
Studer C 2600-24	(WR 24 V / 230 V / IP20 / 2300 VA / BC 0 - 55 A)	480 x 215 x 124 mm	17,1 kg	101.354
Studer C 4000-48	(WR 48 V / 230 V / IP20 / 3500 VA / BC 0 - 50 A)	480 x 215 x 124 mm	29,4 kg	101.355
Studer C 1600-12S	(WR 12 V / 230 V / IP20 / 1300 VA / BC 0 - 55 A / SCC)	480 x 215 x 124 mm	16 kg	106.332
Studer C 2600-24S	(WR 24 V / 230 V / IP20 / 2300 VA / BC 0 - 55 A / SCC)	480 x 215 x 124 mm	17,1 kg	106.333
Studer C 4000-48S	(WR 48 V / 230 V / IP20 / 3500 VA / BC 0 - 50 A / SCC)	480 x 215 x 124 mm	29,4 kg	101.393
Studer Inverter/Charger line HPC				
Studer HPC 2800-12	(WR 12 V / 230 V / IP20 / 2500 VA / BC 0 - 110 A)	480 x 288 x 242 mm	33 kg	101.356
Studer HPC 4400-24	(WR 24 V / 230 V / IP20 / 4000 VA / BC 0 - 100 A)	480 x 288 x 242 mm	39 kg	101.367
Studer HPC 6000-48	(WR 48 V / 230 V / IP20 / 5000 VA / BC 0 - 70 A)	480 x 288 x 242 mm	41 kg	101.357
Studer HPC 8000-48	(WR 48 V / 230 V / IP20 / 7000 VA / BC 0 - 90 A)	500 x 288 x 242 mm	45 kg	106.352



Studer Inverter / Charger Line Xtender

The Xtender serie provides an unmatched freedom of use thanks to its many functions. In a basic application, it offers together the functions of inverter, battery charger, transfer system and assistance to the source. These functions can be combined and controlled in a totally automatic way for an exceptional comfort and an optimal management of the energy available. Its programmable auxiliary contacts allow as well the interconnection with existing systems or the implementation of extended functions. Fully programmable by means of its remote control, it enables the update of the software, thus making it an upgradeable product to which new functions may be added further on. By the implementation of several units, it is possible to create a 3-phase source or to set them in parallel to increase the power available. Up to 9 inverters of the Xtender serie shall therefore be combined together.


NEW

Studer XTM



Studer XTH

Article	Description	Dimensions	Weight	Article No.
Studer Inverter/Charger line XTH				
Studer XTH 3000-12	(WR 12 V / 230 V / IP20 / 2500 VA / BC 0 - 160 A)	220 x 290 x 500 mm	34 kg	106.381
Studer XTH 5000-24	(WR 24 V / 230 V / IP20 / 4000 VA / BC 0 - 120 A)	220 x 290 x 500 mm	40 kg	106.382
Studer XTH 6000-48	(WR 48 V / 230 V / IP20 / 5000 VA / BC 0 - 100 A)	220 x 290 x 500 mm	42 kg	106.383
Studer XTH 8000-48	(WR 48 V / 230 V / IP20 / 7000 VA / BC 0 - 100 A)	220 x 290 x 500 mm	46 kg	106.384
Studer Inverter/Charger line XTM				
Studer XTM 2000-12	(WR 12 V / 230 V / 2000 VA / BC 0 - 85 A)	133 x 322 x 466 mm	18,5 kg	106.001
Studer XTM 3500-24	(WR 24 V / 230 V / 3500 VA / BC 0 - 75 A)	133 x 322 x 466 mm	21,2 kg	106.002
Studer XTM 4000-48	(WR 48 V / 230 V / 4000 VA / BC 0 - 65 A)	133 x 322 x 466 mm	22,9 kg	106.003



Studer Inverter / Charger Accessories

Solsafe S-Box:

Despite a solar system on your house, in case of power outage, the grid inverters will shut off and the solar generator, whatever its size, will be useless. Studer Inno-tec has developped a concept, in which its inverter/chargers allow to keep energy available from the solar generator : The Solsafe-Box.

X-Connect System:

The X-Connect system offers a flexible and cost effective solution for high power systems based on XTH inverter.

The Frame is supplied with:

- Pre-installed DC circuit breaker (1)
- Pre-installed fuses (2)
- Pre-installed DIN rail (3)
- Protection for auxiliary contact wiring (4)
- Interconnection tube and gland for AC wiring (5)
- Screws and nuts for frame assembly


NEW

Studer Solsafe


NEW

Studer X-Connect

Article	Description	Dimensions	Weight	Article No.
Studer Inverter/Charger Solsafe S-Box				
Studer Solsafe S-Box-25C	(32 A / for Compact)	–	–	106.020
Studer Solsafe S-Box-25X	(32 A / for Xtender)	–	–	106.021
Studer Solsafe S-Box-25C-E	(25 A / for Compact with ENS-26)	–	–	106.022
Studer Solsafe S-Box-25X-E	(25 A / for Xtender with ENS-26)	–	–	106.023
Studer Inverter/Charger X-Connect System				
Studer X-Connect System	–	–	–	106.024

Take use of the Phaesus premounting service for Outback Power systems. Save and easy installation at side guaranteed.

OutBack Power System FLEXware 500



FLEXware

OutBack Power offers compact enclosures for all the AC and DC components of a renewable energy power conversion system. The FLEXware 500 series saves time, money and space by combining the disconnects, over-current protection devices and control components into easy-to-install enclosures. Capable of supporting one or two OutBack FX/VFX series inverter/chargers, up to three MX60 charge controllers,

a MATE system controller and all the associated AC and DC components. The OutBack FLEXware 500 series can be fully customized to your application and ordered pre-wired or as individual components for field assembly. The following chart is just for example. There are a lot more possibilities for OutBack Systems in 12, 24 and 48 V, with or without solar.



Article	Description	Dimensions	Weight	Article No.
OutBack 2 kVA/12 V Back-up System	(2 kVA / 12 V / FX 2012ET)	516 x 1117 x 400 mm	64 kg	107.450
OutBack 2 kVA/24 V Back-up System	(2 kVA / 24 V / FX 2024ET)	516 x 1117 x 400 mm	64 kg	107.451
OutBack 3 kVA/24 V Back-up System	(3 kVA / 24 V / VFX 3024E)	516 x 1117 x 400 mm	64 kg	107.452
OutBack 3 kVA/48 V Back-up System	(3 kVA / 48 V / VFX 3048E)	516 x 1117 x 400 mm	64 kg	107.453
OutBack 4 kVA/24 V Back-up System	(4 kVA / 24 V / 2x FX 2024E)	516 x 1117 x 400 mm	92 kg	107.454
OutBack 6 kVA/24 V Back-up System	(6 kVA / 24 V / 2x VFX 3024E)	516 x 1117 x 400 mm	92 kg	107.455
OutBack 6 kVA/48 V Back-up System	(6 kVA / 48 V / 2x VFX 3048E)	516 x 1117 x 400 mm	92 kg	107.456

OutBack Power System FLEXware 1000



FLEXware

The FLEXware 1000 series is the ideal AC and DC enclosure system for medium to large size renewable energy power conversion systems. The FLEXware is comprised of two compact enclosures for all of your systems's AC and DC components. It saves time, money and space by combining disconnects, over-current protection devices and control components into easy-to-install enclosures. The FLEXware 1000 is capable of supporting up to four OutBack FX/VFX series inverter/chargers, six MX60 charge controllers, a MATE system controller and all the required AC and DC components and wiring. The OutBack FLEXware 1000 system can be fully customized to your application and ordered pre-wired or as individual components for field assembly.

It is also available as a 3-Phase system. Three inverter/chargers can be configured to provide 120/208 VAC or 230/400 VAC four wire „Wye/Star“ three phase AC power. An inverter/charger is used to power each of the three legs for 3-phase AC power. The loads on each of the inverters does not need to be kept balanced, each phase is independently voltage regulated. The following chart is just for example. There are a lot more possibilities for OutBack Systems in 12, 24 and 48 V, with or without solar.



Article	Description	Dimensions	Weight	Article No.
OutBack 6 kVA/24 V Back-up System 3-Phase	(6 kVA / 24 V / 3 x FX 2024E)	910 x 1260 x 400 mm	132 kg	107.470
OutBack 9 kVA/24 V Back-up System	(9 kVA / 24 V / 3 x VFX 3024E)	910 x 1260 x 400 mm	135 kg	107.457
OutBack 9 kVA/24 V Back-up System 3-Phase	(9 kVA / 24 V / 3 x VFX 3024E)	910 x 1260 x 400 mm	135 kg	107.471
OutBack 9 kVA/48 V Back-up System	(9 kVA / 48 V / 3 x VFX 3048E)	910 x 1260 x 400 mm	135 kg	107.458
OutBack 9 kVA/48 V Back-up System 3-Phase	(9 kVA / 48 V / 3 x VFX 3048E)	910 x 1260 x 400 mm	135 kg	107.472
OutBack 12 kVA/48 V Back-up System	(12 kVA / 48 V / 4 x VFX 3048E)	910 x 1260 x 400 mm	165 kg	107.459

OutBack FX Inverter / Charger Series

The OutBack FX series is a modular „building block“ sine wave inverter/charger that can be used for both small and large power systems. Each FX inverter/charger is a complete power conversion system - DC to AC inverter, battery charger and AC transfer switch. The FX series is also available in a version with 230 VAC, 50 hz output that can be connected in parallel (230 VAC) or in three phase (230Y400 VAC) configurations. Our unique sealed, gasketed die-cast aluminum chassis protects and keeps the power conversion components cool - without requiring

outside air to be blown through the sensitive electronics. The FX can be used in high ambient applications up to 60°C with reduced output ratings. It is designed to operate as a coordinated system with the other OutBack products.



Article	Description	Dimensions	Weight	Article No.
OutBack FX 230 VAC Sinewave Inverter / Charger				
OutBack FX 2012ET	(2000 VA / 12 VDC / 230 VAC / 50 Hz / 100 A charger / sealed)	210 x 290 x 410 mm	27 kg	107.301
OutBack FX 2024ET	(2000 VA / 24 VDC / 230 VAC / 50 Hz / 55 A charger / sealed)	210 x 290 x 410 mm	27 kg	107.302
OutBack FX 2348ET	(2300 VA / 48 VDC / 230 VAC / 50 Hz / 35 A charger / sealed)	210 x 290 x 410 mm	27 kg	107.303
OutBack FX 120 VAC Sinewave Inverter / Charger				
OutBack FX 2012T	(2000 VA / 12 VDC / 120 VAC / 60 Hz / 55 A charger)	210 x 290 x 410 mm	27 kg	107.307
OutBack FX 2524T	(2500 VA / 24 VDC / 120 VAC / 60 Hz / 35 A charger)	210 x 290 x 410 mm	27 kg	107.308

OutBack VFX Inverter / Cahrger Series

The OutBack VFX series is a ventilated version of the original sealed FX series modular „building block“ sine wave inverter/charger that can be used for both small and large power systems. By allowing cooler outside airflow through the internal electronics, more AC power is available. Additional FX inverter/chargers can be connected at any time in either parallel (120 VAC), series (120/240 VAC), or three-phase (120Y208 VAC) configurations. The VFX series is also available in a version with 230 VAC, 50 hz output that can be connected in parallel (230 VAC) or in three phase (230Y400 VAC) configurations. The VFX is designed to survive harsh

environments around the world. The VFX can be used up to 60°C (reduced output ratings). It is designed to operate as a coordinated system with the other OutBack products.



Article	Description	Dimensions	Weight	Article No.
OutBack VFX 230 VAC Sinewave Inverter / Charger				
OutBack VFX 2612E	(2600 VA / 12 VDC / 230 VAC / 50 Hz / 125 A charger / vented)	210 x 290 x 410 mm	28 kg	107.304
OutBack VFX 3024E	(3000 VA / 24 VDC / 230 VAC / 50 Hz / 85 A charger / vented)	210 x 290 x 410 mm	28 kg	107.305
OutBack VFX 3048E	(3000 VA / 48 VDC / 230 VAC / 50 Hz / 45 A charger / vented)	210 x 290 x 410 mm	28 kg	107.306
OutBack VFX 120 VAC Sinewave Inverter / Charger				
OutBack VFX 2812	(2800 VA / 12 VDC / 120 VAC / 60 Hz / 125 A charger / vented)	210 x 290 x 410 mm	28 kg	107.309
OutBack VFX 3524	(3500 VA / 24 VDC / 120 VAC / 60 Hz / 85 A charger / vented)	210 x 290 x 410 mm	28 kg	107.310
OutBack VFX 3648	(3600 VA / 48 VDC / 120 VAC / 60 Hz / 45 A charger / vented)	210 x 290 x 410 mm	28 kg	107.311

OutBack Communication Accessories



The OutBack Hub-4 and Hub-10 system communication managers allows the interconnection of up to ten OutBack power conversion devices with the MATE. The Hub-4 / -10 allows the

MATE to control any combination of 4 / 8 FX/ VFX inverter/chargers and MX60/FLEXmax 80 MPPT charge controllers.



Article	Description	Dimensions	Weight	Article No.
OutBack Communication Manager				
OutBack Hub 4	(with 2 cables a 90 cm and 2 cables a 180 cm)	–	–	107.312
OutBack Hub 10	(with 2 cables a 90 cm and 4 cables a 180 cm)	–	–	107.313
OutBack CAT5 Communication Cables				
OutBack OBCatV-3	(90 cm CAT5 cable with RJ45 connectors)	–	–	107.314
OutBack OBCatV-6	(180 cm CAT5 cable with RJ45 connectors)	–	–	107.315
OutBack OBCatV-50	(15 m CAT5 cable with RJ45 connectors)	–	–	107.316

OutBack FX Series Adaptor



FX-DCA: Aluminium conduit adaptor for mounting an FX inverter/charger to an OutBack Power System or to a 2" conduit. Required when mounting an VFX/FX inverter/charger to an OutBack PS2DC or PSDC for a NEC compliant installation.

FX-ACA: AC wiring compartment extension and 2" conduit adapter. Required when mounting an VFX/FX inverter/charger to an PS2AC or PSAC.



Article	Description	Dimensions	Weight	Article No.
OutBack DCA Adaptor	(for DC side)	165 x 165 x 101 mm	450 g	107.318
OutBack ACA Adaptor	(for AC side)	135 x 73 x 140 mm	250 g	107.319

OutBack DC Monitor System



The OutBack Power Systems FLEXnet™ DC is the ultimate in DC System monitoring devices. Our integrated networked communications make valuable, usable data available from your system, viewable on an OutBack MATE communications device (screens seen below), providing you with the answers you need concerning your system's health, performance and efficiency.



Article	Description	Dimensions	Weight	Article No.
OutBack FLEXnet DC	(8 - 80 VDC charger / sealed)	19 x 95 x 179 mm	150 g	107.701

OutBack DC Surge Protectors

The FLEXware Surge Protector is designed to operate between 120-240 VAC at 50/60 Hz and 12-48 VDC. Its multiple mounting configurations allow it to be incorporated into any OutBack system. The FW-SP-ACA mounts inside the FW-ACA (AC Conduit Adapter) for FLEXware 500 and 1000 systems, while the FW-SP-250 is designed to mount inside the FLEXware 250 AC Side Breaker Enclosure allowing for quick installations that keep your system protected and looking great.



Article	Description	Dimensions	Weight	Article No.
OutBack FLEXware Surge Protector FW-SP-ACA	–	215 x 172 x 64 mm	570 g	107.702
OutBack FLEXware Surge Protector FW-SP-250	–	139 x 165 x 190 mm	520 g	107.703
OutBack FLEXware Surge Protector FW-SP-R	–	197 x 139 x 38 mm	210 g	107.704

OutBack PV MPPT Charge Controller

The FLEXmax family of charge controllers is the latest innovation in Maximum Power Point Tracking (MPPT) charge controllers from OutBack Power Systems. The innovative FLEXmax MPPT software algorithm is both continuous and active, increasing your photovoltaic array power yield up to 30% compared to non-MPPT controllers. Thanks to active cooling and intelligent thermal management cooling, both FLEXmax charge controllers can operate at their full maximum current rating, 60 Amps or 80 Amps respectively, in ambient temperatures as high as 104°F (40°C). Included in all of the FLEXmax Charge Controllers are the revolutionary features first developed by OutBack Power, including support for a wide range of nominal battery voltages and the ability to step-down a higher voltage solar array to recharge a lower voltage battery bank. A built-in, backlit 80 character display shows the current status and logged system performance data for the last 128 days at the touch of a button. The integrated OutBack network communications allows FLEXmax series Charge Controllers to be remotely programmed and monitored via a MATE system display and provides unrivaled complete system integration.



NEW

OutBack FLEXmax 60



OutBack FLEXmax 80

Article	Description	Dimensions	Weight	Article No.
OutBack FLEXmax FM 60 Charge Controller	(60A / 12 - 60 VDC battery / 140 VOC)	140 x 100 x 400 mm	5,4 kg	107.699
OutBack FLEXmax FM 80 Charge Controller	(80A / 12 - 60 VDC battery / 140 VOC)	140 x 100 x 413 mm	5,6 kg	107.700

Don't forget to check the Phaesun internet page:
www.phaesun.com

OutBack FLEXware 250 System

For applications with modest power requirements such as cabins, remote communication sites and back-up power systems. The FLEXware 250 accommodates all of the essential protective devices in the smallest possible space at the lowest installed cost. Utilizing an extremely compact design and unique mounting features, one or two FLEXware 250 enclosures can be mounted on each end of a single FX Series Inverter/Charger. The FLEXware 250 enclosure is

constructed of power-coated aluminum and has been ETL listed. It provides breaker spaces for battery, PV array or PV GFP breakers and mounting locations for AC GFCI outlet, AC breakers and even an Input-Output-Bypass Assembly. In keeping with the philosophy of FLEXware, the FLEXware 250 flexibility is evident in the generous number of knock-outs allowing the installation of conduit, cable glands and other installation accessories.

OutBack
POWER

FLEXware



Article	Description	Dimensions	Weight	Article No.
OutBack FLEXware 250 System	(up to eight 1 to 80 Amp, one 175 or 250 Amp)	191 x 165 x 218 mm	2,3 kg	107.331

OutBack FLEXware 250 AC Input-Output-Bypass Assemblies

Field installable kit for bypassing the AC input to the AC output for inverter maintenance or installation. Also provides over-current protection.

OutBack
POWER

FLEXware

Article	Description	Dimensions	Weight	Article No.
OutBack FW-IOB-S-120VAC	(120VAC output 60 A 7,2kW / 3 x 60A, 120VAC breakers)	–	100 g	107.326
OutBack FW-IOB-S-230VAC	(230VAC output 30 A 6,9kW / 3 x 30A, 230VAC breakers)	–	100 g	107.327

OutBack FLEXware 500 System DC/AC

For applications with medium power requirements such as homes, light commercial or larger back-up power systems. The FLEXware 500 system architecture is capable of supporting up to two OutBack FX Series Inverter/Chargers, up to two MX60 Charge Controllers and all the associated AC and DC components. Thanks to a very compact design, FLEXware 500 AC and DC enclosures mount with a FLEXware MP in either a horizontal or vertical orientation to allow installation in more space limited locations

for a fast and professional looking wall-mounted installation. The FLEXware 500 accommodates all of the essential protective devices in two enclosures.

OutBack
POWER

FLEXware



Article	Description	Dimensions	Weight	Article No.
OutBack FLEXware 500-DC System	(500 A DC shunt / ground bus bar)	462 x 290 x 307 mm	6,8 kg	107.332
OutBack FLEXware 500-AC System	(Ground bus bar / DIN mounting bracket)	462 x 290 x 307 mm	6,8 kg	107.334

OutBack FLEXware 500 AC Input-Output-Bypass Assemblies



FLEXware

Field installable kit for bypassing the AC input to the AC output for inverter maintenance or installation. Also provides over-current protection.

Article	Description	Dimensions	Weight	Article No.
OutBack FW-IOB-D-120/240VAC	(120/240VAC output 60A 14,4kW / 6 x 60A breaker)	–	100 g	107.328
OutBack FW-IOB-D-120VAC	(120/240VAC output 60A 14,4kW / 6 x 60A breaker)	–	100 g	107.329
OutBack FW-IOB-D-230VAC	(230VAC output 60A 13,8kW / 6 x 30A breaker)	–	100 g	107.330

OutBack FLEXware 1000 System DC/AC



FLEXware

For applications with medium power requirements such as homes, light commercial or larger back-up power systems. The FLEXware 1000 system architecture is capable of supporting up to four OutBack FX Series Inverter/Chargers, up to four MX60 Charge Controllers and all the associated AC and DC components. Thanks to a very compact design, FLEXware 1000 AC and DC enclosures mount with a FLEXware MP in either a horizontal or vertical orientation to allow installation in more space limited locations for a fast and professional looking wall-mounted installation. The FLEXware 1000 accommodates all of the essential protective devices in two enclosures.



Article	Description	Dimensions	Weight	Article No.
OutBack FLEXware 1000-DC System	(1000 A DC shunt / ground bus bar)	978 x 290 x 307 mm	9,5 kg	107.324
OutBack FLEXware 1000-AC System	(Ground bus bar / 2 DIN mounting bracket)	978 x 290 x 307 mm	9,5 kg	107.323

OutBack FLEXware 1000 AC Input-Output-Bypass Assemblies



FLEXware

Field installable kit for bypassing the AC input to the AC output for inverter maintenance or installation. Also provides over-current protection.

Article	Description	Dimensions	Weight	Article No.
OutBack FW-IOB-Q-120/240VAC	(120/240VAC output 120A 28,8kW / 12 x 60A breaker)	–	100 g	107.335
OutBack FW-IOB-Q-120VAC	(120VAC output 240A 28,8kW / 12 x 60A breaker)	–	100 g	107.336
OutBack FW-IOB-Q-230VAC	(230VAC output 120A 27,6kW / 12 x 30A breaker)	–	100 g	107.337
OutBack FW-IOB-T-120/208VAC 3Phase	(120/208VAC output 60A 21,6kW)	–	100 g	107.338
OutBack FW-IOB-T-230/400VAC 3Phase	(230/400VAC output 30A 20,7kW)	–	100 g	107.339

OutBack FLEXware Mounting Plate MP

The FLEXware MP is a one piece, powder-coated aluminum mounting plate for FLEXware 500 and FLEXware 1000 enclosures. Utilizing stainless steel mounting hardware, the integrated locating bolts make installation quick and easy by providing guides to line up enclosures and inverter/chargers. A single FLEXware MP is designed to accommodate a FLEXware 500 while two FLEXware MPs are utilized in a FLEXware 1000 configuration.



Article	Description	Dimensions	Weight	Article No.
OutBackFLEXware Mounting Plate FW-MP	–	516 x 1176 x 21 mm	6,4 kg	107.340

OutBack Mate Communication Units

The OutBack Mate is a complete system controller and display for the FX/VFX and the MX60. It provides a display of the operation as well as allows adjustment of the setpoints. The Mate also coordinates the operation of the entire system to maximize performance and to prevent multiple products from conflicting.



Mate 2



Mate

Article	Description	Dimensions	Weight	Article No.
OutBack Mate Remote white	(incl. 15 m cable)	146 x 108 x 51 mm	454 g	107.356
OutBack Mate Remote black	(incl. 15 m cable)	146 x 108 x 51 mm	454 g	107.355
OutBack Mate Remote 2	(with RS232 / black)	146 x 108 x 51 mm	454 g	107.357
OutBack Mate Remote 2M	(RV/Marine / simple mobile menu structure)	146 x 108 x 51 mm	454 g	107.358

OutBack FLEXware PVPS Array Combiner

The rainproof PSPV is a solar array combiner which can be used with a wide variety of system configurations and solar module types. Approved for installation on both vertical and angled surfaces with a slope as little as 3-in-12 pitch - or pole mounted (brackets not included), the PSPV is designed to provide NEC code compliant series over-current protection of the wiring of multiple PV modules or sub arrays for connection to charge controllers, inverters or other system components. The PSPV is easily field configurable to match your PV system design and amperage requirements. For negative or positive grounded PV systems.



Article	Description	Dimensions	Weight	Article No.
PV Combiner Enclosure	(up to 12 OBPV breaker or 8 FHS)	341 x 224 x 86 mm	2,3 kg	107.360

Satisfied off-grid customers all over the world.
Be part of the Phaeson off-grid family!

OutBack DC Breakers

The PSR includes mounting space for up to 5 of the small 3/4" PV disconnect breakers or one DC-GFP and two PV disconnect breakers and one large 175 or 250 amp inverter/battery disconnect breaker.



Article	Description	Dimensions	Weight	Article No.
Breaker DC-5	(5 A / 125 VDC / small size / 0,75" wide)	–	–	107.376
Breaker DC-10	(10 A / 125 VDC / small size / 0,75" wide)	–	–	107.377
Breaker DC-15	(15 A / 125 VDC / small size / 0,75" wide)	–	–	107.378
Breaker DC-20	(20 A / 125 VDC / small size / 0,75" wide)	–	–	107.379
Breaker DC-60	(60 A / 125 VDC / small size / 0,75" wide)	–	–	107.383
Breaker DC-70	(70 A / 125 VDC / small size / 0,75" wide)	–	–	107.068
Breaker DC-100	(100 A / 125 VDC / medium size / 1,0" wide)	–	–	107.385
Breaker DC-175	(175 A / 125 VDC / large size / 1,5" wide)	–	–	107.387
Breaker DC-250	(250 A / 125 VDC / large size / 1,5" wide)	–	–	107.388

OutBack Power Systems PS2 - PS2DC Charge Controller Bracket

Allows 2 OutBack FMs to be mounted on either side of the PSDC enclosure with matching knockouts.



Article	Description	Dimensions	Weight	Article No.
OutBack FLEXware Mounting Bracket CCB	–	–	–	107.341

Phaesun Connection / Junction Boxes



The GCB/GJB Generator Connection Boxes have been especially developed for the professional photovoltaic power supply in the fields of telecommunication, pumping, irrigation, pipeline control, etc. Using the GCB/GJB product line promises highest system reliability over years. The included components are selected for durable use and most comfortable installation. These products provide the highest operational safety through ABB circuit breakers during installation and maintenance.



Phaesun GJB Box



Phaesun GCB Box

Article	Description	Dimensions	Weight	Article No.
Phaesun GCB Connection Boxes				
Phaesun GCB2 Connection Box	for 2 modules / 48 V / 63 A / overvoltage protection ABB OT 45E4 connection terminal 4 mm ² 8x / 16 mm ² 4x / big cable glands	254 x 220 x 90 mm	3 kg	103.628
Phaesun GCB4 Connection Box	for 4 modules / 48 V / 63 A / overvoltage protection ABB OT 45E4 connection terminal 4 mm ² 8x / 16 mm ² 4x / big cable glands	254 x 220 x 90 mm	3 kg	103.611
Phaesun GCB6 Connection Box	for 6 modules / 48 V / 63 A / overvoltage protection ABB OT 45E4 connection terminal 4 mm ² 8x / 16 mm ² 4x / big cable glands	254 x 220 x 90 mm	3,1 kg	103.613
Phaesun GCB8 Connection Box	for 8 modules / 48 V / 63 A / overvoltage protection ABB OT 45E4 connection terminal 4 mm ² 8x / 16 mm ² 4x / big cable glands	360 x 295 x 110 mm	3,1 kg	103.615
Phaesun GJB Junction Boxes				
Phaesun GJB2 Junction Box	(5 Amp at 10m, 2 Amp at 25m length)	254 x 220 x 90 mm	1,3 kg	103.686
Phaesun GJB4 Junction Box	(5 Amp at 10m, 2 Amp at 25m length)	254 x 220 x 90 mm	1,3 kg	103.612
Phaesun GJB6 Junction Box	(5 Amp at 10m, 2 Amp at 25m length)	254 x 220 x 90 mm	1,5 kg	103.614
Phaesun GJB8 Junction Box	(5 Amp at 10m, 2 Amp at 25m length)	254 x 220 x 90 mm	1,6 kg	103.616

Phaesun GCP Generator Coupling Box



Article	Description	Dimensions	Weight	Article No.
Phaesun GCP Generator Coupling Box	connectable 6 GCP connection boxes / 48 V connection terminal 16 mm ² 12x / 25 mm ² 4x / big cable glands	450 x 380 x 180 mm	2 kg	103.624

To speed up your order please use our order or inquiry form! You find it in the front of this catalogue and on www.phaesun.com > Components > Downloads

RIPEnergy Easy Charger

RIPEnergy
The power conversion company

The EASY Charger Series has been design to be at least 25% more efficient than other ordinary chargers. It provides 3-stage charging algorithm IUoU for quick and save charging of wet, AGM and gel batteries. It will increase lifetime and charging speed of your batteries. Inbuilt electronic protection circuits are designed for maximum charger protection and high operational availability. Pulse charging mode is selectable for EASY Charger 1210D, 1220D and 1230D. The robust aluminium enclosure is suitable for marine, mobile and industrial applications.



Easy Charger EC-2407D

Article	Description	Dimensions	Weight	Article No.
Easy Charger EC-1210D	(charging current 10 A / output 12 V)	167 x 103 x 50 mm	900 g	106.950
Easy Charger EC-1220D	(charging current 20 A / output 12 V)	190 x 118 x 58 mm	1,2 kg	106.951
Easy Charger EC-1230D	(charging current 30 A / output 12 V)	152 x 70 x 275 mm	1,2 kg	106.953
Easy Charger EC-2407D	(charging current 7 A / output 24 V)	167 x 103 x 50 mm	900 g	106.954

Studer Battery Charger



Chargers of the MBC range provide specific charging for 1, 2 or 3 banks of batteries in accordance with the battery manufacturers' specification. Entirely automatic with built-in charge distribution they can remain permanently connected to the batteries in complete safety and do not need to be disconnected when starting engine. MBC chargers are protected against polarity reversal and transient short-circuits.



Article	Description	Dimensions	Weight	Article No.
Studer MBC 12-06/1 IP65	(charging current 6 A / output 12 VDC)	155 x 80 x 36 mm	1 kg	104.342
Studer MBC 12-15/1 IP65	(charging current 15 A / output 12 VDC)	195 x 100 x 47 mm	2 kg	104.343
Studer MBC 24-03/1 IP65	(charging current 3 A / output 24 VDC)	155 x 80 x 36 mm	1 kg	104.344
Studer MBC 24-08/1 IP65	(charging current 8 A / output 24 VDC)	195 x 100 x 46 mm	2 kg	104.345

Batteries



Rolls Solar Batteries

- Dual-Container Construction
- Easiest to Install
- Widest Range of Specs
- Largest Liquid Reserves
- Superior Cycling
- Longest Life



ONE MEAN BATTERY

Rolls have built a reputation for building one mean battery. It's a reputation based on reliability, durability and easy maintenance.

Our dual container construction and high-density polyethylene material maximizes durability and eliminates acid leaks even if the outer container ruptures.

The unique resistox plate design offers more resistance to corrosion and maximizes the life of the battery. The life expectancy of Rolls batteries are amongst the longest in the industry.



Rolls

Battery Engineering

New for 2009

**NEW
2009**

- 2 Volt Monoblock
- Cap.@20Hr Rate = 1050Ah
- Cap.@100 Hr Rate = 1380Ah
- Dimensions (mm) 311 x 181 x 425
- 1280 Cycles (50% D.O.D)
- 7 Year Warranty
- 10 Year Average Life Expectancy

Batteries

HOPPECKE Lead Acid 2/6/12 V OPzS Batteries



OPzS batteries are used in a range of applications such as telecommunications centres, also signalling, control and regulating systems and standby power systems with long bridging times (> 1 hour).

They are greatly valued in practical use for their long useful life (over 16 years) and their corrosion resistant terminal bushing.

A further key product benefit of OPzS batteries lies in their very high resistance to cycling, making them suitable not only for standby power duties but also for charge/discharge operation.



Article	Description	Dimensions	Weight	Article No.
HOPPECKE OPzS Dry Preloaded (TV)				
Hoppecke 4 OPzS 200 G TV	(200 Ah (Cnom) / 2 V / dry preloaded)	208 x 105 x 420 mm	12,3 kg	104.967
Hoppecke 5 OPzS 250 G TV	(250 Ah (Cnom) / 2 V / dry preloaded)	208 x 126 x 420 mm	14,7 kg	104.968
Hoppecke 6 OPzS 300 G TV	(300 Ah (Cnom) / 2 V / dry preloaded)	208 x 147 x 420 mm	17,1 kg	104.969
Hoppecke 5 OPzS 350 G TV	(350 Ah (Cnom) / 2 V / dry preloaded)	208 x 126 x 535 mm	19 kg	104.970
Hoppecke 6 OPzS 420 G TV	(420 Ah (Cnom) / 2 V / dry preloaded)	208 x 147 x 535 mm	22,1 kg	104.971
Hoppecke 7 OPzS 490 G TV	(490 Ah (Cnom) / 2 V / dry preloaded)	208 x 168 x 535 mm	25,3 kg	104.972
Hoppecke 6 OPzS 600 G TV	(600 Ah (Cnom) / 2 V / dry preloaded)	208 x 147 x 710 mm	31,9 kg	104.973
Hoppecke 8 OPzS 800 G TV	(800 Ah (Cnom) / 2 V / dry preloaded)	215 x 193 x 710 mm	44,4 kg	104.974
Hoppecke 10 OPzS 1000 G TV	(1000 Ah (Cnom) / 2 V / dry preloaded)	215 x 235 x 710 mm	53,5 kg	104.975
Hoppecke 12 OPzS 1200 G TV	(1200 Ah (Cnom) / 2 V / dry preloaded)	215 x 277 x 710 mm	62,5 kg	104.976
Hoppecke 12 OPzS 1500 G TV	(1500 Ah (Cnom) / 2 V / dry preloaded)	215 x 277 x 855 mm	80,1 kg	104.977
Hoppecke 16 OPzS 2000 G TV	(2000 Ah (Cnom) / 2 V / dry preloaded)	215 x 400 x 815 mm	103,5 kg	104.978
Hoppecke 20 OPzS 2500 G TV	(2500 Ah (Cnom) / 2 V / dry preloaded)	215 x 490 x 815 mm	125 kg	104.979
Hoppecke 24 OPzS 3000 G TV	(3000 Ah (Cnom) / 2 V / dry preloaded)	215 x 580 x 815 mm	170 kg	104.980
Hoppecke 6V power.bloc OPzS 200 TV	(200 Ah (Cnom) / 6 V / dry preloaded)	272 x 205 x 385 mm	34 kg	104.986
Hoppecke 6V power.bloc OPzS 250 TV	(250 Ah (Cnom) / 6 V / dry preloaded)	380 x 205 x 385 mm	40 kg	104.987
Hoppecke 6V power.bloc OPzS 300 TV	(300 Ah (Cnom) / 6 V / dry preloaded)	380 x 205 x 385 mm	49 kg	104.988
Hoppecke 12V power.bloc OPzS 50 TV	(50 Ah (Cnom) / 12 V / dry preloaded)	272 x 205 x 385 mm	22 kg	104.983
Hoppecke 12V power.bloc OPzS 100 TV	(100 Ah (Cnom) / 12 V / dry preloaded)	272 x 205 x 385 mm	35 kg	104.984
Hoppecke 12V power.bloc OPzS 150 TV	(150 Ah (Cnom) / 12 V / dry preloaded)	380 x 205 x 385 mm	49 kg	104.985
HOPPECKE OPzS Filled & Charged (GUG)				
Hoppecke 4 OPzS 200 G GUG	(200 Ah (Cnom) / 2 V / filled & charged)	208 x 105 x 420 mm	17,2 kg	105.620
Hoppecke 5 OPzS 250 G GUG	(250 Ah (Cnom) / 2 V / filled & charged)	208 x 126 x 420 mm	20,8 kg	105.621
Hoppecke 6 OPzS 300 G GUG	(300 Ah (Cnom) / 2 V / filled & charged)	208 x 147 x 420 mm	24,3 kg	105.622
Hoppecke 5 OPzS 350 G GUG	(350 Ah (Cnom) / 2 V / filled & charged)	208 x 126 x 535 mm	26,9 kg	105.623
Hoppecke 6 OPzS 420 G GUG	(420 Ah (Cnom) / 2 V / filled & charged)	208 x 147 x 535 mm	31,5 kg	105.624
Hoppecke 7 OPzS 490 G GUG	(490 Ah (Cnom) / 2 V / filled & charged)	208 x 168 x 535 mm	36,1 kg	105.625
Hoppecke 6 OPzS 600 G GUG	(600 Ah (Cnom) / 2 V / filled & charged)	208 x 147 x 710 mm	44,8 kg	105.626
Hoppecke 8 OPzS 800 G GUG	(800 Ah (Cnom) / 2 V / filled & charged)	215 x 193 x 710 mm	61,3 kg	105.627
Hoppecke 10 OPzS 1000 G GUG	(1000 Ah (Cnom) / 2 V / filled & charged)	215 x 235 x 710 mm	74,8 kg	105.628
Hoppecke 12 OPzS 1200 G GUG	(1200 Ah (Cnom) / 2 V / filled & charged)	215 x 277 x 710 mm	88 kg	105.629
Hoppecke 12 OPzS 1500 G GUG	(1500 Ah (Cnom) / 2 V / filled & charged)	215 x 277 x 855 mm	114,3 kg	105.630
Hoppecke 16 OPzS 2000 G GUG	(2000 Ah (Cnom) / 2 V / filled & charged)	215 x 400 x 815 mm	151,5kg	105.631
Hoppecke 20 OPzS 2500 G GUG	(2500 Ah (Cnom) / 2 V / filled & charged)	215 x 490 x 815 mm	193 kg	105.632
Hoppecke 24 OPzS 3000 G GUG	(3000 Ah (Cnom) / 2 V / filled & charged)	215 x 580 x 815 mm	246 kg	105.633
Hoppecke 6V power.bloc OPzS 200 GUG	(200 Ah (Cnom) / 6 V / filled & charged)	272 x 205 x 385 mm	47 kg	105.637
Hoppecke 6V power.bloc OPzS 250 GUG	(250 Ah (Cnom) / 6 V / filled & charged)	380 x 205 x 385 mm	60 kg	105.638
Hoppecke 6V power.bloc OPzS 300 GUG	(300 Ah (Cnom) / 6 V / filled & charged)	380 x 205 x 385 mm	67 kg	105.639
Hoppecke 12V power.bloc OPzS 50 GUG	(50 Ah (Cnom) / 12 V / filled & charged)	272 x 205 x 385 mm	37 kg	105.634
Hoppecke 12V power.bloc OPzS 100 GUG	(100 Ah (Cnom) / 12 V / filled & charged)	272 x 205 x 385 mm	48 kg	105.635
Hoppecke 12V power.bloc OPzS 150 GUG	(150 Ah (Cnom) / 12 V / filled & charged)	380 x 205 x 385 mm	67 kg	105.636

Solar Batteries come from HOPPECKE.

Longest life time and highest cyclic operation for all solar applications. Your individual requirements have priority: Flooded or sealed technology – You decide.



HOPPECKE Solar Batteries

Over recent years, HOPPECKE based in Germany has become a competent partner and supplier to the solar power industry for projects all over the world. Solar systems equipped with HOPPECKE's flooded OPzS batteries including the worldwide unique and patented AquaGen® recombination system, or with sealed technology OPzV batteries, are highly versatile – they fit from small single family houses up to whole villages. HOPPECKE is also very much involved in infrastructure and street lighting systems based on Solar Monobloc batteries.



 **HOPPECKE**
POWER FROM INNOVATION

HOPPECKE AquaGen® Recombination System

When the AquaGen® premium.top recombination system is used, the hydrogen and oxygen gases which evolve during water decomposition are fed into the AquaGen® recombination plugs. By means of an integral catalyst, these gases are recombined in the form of water vapour. This water vapour condenses on the sides of the AquaGen® premium.top vent plugs. The resultant drops of water flow downwards and are returned to the battery. Because of this level of efficiency, water refilling is drastically reduced, with even total freedom from maintenance being possible. Another benefit from the use of AquaGen® premium.top recombination plugs is a considerable reduction in the ventilation

requirements. The recombination of hydrogen and oxygen is an exothermal process in which heat is released. The increased temperature in the interior of sealed batteries leads to life-reducing effects, especially at the electrodes. To minimise these negative side effects, the operation of sealed batteries is subject to various limitations. When AquaGen® premium.top is used, the recombination does not take place at the active components (electrodes) and not within the battery. The AquaGen® premium.top recombination is fitted to the battery as an external component.



AquaGen premium.top H



AquaGen premium.top V

Article	Description	Dimensions	Weight	Article No.
Hoppecke AquaGen® premium.top H	(for OPzS batteries with bayonet fixing 24 mm)	–	150 g	103.871
Hoppecke AquaGen® premium.top V	(for OPzS batteries with bayonet fixing 24 mm)	–	250 g	103.872

HOPPECKE OPzV Batteries

OPzV batteries are used in telecommunication centres, and in control, signalling and UPS installations with long bridging times (in excess of an hour). They are available in versions 4 OPzV 200 to 24 OPzV 3000 with capacities ranging from 200 Ah to 3000 Ah. They may be used in both the vertical and the horizontal position. With their leakproof design and good resistance to deep discharge, they are a reliable type of battery, also characterised by low self-discharge.



Hoppecke OPzV



Hoppecke power.bloc OPzV

Article	Description	Dimensions	Weight	Article No.
HOPPECKE OPzV				
Hoppecke 4 OPzV 200	(200 Ah (Cnom) / 2 V cells)	208 x 105 x 420 mm	20 kg	104.727
Hoppecke 5 OPzV 250	(250 Ah (Cnom) / 2 V cells)	208 x 126 x 420 mm	24 kg	104.728
Hoppecke 6 OPzV 300	(300 Ah (Cnom) / 2 V cells)	208 x 147 x 420 mm	28 kg	104.729
Hoppecke 5 OPzV 350	(350 Ah (Cnom) / 2 V cells)	208 x 147 x 535 mm	31 kg	104.730
Hoppecke 6 OPzV 420	(420 Ah (Cnom) / 2 V cells)	208 x 147 x 535 mm	37 kg	104.731
Hoppecke 8 OPzV 490	(490 Ah (Cnom) / 2 V cells)	208 x 168 x 535 mm	42 kg	104.732
Hoppecke 6 OPzV 600	(600 Ah (Cnom) / 2 V cells)	208 x 147 x 710 mm	50 kg	104.733
Hoppecke 8 OPzV 800	(800 Ah (Cnom) / 2 V cells)	215 x 193 x 710 mm	68 kg	104.734
Hoppecke 10 OPzV 1000	(1000 Ah (Cnom) / 2 V cells)	215 x 235 x 710 mm	82 kg	104.735
Hoppecke 12 OPzV 1200	(1200 Ah (Cnom) / 2 V cells)	215 x 277 x 710 mm	97 kg	104.736
Hoppecke 12 OPzV 1500	(1500 Ah (Cnom) / 2 V cells)	215 x 277 x 855 mm	120 kg	104.737
Hoppecke 16 OPzV 2000	(2000 Ah (Cnom) / 2 V cells)	215 x 400 x 815 mm	160 kg	104.738
HOPPECKE power.bloc OPzV				
Hoppecke 12 V 1OPzV 100	(100 Ah (Cnom) / 12 V)	272 x 205 x 383 mm	52 kg	104.753
Hoppecke 12 V 1OPzV 150	(150 Ah (Cnom) / 12 V)	380 x 205 x 383 mm	72 kg	104.754
Hoppecke 6 V 1OPzV 200	(200 Ah (Cnom) / 6 V)	272 x 205 x 383 mm	51 kg	104.755
Hoppecke 6 V 1OPzV 250	(250 Ah (Cnom) / 6 V)	380 x 205 x 383 mm	63 kg	104.756
Hoppecke 6 V 1OPzV 300	(300 Ah (Cnom) / 6 V)	380 x 205 x 383 mm	70 kg	104.757

HOPPECKE solar.bloc Batteries

HOPPECKE solar.bloc batteries are based on an optimised flat plate and an electrolyte fixed in glass mats which even take the separating function. Solar bloc batteries are maintenance free and offer a very good cycling expectancy and an efficient charge current consumption.

**NEW**

Article	Description	Dimensions	Weight	Article No.
Hoppecke solar.bloc 12V 58	(58 Ah (C100) / 12 V cells)	247 x 175 x 190 mm	19 kg	105.079
Hoppecke solar.bloc 12V 70	(70 Ah (C100) / 12 V cells)	278 x 175 x 190 mm	23 kg	105.080
Hoppecke solar.bloc 12V 80	(81 Ah (C100) / 12 V cells)	315 x 175 x 190 mm	24 kg	105.081
Hoppecke solar.bloc 12V 90	(93 Ah (C100) / 12 V cells)	353 x 175 x 190 mm	28 kg	105.082
Hoppecke solar.bloc 12V 105	(105 Ah (C100) / 12 V cells)	344 x 177 x 230 mm	38 kg	105.083
Hoppecke solar.bloc 12V 135	(134 Ah (C100) / 12 V cells)	344 x 170 x 275 mm	46 kg	105.084
Hoppecke solar.bloc 12V 150	(151 Ah (C100) / 12 V cells)	498 x 177 x 230 mm	50 kg	105.085
Hoppecke solar.bloc 6V 200	(198 Ah (C100) / 6 V cells)	242 x 170 x 275 mm	32 kg	105.086

HOPPECKE power.com Batteries

HOPPECKE power.com SB batteries are based on using flat plate technology and fixing the electrolyte inside glass mats (AGM) which even take the separating function. The high energy density of HOPPECKE power.com SB batteries causes a small footprint and a very good use of space. The central degassing integrated in the battery lid can, by using optional tubes, be used to carry out all occurring gases. The flat lid with integrated handle and the easy to clean surface guaranty an easy and comfortable handling by

assembly as well as in operation.

Optional this battery even can be delivered for horizontal assembly. This characteristic of HOPPECKE power.com SB batteries makes HOPPECKE power.com SB batteries useable in a wide applications spectrum. Mostly HOPPECKE power.com SB batteries are used in emergency current-, IT/ Telecom- and safety light applications. HOPPECKE power.com SB batteries offer a design life from more than 12 years and are classified as "Long Life" following EUROBAT.

**NEW**

Article	Description	Dimensions	Weight	Article No.
Hoppecke power.com SB 12V 50	(52,7 Ah (C10) / 12 V)	229 x 177 x 230 mm	26 kg	105.090
Hoppecke power.com SB 12V 60	(63,2 Ah (C10) / 12 V)	229 x 177 x 230 mm	26,5 kg	105.091
Hoppecke power.com SB 12V 80	(80,4 Ah (C10) / 12 V)	344 x 177 x 230 mm	37,5 kg	105.092
Hoppecke power.com SB 12V 100	(94,8 Ah (C10) / 12 V)	344 x 177 x 230 mm	38 kg	105.093
Hoppecke power.com SB 12V 110	(111,1 Ah (C10) / 12 V)	498 x 177 x 230 mm	52 kg	105.094
Hoppecke power.com SB 12V 130	(128,9 Ah (C10) / 12 V)	498 x 177 x 230 mm	52,5 kg	105.095
Hoppecke power.com SB 12V 140	(142,2 Ah (C10) / 12 V)	498 x 177 x 230 mm	54,5 kg	105.096
Hoppecke power.com SB 6V 170	(170 Ah (C10) / 12 V)	242 x 170 x 275 mm	32 kg	105.097
Hoppecke power.com SB 6V 220	(220 Ah (C10) / 6 V)	308 x 170 x 275 mm	41 kg	105.098
Hoppecke power.com SB 2V 400	(400 Ah (C10) / 2 V)	178 x 154 x 314 mm	25 kg	105.099

The new Intact Solar Batteries:

- shortest delivery times
- improved quality

Intact AGM Block-Power Batteries

The batteries of the line Intact Block-Power are principally used in alarm devices. But they are also an absolutely authentic energy storage in all categories of the safely-energy-accommodation, illumination and in hobby-applications. The batteries are also appropriate for little traction-uses in the wheelchair- and rehab-area.




Article	Description	Dimensions	Weight	Article No.
Intact Block-Power BP 12-1.2	(1,2 Ah (C20) / 12 V)	97 x 45 x 59 mm	0,6 kg	302.411
Intact Block-Power BP 12-2.1	(2,3 Ah (C20) / 12 V)	178 x 35 x 64 mm	0,9 kg	302.412
Intact Block-Power BP 12-2.9	(2,9 Ah (C20) / 12 V)	79 x 56 x 102 mm	1,1 kg	302.413
Intact Block-Power BP 12-3.5	(3,5 Ah (C20) / 12 V)	134 x 67 x 64 mm	1,3 kg	302.414
Intact Block-Power BP 12-4	(4 Ah (C20) / 12 V)	90 x 70 x 106 mm	1,5 kg	302.415
Intact Block-Power BP 12-7	(7 Ah (C20) / 12 V)	151 x 65 x 98 mm	2,5 kg	302.416
Intact Block-Power BP 12-10	(10 Ah (C20) / 12 V)	151 x 65 x 112 mm	3,4 kg	302.417
Intact Block-Power BP 12-12	(12 Ah (C20) / 12 V)	151 x 98 x 98 mm	3,8 kg	302.418
Intact Block-Power BP 12-17	(17 Ah (C20) / 12 V)	181 x 76 x 167 mm	5,6 kg	302.419
Intact Block-Power BP 12-22	(22 Ah (C20) / 12 V)	181 x 76 x 167 mm	5,8 kg	302.420
Intact Block-Power BP 12-24	(24 Ah (C20) / 12 V)	166 x 175 x 125 mm	8,2 kg	302.421
Intact Block-Power BP 12-26	(26 Ah (C20) / 12 V)	166 x 125 x 175 mm	9,4 kg	302.422
Intact Block-Power BP 12-33	(33 Ah (C20) / 12 V)	195 x 130 x 180 mm	9,7 kg	302.423
Intact Block-Power BP 12-38	(38 Ah (C20) / 12 V)	197 x 165 x 170 mm	13,5 kg	302.424
Intact Block-Power BP 12-50	(50 Ah (C20) / 12 V)	197 x 166 x 175 mm	14,8 kg	302.425
Intact Block-Power BP 12-65	(65 Ah (C20) / 12 V)	350 x 165 x 178 mm	22 kg	302.426
Intact Block-Power BP 12-75	(75 Ah (C20) / 12 V)	260 x 170 x 210 mm	23,8 kg	302.427
Intact Block-Power BP 12-100	(100 Ah (C20) / 12 V)	330 x 173 x 220 mm	31 kg	302.428
Intact Block-Power BP 12-120	(120 Ah (C20) / 12 V)	410 x 177 x 225 mm	38 kg	302.429
Intact Block-Power BP 12-140	(140 Ah (C20) / 12 V)	344 x 171 x 280 mm	45 kg	302.430
Intact Block-Power BP 12-150	(150 Ah (C20) / 12 V)	485 x 170 x 242 mm	48 kg	302.431
Intact Block-Power BP 12-200	(200 Ah (C20) / 12 V)	522 x 240 x 224 mm	66 kg	302.432

Intact Solar-Power Batteries

The special technical lay-out of the Intact lead-acid solar battery makes them ideal for photovoltaic systems. A high reliability, robust casing and a minimal selfconsumption are special features of this battery. The temperature range of the cycles ranges from -20 °C up to + 45 °C.




Article	Description	Dimensions	Weight	Article No.
Intact Solar-Power Batteries Dry Preloaded (TV)				
Intact Solar-Power 55 TV	(55 Ah (C100) / 12 V)	210 x 175 x 190 mm	9,2 kg	302.441
Intact Solar-Power 70 TV	(70 Ah (C100) / 12 V)	246 x 175 x 190 mm	10 kg	302.442
Intact Solar-Power 75 TV	(75 Ah (C100) / 12 V)	260 x 175 x 225 mm	12,4 kg	302.443
Intact Solar-Power 90 TV	(90 Ah (C100) / 12 V)	278 x 175 x 190 mm	14 kg	302.444
Intact Solar-Power 110 TV	(110 Ah (C100) / 12 V)	353 x 175 x 190 mm	17,3 kg	302.445
Intact Solar-Power 115 TV	(115 Ah (C100) / 12 V)	349 x 175 x 239 mm	20,6 kg	302.446
Intact Solar-Power 120 TV	(120 Ah (C100) / 12 V)	305 x 175 x 220 mm	17,5 kg	302.447
Intact Solar-Power 125 TV	(125 Ah (C100) / 12 V)	394 x 175 x 190 mm	18,3 kg	302.448
Intact Solar-Power 128 TV	(128 Ah (C100) / 12 V)	330 x 172 x 242 mm	16,5 kg	302.449
Intact Solar-Power 130 TV	(130 Ah (C100) / 12 V)	348 x 175 x 284 mm	23,4 kg	302.450
Intact Solar-Power 140 TV	(140 Ah (C100) / 12 V)	513 x 189 x 223 mm	25,8 kg	302.451
Intact Solar-Power 200 TV	(200 Ah (C100) / 12 V)	513 x 223 x 223 mm	36,8 kg	302.452
Intact Solar-Power 250 TV	(250 Ah (C100) / 12 V)	518 x 276 x 242 mm	45,8 kg	302.453
Intact Solar-Power 280 TV	(280 Ah (C100) / 6 V)	244 x 190 x 275 mm	21,8 kg	302.454
Intact Solar-Power Batteries Filled & Charges (GUG)				
Intact Solar-Power 55 GUG	(70 Ah (C100) / 12 V)	210 x 175 x 190 mm	14,3 kg	302.455
Intact Solar-Power 70 GUG	(70 Ah (C100) / 12 V)	246 x 175 x 190 mm	14 kg	302.456
Intact Solar-Power 75 GUG	(75 Ah (C100) / 12 V)	260 x 175 x 225 mm	18 kg	302.457
Intact Solar-Power 90 GUG	(90 Ah (C100) / 12 V)	278 x 175 x 190 mm	18 kg	302.458
Intact Solar-Power 110 GUG	(110 Ah (C100) / 12 V)	353 x 175 x 190 mm	22 kg	302.459
Intact Solar-Power 115 GUG	(115 Ah (C100) / 12 V)	349 x 175 x 239 mm	27,5 kg	302.460
Intact Solar-Power 120 GUG	(120 Ah (C100) / 12 V)	305 x 175 x 220 mm	24,6 kg	302.461
Intact Solar-Power 125 GUG	(125 Ah (C100) / 12 V)	394 x 175 x 190 mm	26,1 kg	302.462
Intact Solar-Power 128 GUG	(128 Ah (C100) / 12 V)	330 x 172 x 242 mm	24,2 kg	302.463
Intact Solar-Power 130 GUG	(130 Ah (C100) / 12 V)	348 x 175 x 284 mm	34,3 kg	302.464
Intact Solar-Power 140 GUG	(140 Ah (C100) / 12 V)	513 x 189 x 223 mm	38,5 kg	302.465
Intact Solar-Power 200 GUG	(200 Ah (C100) / 12 V)	513 x 223 x 223 mm	51,6 kg	302.466
Intact Solar-Power 25 GUG	(250 Ah (C100) / 12 V)	518 x 276 x 242 mm	64,3 kg	302.467
Intact Solar-Power 280 GUG	(280 Ah (C100) / 6 V)	244 x 190 x 275 mm	32 kg	302.468

Intact Gel-Power Batteries

The advantages of Intact Gel-Power batteries over its conventional counterpart are numerous.

Special features are: B= bottom lath

- Maintenance Free
- No leakage of liquid and gas
- Low in self-discharge rate
- Able to operate in a wide temperature range
- Economical and al long life
- Designed for high-discharging purpose
- Excellent performance in difficult climatic circumstances




Article	Description	Dimensions	Weight	Article No.
Intact Gel-Power 25	(28 Ah (C100) / 12 V)	167 x 176 x 126 mm	9,5 kg	302.469
Intact Gel-Power 30	(32 Ah (C100) / 12 V)	197 x 132 x 180 mm	11,1 kg	302.470
Intact Gel-Power 40	(45 Ah (C100) / 12 V)	210 x 175 x 175 mm	14,6 kg	302.471
Intact Gel-Power 40 B	(45 Ah (C100) / 12 V)	210 x 175 x 175 mm	14,6 kg	302.472
Intact Gel-Power 50 B	(55 Ah (C100) / 12 V)	246 x 175 x 190 mm	18 kg	302.473
Intact Gel-Power 55	(60 Ah (C100) / 12 V)	261 x 135 x 230 mm	19 kg	302.474
Intact Gel-Power 60	(70 Ah (C100) / 12 V)	278 x 175 x 190 mm	21,8 kg	302.475
Intact Gel-Power 60 B	(70 Ah (C100) / 12 V)	278 x 175 x 190 mm	21,8 kg	302.476
Intact Gel-Power 75	(83 Ah (C100) / 12 V)	260 x 171 x 210 mm	23 kg	302.477
Intact Gel-Power 80 B	(95 Ah (C100) / 12 V)	353 x 175 x 190 mm	26 kg	302.478
Intact Gel-Power 90	(100 Ah (C100) / 12 V)	330 x 171 x 236 mm	33 kg	302.479
Intact Gel-Power 115	(130 Ah (C100) / 12 V)	286 x 269 x 230 mm	40 kg	302.480
Intact Gel-Power 120	(135 Ah (C100) / 12 V)	519 x 189 x 223 mm	41 kg	302.481
Intact Gel-Power 125	(145 Ah (C100) / 12 V)	345 x 175 x 290 mm	40 kg	302.482
Intact Gel-Power 140	(160 Ah (C100) / 12 V)	513 x 223 x 223 mm	48 kg	302.483
Intact Gel-Power 210	(225 Ah (C100) / 12 V)	518 x 291 x 242 mm	70 kg	302.484
Intact Gel-Power 180-06 V1	(200 Ah (C100) / 6 V)	244 x 190 x 275 mm	33 kg	302.485
Intact Gel-Power 180-06 V2	(200 Ah (C100) / 6 V)	261 x 181 x 269 mm	33 kg	302.486
Intact Gel-Power 300-06	(330 Ah (C100) / 6 V)	312 x 180 x 359 mm	48 kg	302.487

To speed up your order please use our order or inquiry form! You find it in the front of this catalogue and on www.phaesun.com > Components > Downloads

Exide Dryfit A600 Solar Batteries



Completely maintenance-free, sealed VRLA batteries (Valve Regulated Lead Acid) in Dryfit technology. Dryfit A600 solar batteries have been designed for medium to large power requirements. Typical applications include: Solar- and wind-driven power plants, power supply utilities,

postal applications, solar stations, radio telecommunications, railway operations. 2 volt cells, service life min. 10-15 years, 1600 IEC cycles

Article	Description	Dimensions	Weight	Article No.
Exide Dryfit A600 Solar 4 OPzV 240	(240 Ah / 2 V cells)	105 x 208 x 398 mm	19,5 kg	101.827
Exide Dryfit A600 Solar 5 OPzV 300	(300 Ah / 2 V cells)	126 x 208 x 398 mm	23,5 kg	101.828
Exide Dryfit A600 Solar 6 OPzV 360	(360 Ah / 2 V cells)	147 x 208 x 398 mm	28 kg	101.829
Exide Dryfit A600 Solar 5 OPzV 400	(400 Ah / 2 V cells)	126 x 208 x 513 mm	31 kg	101.830
Exide Dryfit A600 Solar 6 OPzV 500	(500 Ah / 2 V cells)	147 x 208 x 513 mm	36,5 kg	101.831
Exide Dryfit A600 Solar 7 OPzV 600	(600 Ah / 2 V cells)	168 x 208 x 513 mm	42 kg	101.832
Exide Dryfit A600 Solar 6 OPzV 720	(720 Ah / 2 V cells)	147 x 208 x 688 mm	50 kg	101.833
Exide Dryfit A600 Solar 8 OPzV 960	(960 Ah / 2 V cells)	215 x 193 x 688 mm	68 kg	101.834
Exide Dryfit A600 Solar 10 OPzV 1200	(1200 Ah / 2 V cells)	215 x 235 x 688 mm	82 kg	101.835
Exide Dryfit A600 Solar 12 OPzV 1400	(1400 Ah / 2 V cells)	215 x 277 x 688 mm	97 kg	101.836
Exide Dryfit A600 Solar 12 OPzV 1700	(1700 Ah / 2 V cells)	215 x 277 x 838 mm	120 kg	101.837
Exide Dryfit A600 Solar 16 OPzV 2300	(2300 Ah / 2 V cells)	215 x 400 x 815 mm	160 kg	101.838
Exide Dryfit A600 Solar 20 OPzV 2900	(2900 Ah / 2 V cells)	215 x 490 x 815 mm	200 kg	101.839

Exide Dryfit Solar Batteries



The Dryfit VRLA (Valve Regulated Lead Acid) Solar Batteries incorporating a lead-acid electro-chemical system provide the highest reliability for the operator. Set the battery in position, connect up and you are ready to go. Dryfit Solar Batteries are maintenance-free during their complete service life. This means that mistakes in maintenance leading to a shortened service life or to irreparable battery damages cannot occur. Expensive, suitably equipped battery rooms are no longer needed. Dryfit Batteries are very

long-lived, have very good cycling and extremely reliable depth-of- discharge characteristics. They are also low gassing which means that these batteries can be sited without any problems in living spaces. The Dryfit Solar completely maintenance-free, sealed VRLA batteries (Valve Regulated Lead Acid) in Dryfit technology. Dryfit solar batteries have been especially designed for low power demands in the leisure-time and consumer sectors and are especially determined for small solar systems.



Article	Description	Dimensions	Weight	Article No.
Exide Dryfit Solar S12/6,6S	(6,6 Ah (C100) / 12 V)	151,7 x 65,5 x 94,5 mm	2,4 kg	101.804
Exide Dryfit Solar S12/17.0 G5	(17,5 Ah (C100) / 12 V)	181 x 76 x 167 mm	6,7 kg	101.806
Exide Dryfit Solar S12/27 G5	(27 Ah (C100) / 12 V)	176 x 167 x 126 mm	8,8 kg	101.807
Exide Dryfit Solar S12/32 G6	(32 Ah (C100) / 12 V)	197 x 132 x 184 mm	11,6 kg	101.808
Exide Dryfit Solar S12/41A	(41 Ah (C100) / 12 V)	210 x 175 x 175 mm	12,3 kg	101.809
Exide Dryfit Solar S12/60A	(60 Ah (C100) / 12 V)	261 x 135 x 230 mm	19 kg	101.810
Exide Dryfit Solar S12/85A	(85 Ah (C100) / 12 V)	381 x 175 x 190 mm	23,1 kg	101.811
Exide Dryfit Solar S12/90A	(90 Ah (C100) / 12 V)	381 x 175 x 236 mm	33 kg	101.812
Exide Dryfit Solar S12/130A	(130 Ah (C100) / 12 V)	284 x 267 x 230 mm	37 kg	101.813
Exide Dryfit Solar S12/230A	(230 Ah (C100) / 12 V)	518 x 291 x 238 mm	70 kg	101.814

Exide Dryfit Solarblock Batteries



Completely maintenance-free, sealed VRLA batteries (Valve Regulated Lead Acid) in Dryfit technology. Dryfit solar batteries have been designed for medium power requirements. Typical applications include: Weekend or holiday homes with a large number of electrical loads (lighting, refrigerator, TV, radio, etc.), medium solar systems for industrial applications, small solar and wind-driven power plants, offshore-buoys, yachts, etc.



Article	Description	Dimensions	Weight	Article No.
Exide Dryfit Solar Block SB12/60A	(60 Ah (C100) / 12 V)	306 x 175 x 190 mm	20 kg	101.820
Exide Dryfit Solar Block SB12/75A	(72 Ah (C100) / 12 V)	330 x 171 x 235,5 mm	30 kg	101.821
Exide Dryfit Solar Block SB12/100A	(100 Ah (C100) / 12 V)	513 x 189 x 223 mm	39 kg	101.822
Exide Dryfit Solar Block SB12/130A	(130 Ah (C100) / 12 V)	513 x 223 x 223 mm	48 kg	101.823
Exide Dryfit Solar Block SB12/185A	(185 Ah (C100) / 12 V)	518 x 291 x 242 mm	64 kg	101.824
Exide Dryfit Solar Block SB6/200A	(200 Ah (C100) / 6 V)	244 x 190 x 275 mm	31 kg	101.825
Exide Dryfit Solar Block SB6/330A	(330 Ah (C100) / 6 V)	312 x 182 x 359 mm	48 kg	101.826

Phaesun – your first supplier
with a wide range of different batteries for special
demands from selected manufacturers.

Rolls Solar 4000 Battery Series

Features:

- 6V and 12V heavy duty deep cycle batteries
- 1280 cycles @ 50% D.O.D
- 7 year warranty
- Thick plate design for exceptional cycle performance
- Greater durability and Reliability
- Manufactured in Canada



Rolls

Article	Description	Dimensions	Weight	Article No.
Series 4000 – 2 Volt (3 Cell) – Monoblock				
Rolls Solar 4000 - S1380	(1380 Ah (C100) / 2V)	311 x 181 x 425 mm	53 kg	106.290
Series 4000 – 6 Volt (3 Cell) – Monoblock				
Rolls Solar 4000 - S 460	(460 Ah (C100) / 6V)	311 x 181 x 425 mm	53 kg	104.860
Rolls Solar 4000 - S 530	(530 Ah (C100) / 6V)	311 x 181 x 425 mm	58 kg	104.861
Series 4000 – 12 Volt (6 Cell) – Monoblock				
Rolls Solar 4000 - 24 HT 80	(106 Ah (C100) / 12 V)	279 x 171 x 241 mm	28 kg	104.877
Rolls Solar 4000 - 30 H 108	(143 Ah (C100) / 12 V)	343 x 171 x 248 mm	33 kg	104.878
Rolls Solar 4000 - T12 136	(180 Ah (C100) / 12 V)	343 x 171 x 286 mm	41 kg	104.879
Rolls Solar 4000 - T12 250	(266 Ah (C100) / 12 V)	391 x 178 x 365 mm	57 kg	104.880
Series 4000 – 6 Volt (3 Cell) – Monoblock (Flooded Calcium Standby Battery)				
Rolls Solar 4000 - FC 420	(420 Ah (C100) / 6 V)	311 x 181 x 425 mm	53 kg	106.291

Rolls Solar 5000 Battery Series

Features:

- Dual container
- Elimination of 'stray' current
- No acid leakage / No racks required.
- Easy 'on site' assembly
- Less connections resulting in an increase in charge efficiency
- 10 year warranty
- 3200 cycles @ 50% D.O.D
- Less maintenance with optional 'Hydrocaps'
- Link leads, terminal covers, nuts and bolts all included for immediate installation



Rolls

Article	Description	Dimensions	Weight	Article No.
Series 5000 – 2 Volt (1 Cell) – Dual Container				
Rolls Solar 5000 - 2 KS 33PS	(2491 Ah (C100) / 2 V)	392 x 211 x 630 mm	95 kg	104.866
Rolls Solar 5000 - 2 YS 31PS	(3435 Ah (C100) / 2 V)	394 x 229 x 803 mm	130 kg	104.867
Series 5000 – 4 Volt (2 Cell) – Dual Container				
Rolls Solar 5000 - 4 CS 17PS	(770 Ah (C100) / 4 V)	365 x 210 x 464 mm	58 kg	104.868
Rolls Solar 5000 - 4 KS 21PS	(1557 Ah (C100) / 4 V)	400 x 238 x 629 mm	121 kg	104.869
Rolls Solar 5000 - 4 KS 25PS	(1900 Ah (C100) / 4 V)	400 x 270 x 629 mm	143 kg	104.870
Series 5000 – 6 Volt (3 Cell) – Dual Container				
Rolls Solar 5000 - 6 CS 17PS	(770 Ah (C100) / 6 V)	559 x 210 x 464 mm	100 kg	104.871
Rolls Solar 5000 - 6 CS 21PS	(963 Ah (C100) / 6 V)	559 x 248 x 464 mm	123 kg	104.872
Rolls Solar 5000 - 6 CS 25PS	(1156 Ah (C100) / 6 V)	559 x 286 x 464 mm	145 kg	104.873
Series 5000 – 12 Volt (6 Cell) – Dual Container				
Rolls Solar 5000 - 12 CS 11PS	(503 Ah (C100) / 12 V)	559 x 286 x 464 mm	124 kg	104.876

Battery Connection Accessories



Battery Terminal Clamps



Battery Cable with Fuse and Terminal Clamps



Battery Connection Cable

Article	Description	Dimensions	Weight	Article No.
Battery Terminal Clamps				
Battery Terminal Angle Clamp Set Plus/Minus tin-plated brass		50 x 55 x 15 mm	100 g	103.721
Battery Cable with Fuse and Terminal Clamps				
Battery Cable with 15A Fuse	(H07 RN-F 2 x 2,5 mm ² / terminal clamp)	[L] = 1500 mm	450 g	103.716
Battery Cable with 20A Fuse	(H07 RN-F 2 x 4,0 mm ² / terminal clamp)	[L] = 1500 mm	600 g	103.715
Battery Cable with 30A Fuse	(H07 RN-F 2 x 6,0 mm ² / terminal clamp)	[L] = 1500 mm	700 g	103.714
Battery Cable with Ring Shoe				
Battery Cable 2,5 mm ²	(H07 RN-F 2 x 2,5 mm ² / ring shoe)	[L] = 1500 mm	400 g	103.743
Battery Cable 4,0 mm ²	(H07 RN-F 2 x 4,0 mm ² / ring shoe)	[L] = 1500 mm	450 g	103.744
Battery Cable 16 mm ²	(H07 RN-F 2 x 16,0 mm ² / ring shoe)	[L] = 1500 mm	1,2 kg	103.740
Battery Cable 25 mm ²	(H07 RN-F 2 x 25,0 mm ² / ring shoe)	[L] = 1500 mm	1,4 kg	103.729
Battery Connection Cable				
Battery Connection Cable	(H07 RN-F 1 x 25,0 mm ² / M8 cable shoe)	[L]= 400 mm	200 g	103.708

Battery Main Switch



The Phaesun BMS Battery main switch includes a double pole 32 A DC circuit breaker and a short circuit capacity of 20 kA at a voltage of 60 V per pole. It also includes a 4 x 1,5m H07RNF 16 mm² cable for the connection.



Article	Description	Dimensions	Weight	Article No.
Phaesun BMS 32A16	–	180 x 110 x 111 mm	2,5 kg	103.680
Phaesun BMS 60A16	–	180 x 110 x 111 mm	2,5 kg	103.681

You will find us at the Intersolar fair in Munich every year, where we introduce the newest product developments.

Battery Testing Equipment

BT-001:

- Menu easy to use
- Automatic testing
- Results via LCD-Display
- For 6 and 12 V batteries
- 75 cm cable
- Batterytongs

BT-701:

- Menu easy to use
- Automatic testing
- Results via LCD-Display
- For 6 and 12 V batteries
- 75 cm cable
- Batterytongs

OCV-12/24:

- Easy testing application
- Voltmeter
- Results via LCD-Display
- for 12 and 24 V batteries

Acid Tester:

Testing instrument for acid density



Test-Power BT-001



Test-Power BT-701



Test-Power BT-001



Test-Power BT-701

NEW

Article	Description	Dimensions	Weight	Article No.
Intact Test-Power BT-001	(6/12 V / 10 - 1250 A)	180 x 90 x 40 mm	1 kg	302.490
Intact Test-Power BT-701	(6/12 V / 10 - 1250 A)	120 x 70 x 40 mm	1,2 kg	302.491
Intact Test-Power OCV-12/24	(12/24 V)	100 x 50 x 20 mm	0,5 kg	302.492
Intact Test-Power Acid-Tester	–	–	250 g	302.493

Spelsberg Disconnecter Boxes

Spelsberg AKi-T 101:

- 1x NH 00 3-pole, max 100A,
- 1x earthing clamp, IP 65

Spelsberg AKi-T 201:

- 1x NH 00 3-pole, max 125A,
- 1x earthing clamp, IP 65

Spelsberg AKi-T 411:

- 1x NH 01 3-pole, max 250A,
- 1x earthing clamp, IP 65



NEW

Article	Description	Dimensions	Weight	Article No.
NH 00 Disconnecter box 101	–	150 x 300 x 132 mm	3,5 kg	302.380
NH 00 Disconnecter box 201	–	300 x 300 x 132 mm	3,5 kg	302.381
NH 1 Disconnecter box 411	–	300 x 600 x 210 mm	4,5 kg	302.382

Phaesun Customized Battery Boxes



These new Battery Boxes can be customized completely to your needs. **Any size and any geometry is possible on request!** All we need are your technical data.

Features:

- Protection degree from IP43 to IP55
- Shock resistance IK10
- Fire resistance and flame retardant
- Suitable for outdoor use
- Double skin profiles
- Natural ventilation, possibility of installation of fan



NEW

HOPPECKE AquaGen® Recombination System



When the AquaGen® premium.top recombination system is used, the hydrogen and oxygen gases which evolve during water decomposition are fed into the AquaGen® recombination plugs. By means of an integral catalyst, these gases are recombined in the form of water vapour. This water vapour condenses on the sides of the AquaGen® premium.top vent plugs. The resultant drops of water flow downwards and are returned to the battery. Because of this level of efficiency, water refilling is drastically reduced, with even total freedom from maintenance being possible. Another benefit from the use of AquaGen® premium.top recombination plugs is a considerable reduction in the ventilation

requirements. The recombination of hydrogen and oxygen is an exothermal process in which heat is released. The increased temperature in the interior of sealed batteries leads to life-reducing effects, especially at the electrodes. To minimise these negative side effects, the operation of sealed batteries is subject to various limitations. When AquaGen® premium.top is used, the recombination does not take place at the active components (electrodes) and not within the battery. The AquaGen® premium.top recombination is fitted to the battery as an external component.



AquaGen premium.top H



AquaGen premium.top V

Article	Description	Dimensions	Weight	Article No.
Hoppecke AquaGen® premium.top H	(for OPzS batteries with bayonet fixing 24 mm)	–	150 g	103.871
Hoppecke AquaGen® premium.top V	(for OPzS batteries with bayonet fixing 24 mm)	–	250 g	103.872



DC Loads

DC Loads

Steca 12 VDC Energy Saving Lamps



Top quality energy saving lamps for co-current flow (12V) in package type design at an uncomparable cost-performance ratio. The lamp can be switched on many thousand times due to a well designed integrated ballast. The durability of these products is much higher compared with incandescent lamps.



Steca Solsum ESL 5



Steca Solsum ESL 7P Globe

Article	Description	Dimensions	Weight	Article No.
Steca Solsum ESL 5				
Steca Solsum ESL 5 (yellow)	(5 W / 12 V / warm tone K2700 / E27)	Ø47 x 123 mm	125 g	101.406
Steca Solsum ESL 5 (white)	(5 W / 12 V / cold tone K6400 / E27)	Ø47 x 123 mm	125 g	101.407
Steca Solsum ESL 5 (white B22)	(5 W / 12 V / cold tone K6400 / B22d)	Ø47 x 123 mm	125 g	101.408
Steca Solsum ESL 7				
Steca Solsum ESL 7 (yellow)	(7 W / 12 V / warm tone K2700 / E27)	Ø55 x 133 mm	125 g	101.403
Steca Solsum ESL 7 (white)	(7 W / 12 V / cold tone K6400 / E27)	Ø55 x 133 mm	125 g	101.404
Steca Solsum ESL 7 (white B22)	(7 W / 12 V / cold tone K6400 / B22d)	Ø55 x 133 mm	125 g	101.405
Steca Solsum ESL 11				
Steca Solsum ESL 11 (yellow)	(11 W / 12 V / warm tone K2700 / E27)	Ø55 x 163 mm	135 g	101.400
Steca Solsum ESL 11 (white)	(11 W / 12 V / cold tone K6400 / E27)	Ø55 x 163 mm	135 g	101.401
Steca Solsum ESL 11 (white B22)	(11 W / 12 V / cold tone K6400 / B22d)	Ø55 x 163 mm	135 g	101.402
Steca Solsum ESL 7P Globe				
Steca Solsum ESL 7P Globe (white)	(7 W / 12 V / cold tone K6400 / E27)	Ø55 x 153 mm	150 g	101.417

A lighter – not a heater

HEATER

A light bulb symbolizes a bright idea but it only converts **0.5%** of the electricity into light!

In fact, it's a Heater!



LIGHTER

This bulb represents a 40x brighter idea. It converts **20%** of the electricity into light.

This is a Lighter!

Scheduled to be launched in February 2009



An incandescent Lamp converts 0.5% of the electrical energy into light energy and the balance 99.5% into heat. A fluorescent Lamp converts 5% of the electrical energy into light energy and 95% into heat. This Sundaya Lamp converts 20% of the electrical energy into light energy and 80% into heat.

Therefore a Sundaya Lamp needs 40x less energy to produce the same amount of light and thus also produces 40x less heat.

 **Sundaya**
The Meaning of Light

Sundaya Energy Saving Lamps



The Ulite is a 12VDC instant start Compact Fluorescent Lamp with E17 Fitting. The Lamp has a lifetime of over 5.000 On/Off cycles and over 8.000 burning hours. The Ulite is available in 3 capacities from 3 up to 9 Watts.

The Qlite is a 12VDC preheat start Compact Fluorescent Lamp with E17 Fitting and replaceable tube. The Lamp has an extremely long lifetime of over 100.000 On/Off cycles and over 10.000 burning hours. The Qlite is available in 5 capacities from 3 up to 18 Watts.

Qlite Spare tube as replacement tube for the Qlite range.

E17 to E27 Adaptor see page 98.



Sundaya E17 Ulite ESL



Sundaya E17 Qlite ESL



Sundaya Qlite Spare tube



Article	Description	Dimensions	Weight	Article No.
Sundaya E17 Ulite ESL				
Sundaya E17 Ulite 120 ESL	(3 W / 12 V / cool daylight / 6800K / 120 Lm)	Ø47 x 108 mm	60 g	101.783
Sundaya E17 Ulite 240 ESL	(6 W / 12 V / cool daylight / 6800K / 240 Lm)	Ø47 x 115 mm	64 g	101.784
Sundaya E17 Ulite 360 ESL	(9 W / 12 V / cool daylight / 6800K / 360 Lm)	Ø47 x 135mm	72 g	101.785
Sundaya E17 Qlite ESL				
Sundaya E17 Qlite 300 ESL	(6 W / 12 V / cool daylight / 6800K / 300 Lm)	Ø55 x 118 mm	78 g	101.787
Sundaya E17 Qlite 450 ESL	(9 W / 12 V / cool daylight / 6800K / 450 Lm)	Ø55 x 128 mm	82 g	101.788
Sundaya E17 Qlite 600 ESL	(12 W / 12 V / cool daylight / 6800K / 900 Lm)	Ø55 x 138 mm	86 g	101.789
Sundaya E17 Qlite 1000 ESL	(18 W / 12 V / cool daylight / 6800K / 1000 Lm)	Ø55 x 159 mm	94 g	101.790
Sundaya Qlite Spare tube for Qlite				
Sundaya E17 Qlite 300 Spare Tube	(for Qlite 300)	–	–	101.990
Sundaya E17 Qlite 450 Spare Tube	(for Qlite 450)	–	–	101.991
Sundaya E17 Qlite 600 Spare Tube	(for Qlite 600)	–	–	101.992
Sundaya E17 Qlite 1000 Spare Tube	(for Qlite 1000)	–	–	101.993

Sundaya ALight Lighting Units



The A-light is the best price performance ratio lamp in the industry. The A-light uses a Philips 10 W fluorescent tube and is equipped with the highest grade electronic components to ensure a long lifetime. The uniquely shaped UV-stabilized reflector takes care of a good diffusion of the light. The A-light displayed here produces 210 Lumens at 6 W or 360 Lumens at 10 W power consumption.



Article	Description	Dimensions	Weight	Article No.
Sundaya ALight Regular				
Sundaya ALight 210 (6W)	(6 Watt / 12 V / 210 Lm / 20 kJ/hr)	428 x 125 x 51 mm	280 g	101.573
Sundaya ALight 360 (10W)	(10 Watt / 12 V / 360 Lm / 36 kJ/hr)	428 x 125 x 51 mm	280 g	101.575
Sundaya ALight with built in Pull Switch (PS)				
Sundaya ALight 210 (6W) + PS	(6 Watt / 12 V / 210 Lm / 20 kJ/hr)	428 x 125 x 51 mm	280 g	101.577
Sundaya ALight 360 (10W) + PS	(10 Watt / 12 V / 360 Lm / 36 kJ/hr)	428 x 125 x 51 mm	280 g	101.579
Sundaya ALight with built in Pull Switch and Night Light (PSNL)				
Sundaya ALight 210 (6W) + PSNL	(6 Watt / 12 V / 210 Lm / 20 kJ/hr)	428 x 125 x 51 mm	280 g	101.581
Sundaya ALight 360 (10W) + PSNL	(10 Watt / 12 V / 360 Lm / 36 kJ/hr)	428 x 125 x 51 mm	280 g	101.583
Sundaya ALight with built in Rocker Switch (RS)				
Sundaya ALight 210 (6W) + RS	(6 Watt / 12 V / 210 Lm / 20 kJ/hr)	428 x 125 x 51 mm	280 g	101.585
Sundaya ALight 360 (10W) + RS	(10 Watt / 12 V / 360 Lm / 36 kJ/hr)	428 x 125 x 51 mm	280 g	101.587
Sundaya ALight with built in Rocker Switch and Night Light (RSNL)				
Sundaya ALight 210 (6W) + RSNL	(6 Watt / 12 V / 210 Lm / 20 kJ/hr)	428 x 125 x 51 mm	280 g	101.589
Sundaya ALight 360 (10W) + RSNL	(10 Watt / 12 V / 360 Lm / 36 kJ/hr)	428 x 125 x 51 mm	280 g	101.591

Phaesun Fluorescent Tube Lighting Units



Phaesun low voltage lighting units utilise standard fluorescent tubes, operated from a DC battery supply by means of a transistor inverter. The inverter switches the power supply on and off thousands of times per second enabling it to be transformed to a higher voltage to operate the tube.



Article	Description	Dimensions	Weight	Article No.
Phaesun T8-C 20W / 12V	(20 W / 12 V / 1,66 A)	620 x 63 x 50 mm	180 g	102.014
Phaesun T8-C 20W / 24V	(20 W / 24 V / 1,66 A)	620 x 63 x 50 mm	180 g	102.015

The Phaesun product range is continuously improving. We take care that up-to-date technology products are soonest available.

Phaesun LED Lighting Strips



The Orion LED strip lights are the ultimate in versatility at a cost that won't break the bank. The 500mm length LED strip consists of 30 x high intensity LEDs, doubling to 60 LEDs for the 1000mm length strip, that are encapsulated in a weatherproof casing. The LEDs have a 70° lens that allows an excellent spread of light designed to illuminate even the darkest corners. At one metre the 500mm length Orion will give you a light reading of 35 lux, which is the equivalent to a 10W halogen measured at the same height,

but the Orion will use 5 times less power than the halogen. The Orion LED strip has been launched as the most adaptable LED light unit available on the market today, so whether you are illuminating lockers, racking, steps or generally improving your interior lighting, the Orion is the perfect solution. The Orion LED strip can be installed in a variety of ways, from simply using an adhesive strip through to fixing clips or brackets – the choice is left down to you.



Article	Description	Dimensions	Weight	Article No.
Phaesun 30 LED Strip	(30 LEDs / 12 V / 2,2 W / IP66)	500 x 14 x 20 mm	200 g	102.645
Phaesun 60 LED Strip	(60 LEDs / 12 V / 4,4 W / IP66)	1000 x 14 x 20 mm	350 g	102.646

Phaesun LED Lamp



The compact Phaesun LED Lamp consists of 40 high intensity white LEDs. It is made for DC installations and by that equipped with an E27 fitting. These LED technology is very long lasting and energy saving, too. It makes an unique and attractive colorlight. The Phaesun LED Lamp is made for indoor uses.



Article	Description	Dimensions	Weight	Article No.
Phaesun LED Lamp P40-E27	(12V / 3 W / 40 LED / E27)	80 x 40 x 40 mm	180 g	101.479
Phaesun LED Lamp P60-E27	(12V / 4 W / 60 LED / E27)	80 x 60 x 40 mm	200 g	101.480

Sundaya E17 Luna 12 VDC LED-lamps



The Luna is a White LED lamp with a power consumption of only 0,25 to 1 Watt; The Luna is very suitable as a reading lamp when combined with the Tablo and Pointer. Including the Sundaya E17 fitting.

E17 to E27 Adaptor see page 98.



Article	Description	Dimensions	Weight	Article No.
Sundaya E17 Luna 60 (1W)	(1,00 W / 12 V / white light / E17 / 60 Lm)	Ø120 x 73 mm	69 g	102.980
Sundaya E17 Luna 30 (0,5W)	(0,50 W / 12 V / white light / E17 / 30 Lm)	Ø120 x 73 mm	69 g	102.981
Sundaya E17 Luna 15 (0,25W)	(0,25 W / 12 V / white light / E17 / 15 Lm)	Ø120 x 73 mm	69 g	102.982

Phaesun 12 VDC Ceiling Fans



The Phaesun Ceiling Fans are high efficiency DC ceiling fans. Thanks to a thermal bridge concept the Phaesun ceiling fan for direct current outclasses AC fans by a factor of 4 to 6 in consumption and competing DC fans by more than a factor 2 when comparing the same air performance in the medium speed range. It is possible to use the Phaesun DC Ceiling Fans in 12 VDC systems and perfectly fit to these systems because of their low power consumption.



Article	Description	Dimensions	Weight	Article No.
Phaesun Ceiling Fan DC12-103	(12 VDC / 4 steps / max. speed 156 rpm)	Ø1030 x 138 mm	3,9 kg	101.101

Phaesun Vari-Cyclone Ceiling Fans



The Vari-Cyclone is our latest addition to the successful Fan line of DC powered ceiling fans. The Vari-Cyclone's 60" fan blades, designed by the Florida Solar Energy Center in cooperation with a major fan manufacture, utilize „Gossamer Wind Technology“ found only in AC powered ceiling fans until now. RCH Fanworks is the only manufacturer of DC powered ceiling fans allowed to use these revolutionary new fan blades. The „Gossamer Wind“ blades allow the fan to produce up to 40% more air flow with no increase in power consumption making the Vari-Cyclone the most energy efficient DC powered ceiling fan available.


NEW

Article	Description	Dimensions	Weight	Article No.
Phaesun Ceiling Fan Vari-Cyclone 3	(12/24 VDC / 3 blades)	1450 x 400 mm	6,7 kg	103.412
Phaesun Ceiling Fan Vari-Cyclone 4	(12/24 VDC / 4 blades)	1450 x 400 mm	7 kg	103.413
Phaesun Speed Control CV 12/24	–	–	200 g	103.414

Steca SolarFridge



The new Steca SolarFridge product generation is perfectly optimized for the use in solar applications. Energy efficiency is the highest priority for such applications. The new A++ DC Fridge generation realizes a complete concept. Best isolation combined with a very efficient and silent DC compressor which is driven by a specially designed Steca electronic compressor regulation guarantee an optimum use of the available solar power within the system. Optionally the Steca SolarFridge coolers can be equipped with one of the well known Steca Solar charge regulators which interact optimally with the fridge functionality. In this case just a suitable battery and the solar module has to be connected to the Steca SolarFridge to start cooling. Especially the Steca

SolarFridge as a top opener is optimally suited for applications under high ambient temperature as it protects the content of the fridge also while the cabinet is opened.



Article	Description	Dimensions	Weight	Article No.
Steca SolarFridge PF166	(166 l / 12/24 V)	917 x 872 x 709 mm	61 kg	101.768

I'll keep it all fresh.

Steca PF 166 is the most energy saving DC fridge/freezer combination ever.



Steca PF 166 can either run with 12 V or 24 V input voltage and runs on a single 70 W module in most climates.

Due to the latest A++ cooling technology in combination with optimized electronic regulation Steca provides optimal use of energy.

Compressor speed control affords fast cooling, the patented Stop-Frost system reduces condensation.

Thanks to digital temperature setting and display Steca PF 166 is rather user-friendly!

steca
www.steca.com



Pumps

Pumps

Shurflo Submersible Pump 9300

SHURflo®
First in Fluid Innovation

Shurflo's 9300 pumps are backed by 25 years of research and engineering experience. Designed to be strong and yet lightweight, these pumps can be easily repaired in the field. Typical applications include drip irrigation, stock and wildlife watering, remote homes and cabins. The most common use is for remote homes and stock watering. For all but very shallow wells a pump controller should be used, or you can buy the complete kit which includes the 902-200 Shurflo controller as an alternative.

Features:

- Water blocked electrical connector.
- Quick disconnect – no splicing needed.
- Accepts a variety of jacketed cables.
- Strong, yet lightweight – only 6 pounds.
- Corrosion proof housing with stainless-steel fasteners.
- Dry running capability without pump damage.
- Internal bypass feature for pump protection.
- Long life, 24 volt DC operation.

Technical Specifications:

Positive displacement 3 chamber diaphragm pump
 Motor: Permanent magnet, thermally protected, 24 volts DC, 4.1 amps maximum. (P/N 11-175-00)
 Internal bypass: 105-110 PSI
 Maximum lift: 230 feet (70 meters)
 Maximum submersion: 100 feet (30 meters)
 Outlet port: 1/2" (12.7 mm) barbed fitting for 1/2" ID tubing
 Inlet: 50 mesh stainless steel screen



Article	Description	Dimensions	Weight	Article No.
Shurflo 9300 Submersible Well Pump	–	Ø 95 x 305 mm	3,2 kg	102.316

Shurflo 2088 12/24 V Pressure and Delivery Pumps



The Shurflo 2088 series pumps are considered the workhorse of the small diaphragm pumps. They are used in a variety of transfer and dispense-on-demand applications where flow up to 3.6 gallons per minute is required. Applications include RV's, remote homes and cabins, and marine. These pumps are not designed for continuous heavy duty use.

For added reliability the Heavy Duty Strainer (#252-3300) or the Twist-on Strainer (#170-061-09) can be used on the inlet port. Install the optional 4" heat sink (#34-007) for heavy duty applications where extra cooling is required. The 2088 is our most popular line of small delivery pumps.

Features:

- Self priming up to 12 feet
- Can run dry without damage
- Optional motor cooling fins
- One way check valve prevents reverse flow
- Available for 12 VDC, 24 VDC
- Automatic operation with pressure demand switch.



Article	Description	Dimensions	Weight	Article No.
Shurflo Deluxe 2088-443-144		218 x 127 x 113 mm	2,18 kg	102.328
	Deluxe delivery pump / 3,5 GPM / 12 VDC / 30 m / 10 l/min 2,8 bar water pump / 7 A / 1/2" MPT port threads			
Shurflo Premium 2088-514-145		251 x 126 x 112 mm	3,1 kg	102.336
	Premium delivery pump with heatsink / 3,6 GPM / 12VDC / 30 m / 13,5 l/min 3,5 bar water pump / 6 A / 1/2" MSPT port threads			
Shurflo Sealed Premium 2088-414-534		251 x 126 x 112 mm	3,1 kg	102.337
	w/Splash-Proof ShurCoted Motor / delivery pump totally sealed /12 VDC 3,6 GPM / 30m, 13,5 l/min / 2,8 bar water pump / 6 A / 1/2" MSPT port threads			
Shurflo Deluxe 2088-474-144		251 x 126 x 112 mm	3,1 kg	102.338
	Deluxe delivery pump / 3,0 GPM / 24 VDC / 30m / 11,5 l/min 2,8 bar water pump / 7 A / 1/2" MSPT port thread			
Shurflo Sealed Premium 2088-574-534		251 x 126 x 112 mm	2,9 kg	102.339
	Premium delivery pump totally sealed / 3,6 GPM / 24 VDC / 30m / 13,5 l/min 3,5 bar water pump / 6 A / 1/2" MSPT port threads			
Shurflo Standard 8000-443-136		251 x 126 x 112 mm	2,5	102.327
	Heavy duty flow pump / 12VDC / 30m / 6 l/min / 4 bar water pump 1/2" MSPT port threads			
Shurflo 2088-403-144		251 x 126 x 112 mm	2,5	102.360
	Deluxe delivery pump / 2,8 GPM / 12VDC / 30m / 10,8 l/min 2,8 bar water pump / 7 A / 1/2" MPT port threads			

Shurflo 902-200 Pump Controller (LCB-G) 12/24V



The versatile 902-200 has all the features of the 902-100 and more. This controller is switch selectable for 12 VDC or 24 VDC operation and includes a manual on/off switch for easy pump maintenance. The controller comes with high / low water level sensors so the pump will not run

when the well water is too low. Weather proof enclosure.

Linear current booster luxury model complete with dry well probes, 150 Watt max., 12/24VDC operation, weatherproof, with 75 m probe cables.



Article	Description	Dimensions	Weight	Article No.
Shurflo LCB-G75 Pump Controller	–	175 x 117 x 60 mm	1,5 kg	102.329
Shurflo LCB-0 Pump Controller	–	175 x 117 x 60 mm	0,5 kg	102.492

Satisfied off-grid customers all over the world.
Be part of the Phaesun off-grid family!

Lorentz Submersible Pump Systems



The Lorentz PS200/600/1200 HR/C is a submersible water pump for solar operation with helical rotor(HR) or centrifugal (C) pump unit, allows lift up water up to a height of 240 m and has a flow rate up to 11 m³/h. It is also easy to install, maintenance free, very reliable and has got a high life expectancy. It also enables a cost efficient pumping and has a 2 year manufacturers warranty against defects in material and workmanship.



helical rotor



centrifugal rotor

Article	Description	Dimensions	Weight	Article No.
Lorentz PS150 Centric with PS150 Controller				
Submersible Pump PS150-Centric	(to 22 m / flow rate 5,0 m ³ /h)	Ø96 x 330 mm	7 kg	302.241
Lorentz PS200 HR/C with PS200 Controller				
Submersible Pump PS200 C-5-4	(to 15 m / flow rate 5,0 m ³ /h)	Ø96 x 527 mm	10 kg	302.203
Submersible Pump PS200 HR-04	(to 50 m / flow rate 0,8 m ³ /h)	Ø96 x 780 mm	11,2 kg	302.200
Submersible Pump PS200 HR-07	(to 30 m / flow rate 1,2 m ³ /h)	Ø96 x 771 mm	11,5 kg	302.201
Submersible Pump PS200 HR-14	(to 20 m / flow rate 2,7 m ³ /h)	Ø96 x 771 mm	11,5 kg	302.202
Lorentz PS600 HR/C with PS600 Controller				
Submersible Pump PS600 HR-03	(to 140 m / flow rate 0,5 m ³ /h)	Ø96 x 780 mm	11,2 kg	302.204
Submersible Pump PS600 HR-03H	(140 - 180 m / flow rate 0,5 m ³ /h)	Ø96 x 780 mm	11,2 kg	302.205
Submersible Pump PS600 HR-04	(to 80 m / flow rate 0,8 m ³ /h)	Ø96 x 780 mm	11,2 kg	302.206
Submersible Pump PS600 HR-04H	(80 - 140 m / flow rate 0,8 m ³ /h)	Ø96 x 780 mm	11,2 kg	302.207
Submersible Pump PS600 HR-07	(40 - 90 m / flow rate 1,2 m ³ /h)	Ø96 x 771 mm	11,5 kg	302.208
Submersible Pump PS600 HR-10	(30 - 60 m / flow rate 1,9 m ³ /h)	Ø96 x 771 mm	11,5 kg	302.209
Submersible Pump PS600 HR-14	(to 50 m / flow rate 2,7 m ³ /h)	Ø96 x 771 mm	11,5 kg	302.210
Submersible Pump PS600 HR-20	(to 30 m / flow rate 3,6 m ³ /h)	Ø96 x 771 mm	11,5 kg	302.211
Submersible Pump PS600 C-SJ5-8	(to 25 m / flow rate 7,5 m ³ /h)	Ø96 x 771 mm	12 kg	302.242
Lorentz PS1200 HR/C with PS1200 Controller				
Submersible Pump PS1200 HR-03	(to 140 m / flow rate 0,5 m ³ /h)	Ø96 x 780 mm	11,2 kg	302.214
Submersible Pump PS1200 HR-03H	(140 - 240 m / flow rate 0,5 m ³ /h)	Ø96 x 780 mm	11,2 kg	302.215
Submersible Pump PS1200 HR-04	(to 80 m / flow rate 0,8 m ³ /h)	Ø96 x 780 mm	11,2 kg	302.216
Submersible Pump PS1200 HR-04H	(80 - 160 m / flow rate 0,8 m ³ /h)	Ø96 x 780 mm	11,2 kg	302.217
Submersible Pump PS1200 HR-07	(40 - 120 m / flow rate 1,2 m ³ /h)	Ø96 x 771 mm	11,5 kg	302.218
Submersible Pump PS1200 HR-10	(30 - 80 m / flow rate 1,9 m ³ /h)	Ø96 x 771 mm	11,5 kg	302.219
Submersible Pump PS1200 HR-14	(to 60 m / flow rate 2,7 m ³ /h)	Ø96 x 771 mm	11,5 kg	302.220
Submersible Pump PS1200 HR-20	(to 40 m / flow rate 3,6 m ³ /h)	Ø96 x 771 mm	11,5 kg	302.221
Submersible Pump PS1200 C-SJ5-8	(to 40 m / flow rate 7,5 m ³ /h)	Ø98 x 524 mm	11,2 kg	302.244
Submersible Pump PS1200 C-SJ8-5	(to 24 m / flow rate 11 m ³ /h)	Ø98 x 600mm	12,7 kg	302.245
Submersible Pump PS1200 C-SJ12-3	(to 15 m / flow rate 21 m ³ /h)	Ø98 x 565 mm	12,5 kg	302.246
Lorentz PS1800 C with PS1800 Controller				
Submersible Pump PS1800 SJ3-9	(30 - 60 m / flow rate 0,5 m ³ /h)	–	15,9 kg	302.230
Submersible Pump PS1800 SJ5-8	(30 - 60 m / flow rate 0,5 m ³ /h)	–	15,6 kg	302.231
Submersible Pump PS1800 SJ8-5	(30 - 60 m / flow rate 0,5 m ³ /h)	–	17,2 kg	302.232
Submersible Pump PS1800 SJ12-3	(30 - 60 m / flow rate 0,5 m ³ /h)	–	16,5 kg	302.233

Lorentz PS600 BADU Top 12 Solar with PS600 Controller

The Lorentz PS600 BADU Top 12 Pump is a high volume surface centrifugal pump for solar operation with a flow rate up to 15 m³/h. It is also easy to install, maintenance free, very reliable and has got a high life expectancy.

It also enables a cost efficient pumping and has a 2 year manufacturers warranty against defects in material and workmanship.

Article	Description	Dimensions	Weight	Article No.
Surface Pump PS600 BADU Top 12	(to 13 - 14 m / flow rate 15 m ³ /h)	520 x 220 x 350 mm	14 kg	302.228

Lorentz PS150 Boost with PS150 Controller

The Lorentz PS150 Boost is a booster pump for solar operation, not submersible, but can draw water from shallow wells, springs, cisterns, tanks, ponds, rivers and streams and push it through miles of pipeline. Slow pumping mini-

mizes the size and cost of the solar array-battery system. It also lifts water up to 120m, has maximum flow rate of 0,9 m³/h and is simple to install.

Article	Description	Dimensions	Weight	Article No.
Surface Pump PS150 BOOST-60	(12/24 V / 60 W)	260 x 175 x 100 mm	8,5 kg	302.224
Surface Pump PS150 BOOST-125	(12/24 V / 125 W)	260 x 175 x 100 mm	8,5 kg	302.225
Surface Pump PS150 BOOST-240	(12/24 V / 240 W)	260 x 175 x 100 mm	8,5 kg	302.226

Lorentz Well Probe Sensor

The Lorentz well probe sensor is a water level sensor for dry run protection. Two wire reed switch probe with POM protection housing.

Article	Description	Dimensions	Weight	Article No.
Lorentz Well Probe Sensor	–	–	150 g	302.229

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Phaesun Pump Inverter PVPS 8503

Phaesun*
STAND-ALONE SOLAR SOLUTIONS

This special inverter has been developed for the use in photovoltaic pump systems (PVPS) to drive centrifugal pumps as well as eccentric screw pumps making a battery back-up unnecessary. The inverter control circuitry contains a special start-up control, which can manage the tough start of eccentric screw pumps with a minimum on energy. Therefore, there is no maintenance personnel necessary to adjust the start parameters in relation to the connected drive and the hauling height. Through the choice of the pump the most efficient driving system consisting of a 3-phase motor together with the centrifugal or eccentric screw pump can be configured. This is especially important for deep wells and with photovoltaic systems in

partial load operation, where the daily hauling amount can be increased by the use of eccentric screw pumps. The start-up control starts the MPP (Maximum-Power-Point)-regulation of the microcontroller circuitry of the inverter. This circuitry enables a most efficient use of the power supplied by the solar generator by automatically choosing the best possible motor frequency giving the maximum hauling power. In registering of the actual current and voltage values of the solar generator and the control algorithm, the control function remains unaffected by the temperature.



Article	Description	Dimensions	Weight	Article No.
Pump Inverter PVPS 8503	(5.5kW / 8.5kVA / 200 - 420VDC / 3 x 220VAC)	480 x 300 x 300 mm	24 kg	102.487

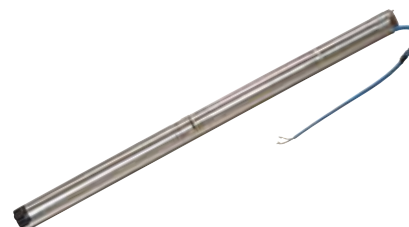
Grundfos SQFlex Pumps



Installing the SQFlex Solar requires no special tools as the solar modules plug straight into the system. The SQFlex Solar can be run economically and remains virtually maintenance-free. SQFlex pumps have built-in protection features that protect the pump itself and in many cases the well.

Among these features are:

- Protection against dry-running, overloading and overheating
- Automatic restart when water returns to the well or when the motor temperature returns to the safety range
- Continuous load condition and voltage monitoring



Article	Description	Dimensions	Weight	Article No.
Grundfos Submersible Pump SQ Flex 1.2-2	–	1225 x 74 mm	9,7 kg	102.318
Grundfos Submersible Pump SQ Flex 0.6-2	–	1185 x 74 mm	9,4 kg	102.332
Grundfos Submersible Pump SQ Flex 2.5-2	–	1247 x 74 mm	10 kg	102.342
Grundfos Submersible Pump SQ Flex 5A-3	–	815 x 101 mm	9,6 kg	102.343
Grundfos Submersible Pump SQ Flex 5A-6	–	875 x 101 mm	10,3 kg	102.344
Grundfos Submersible Pump SQ Flex 8A-3	–	920 x 101 mm	11 kg	102.345
Grundfos Submersible Pump SQ Flex 14A-3	–	975 x 101 mm	12,4 kg	102.346

Grundfos Pump Control Unit



A user-friendly control unit that maintains two-way communication with the pump and monitors the operating conditions. Built-in diagnostics indicate faults and dry-running, display operating status power consumption and level switch input.



Article	Description	Dimensions	Weight	Article No.
Grundfos CU 200 Control Unit	–	263 x 199 x 92 mm	350 g	102.347

Grundfos Pump Switch Boxes



The IO 100 Switch Box is a very simple and easy-to-use system with cable terminal connections interface and controlled by a manual on/off switch.

The IO 101 acts as an interface for powering back-up supplies, providing automatic change over. When changing from generator to solar energy e.g., the solar modules automatically power the system as soon as the fuel tank runs dry.



Article	Description	Dimensions	Weight	Article No.
Grundfos IO 100 Switch Box	–	263 x 199 x 92 mm	350 g	102.335
Grundfos IO 101 Switch Box	–	263 x 199 x 92 mm	350 g	102.348

Installation Material



Installation Material

Rubber - Sheathed Cable H07RN-F

The H07RN-F Cable is intended for installations with moving equipment, electric appliances and for building sites. The cable may be rated 0,6/1 kV where the installation has built-in protection and for motors in lifting appliances - machine tools - etc. This cable can be used in refrigerating installations. It can be installed in open air or be buried, but with mechanical protection.



Article	Description	Dimensions	Weight	Article No.
H07 RN-F 1 x 2,5 mm ²	–	Ø 7,9 mm	71 g/m	103.202
H07 RN-F 1 x 4,0 mm ²	–	Ø 9,0 mm	100 g/m	103.217
H07 RN-F 1 x 6,0 mm ²	–	Ø 9,6 mm	130 g/m	103.204
H07 RN-F 1 x 10,0 mm ²	–	Ø 11,9 mm	230 g/m	103.205
H07 RN-F 1 x 16,0 mm ²	–	Ø 13,4 mm	290 g/m	103.206
H07 RN-F 1 x 25,0 mm ²	–	Ø 15,8 mm	420 g/m	103.207
H07 RN-F 1 x 35,0 mm ²	–	Ø 17,9 mm	530 g/m	103.215
H07 RN-F 2 x 2,5 mm ²	–	Ø 13,1 mm	200 g/m	103.208
H07 RN-F 2 x 4,0 mm ²	–	Ø 15,1 mm	280 g/m	103.209
H07 RN-F 2 x 6,0 mm ²	–	Ø 18,6 mm	330 g/m	103.210
H07 RN-F 2 x 16,0 mm ²	–	Ø 25,6 mm	810 g/m	103.251

Lapp Solar Cable

The Lapp Solar Cable high quality solar cable, with double isolation and a temperatur range of -40° up to 120°C. It is also UV and ozon resistant, made of rubber tube copper fine wire and certified by the German TÜV.

Article	Description	Dimensions	Weight	Article No.
Lapptherm Solar Plus 2,5 mm ² black	(900/1500 V)	Ø 5,8 mm	50 g/m	103.232
Lapptherm Solar Plus 2,5 mm ² blue	(900/1500 V)	Ø 5,8 mm	50 g/m	103.245
Lapptherm Solar Plus 2,5 mm ² red	(900/1500 V)	Ø 5,8 mm	50 g/m	103.242
Lapptherm Solar Plus 4 mm ² black	(900/1500 V)	Ø 5,8 mm	76 g/m	103.239
Lapptherm Solar Plus 4 mm ² blue	(900/1500 V)	Ø 5,8 mm	76 g/m	103.246
Lapptherm Solar Plus 4 mm ² red	(900/1500 V)	Ø 5,8 mm	76 g/m	103.243
Lapptherm Solar Plus 6 mm ² black	(900/1500 V)	Ø 5,8 mm	107 g/m	103.240
Lapptherm Solar Plus 6 mm ² blue	(900/1500 V)	Ø 5,8 mm	107 g/m	103.247
Lapptherm Solar Plus 6 mm ² red	(900/1500 V)	Ø 5,8 mm	107 g/m	103.244
Lapptherm Solar Plus 10 mm ² black	(900/1500 V)	Ø 5,8 mm	107 g/m	103.241

Customized Module Support Structures

Anything is possible!
Nearly all common off-grid
sizes can be realized with our
flexible construction design.
All we need are your
requirements and we will
deliver high quality support
structures, that are in
line with your needs.



Phaesun Aluminum Support Structures

The Phaesun aluminum support structures are built under high quality standards and designed for maximum durability and corrosion resistance in all environmental areas. The lightweight Phaesun aluminum support structures are purpose-built for the stable mounting on the ground or a roof. They are available in variable sizes for different types of solar modules and different quantities of modules.



Phaesun 
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Phaesun Aluminum Support Structures



The Phaesun aluminum support structures are built under high quality standards and designed for maximum durability and corrosion resistance in all environmental areas. The lightweight Phaesun aluminum support structures are purpose-built for the stable mounting on the ground or a roof. They are available in variable sizes for different types of solar modules and different quantities of modules. We just need your module specifications or an engineering drawing, and **the module support structure you need will be produced and delivered customized for your needs.**



Mounting Plate for GCB Boxes



NEW

Phaesun Single Module Support Structure



The Phaesun SMS 1 is a single module support structure with a tilt angle from 0° to 45°. It is designed for the mounting of one solar module.



Article	Description	Dimensions	Weight	Article No.
Phaesun SMS 1	–	[L] = 490 mm	2 kg	102.750

Lorentz Tracking Systems Etatrack



The Tracking units Etatrack have proven their reliability on all continents for years. They are made of single-axis technology with manually adjustable elevation angle (stepless 0 to 45°). They also feature a solid design and high life-expectancy without failures, as well as easy maintenance, thanks to quickly accessible drive. Up to 2.5 kWp, resp. 15 m² module surface for each tracking unit is possible. Wind speeds

of up to 150 km/h wind speed do not destroy them. The Etatrack can be controlled as single installations or central (for solar parks with up to several MW). The output can be increased up to 20-40% (depending on the location).



Article	Description	Dimensions	Weight	Article No.
Lorentz ETATRACK active 400	(angle East-West: 90° / elevation angle: 0° - 45°)	4 m ² Module surface	44 kg	102.760
Lorentz ETATRACK active 1000	(angle East-West: 90° / elevation angle: 0° - 45°)	10 m ² Module surface	346 kg	102.761
Lorentz ETATRACK active 1500	(angle East-West: 90° / elevation angle: 0° - 45°)	15 m ² Module surface	400 kg	102.762

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Universal Module Fixture

Standard modules can now be installed with the help of new Universal Assembly Fixtures. The assembly sets made of UV resistant PU plastics are optically attractive and can be assembled easily and quickly. Therefore, the module works more efficiently under direct irradiation during the summer months. The assembly sets are supplied in black. Junction profiles can be used for a better fastening of several modules. Additional spoiler profiles can be stuck alongside the total length which improve the aerodynamics of the assembled model and thus contribute to saving fuel.



Corner set MT-EP

Junction set MT-VP



Spoiler set MT-SP XX

Article	Description	Dimensions	Weight	Article No.
MT-EP Corner Profile Set	4 corner carriers / universally appropriate for all solar modules	150 x 150 x 66 mm	1,5 kg	102.701
MT-VP Connection Profile Set	2 junction carriers to link several modules with corner/spoiler sets	180 x 90 x 66 mm	800 g	102.702
MT-SP 33 Spoiler Profile Set	2 fixing spoilers with a lateral length of approximately 33 cm	330 x 90 x 66 mm	1,2 kg	102.703
MT-SP 45 Spoiler Profile Set	2 fixing spoilers with a lateral length of approximately 45 cm	450 x 90 x 66 mm	1,5 kg	102.704
MT-SP 53 Spoiler Profile Set	2 fixing spoilers with a lateral length of approximately 53 cm	530 x 90 x 66 mm	1,95 kg	102.705
MT-SP 65 Spoiler Profile Set	2 fixing spoilers with a lateral length of approximately 65 cm	650 x 90 x 66 mm	2,15 kg	102.713

Waterproof Roofing Cable Duct

This Roof Mounting Unit which can be stuck on, solves any problem related to the cabling from outdoors to indoors. The case consists of PU high-resistance foam with impact strength, weathering and UV resistance. It is absolutely waterproof and is supplied as a unit ready for assembly. The case contains a thread where the screwed cable gland is installed in order to seal the cable that is led through. It is as well possible at any time to lead the cable back and seal the case safely with a closing cap when the installation is dismantled. We recommend the Sikaflex jointing compound to stick the cable duct.

PG screwed cable glands



Closure cap



Roof Mounting Unit



MT - glueing set for 1 solar module

Article	Description	Dimensions	Weight	Article No.
MT-Roof Mounting Unit	–	85 x 50 x 45 mm	50 g	102.706
PG screwed cable gland 3 - 7 mm	–	32 x 20 mm	30 g	102.707
PG screwed cable gland 6 - 12 mm	–	32 x 20 mm	30 g	102.708
PG screwed cable gland 10 - 14 mm	–	32 x 20 mm	30 g	102.709
Closure cap	–	Ø 12 mm	10 g	102.710
MT-Stick set for 1 solar module	–	240 x 120 x 55 mm	650 g	102.711
MT-Stick set for 2 solar modules	–	240 x 120 x 55 mm	750 g	102.712

Phaesun DC Installations



The equipment has been developed for solar powered (battery) installations, rating from 12 to 48 V DC. 10 A - 2 pole, no earth. The socket outlet cover plates are made of thermosetting plastic. This DC equipment is totally polarized, e.g. the plug will fit only one way in the outlet, assuring correct polarity at all times. Consequently the plug has one thick and one thin pin - making the polarity unmistakable. Suitable equipment onboard for e.g. boats, yachts, campers, cottages etc. and areas without fully built-out electrical network that are dependant on rechargeable batteries based on solar energy.



DC Double Surface Socket



DC Flush Type Double Surface Socket



DC Plug No Earth



DC Junction Box



Toggle Switch



Drop Light Fitting E27

Article	Description	Dimensions	Weight	Article No.
DC Double Surface Socket 12 - 48 V	–	95 x 62 x 25 mm	86 g	103.710
DC Flush Type Double Surface Socket 12 - 48 V	–	95 x 85 x 30 mm	104 g	103.711
DC Plug No Earth 12 - 48 V	–	Ø36 x 45 mm	23 g	103.712
DC Junction Box	–	65 x 50 x 29 mm	40 g	103.713
Toggle Switch	–	63 x 63 x 36 mm	75 g	103.734
Drop Light Fitting E27 12 VDC	–	[L] = 70 cm	95 g	107.219

Steca PA IRS 1008/108 Motion Detector



The Steca PA IRS 1008/108 motion detector is connected to the load output of the night light charge controller. This supplies power to the light, which is then turned on for a few minutes when some movement is detected.

The Steca IRS 1008/108 stands out, above all, through its extremely low own consumption, and is therefore optimal for use in solar power systems.



Article	Description	Dimensions	Weight	Article No.
Steca PA IRS 1008/108	(12 V / reach 7 m - 180° / IP 65)	–	100 g	105.472

Be part of the off-grid family! Become a Phaesun business partner.

Lightboy Movement Sensor



The Lightboy Movement Sensor is designed for wall or ceiling installation, has got a range of up to 10 m and a assessment angle of 120°. The Lightboy Movement Sensor allows a stepless external adjustment of time, the value of dawn and range. It is easy to install and the sensor head is horizontally and vertically transversable.



Article	Description	Dimensions	Weight	Article No.
Movement Sensor Light Boy 12V	(12 VDC / 10 A / 5 to 1000 Lux)	78 x 160 x 72 mm	200 g	103.806

Lightboy Timer



Article	Description	Dimensions	Weight	Article No.
Light Boy Timer 12V		112 x 72 x 40 mm	300 g	103.805

DC Miniature Circuit Breaker



Features

- UL 489A Listed
- DIN Rail Mounting
- Compact 13 mm width
- Single Pole
- Current Rating up to 60 A
- 100% Rating Capability
- Hydraulic-Magnetic Technology
- 10 Year Warranty

Technical Data

- Number of Poles: 1
- Maximum Voltage: 80V DC
- Minimum Amp Rating: 1 Amp
- Maximum Amp Rating: 50 Amp
- Interrupting Cap.: 10,000 A
- Operating Temp. Range: -40° C to +60° C



Article	Description	Dimensions	Weight	Article No.
QY-1 (13) D,U2, 10 A	(80 VDC / 10 A / 1 pole)	93 x 12 x 74 mm	100 g	102.892
QY-1 (13) D,U2, 16 A	(80 VDC / 16 A / 1 pole)	93 x 12 x 74 mm	100 g	102.893
QY-1 (13) D,U2, 20 A	(80 VDC / 20 A / 1 pole)	93 x 12 x 74 mm	100 g	102.894
QY-1 (13) D,U2, 40 A	(80 VDC / 40 A / 1 pole)	93 x 12 x 74 mm	100 g	102.895
QY-1 (13) D,U2, 50 A	(80 VDC / 50 A / 1 pole)	93 x 12 x 74 mm	100 g	102.896
QY-1 (13) D,U2, 60 A	(80 VDC / 60 A / 1 pole)	93 x 12 x 74 mm	100 g	102.897
QY-1 (13) D,U2, 32 A	(80 VDC / 32 A / 1 pole)	93 x 12 x 74 mm	100 g	102.920
DD-Frame Circuit Breaker 80 A	(80 VDC / 80 A / 2 pole)	115 x 40 x 80 mm	300 g	107.220

Sundaya



Sundaya Products

Sundaya AC Grid Charger DC10



The DC10 can be used in combination with S3/S4 and almost any 220 VAC power source to form a powerful continuous power supply (CPS) system. It provides a stable 12VDC output, straight to the application, or to the S3/S4. The unit is capable of handling a maximum load of 10A. In areas with bad electricity grid a CPS provides the comfort and security of never failing lamps and applications.



Article	Description	Dimensions	Weight	Article No.
Sundaya Grid Charger DC10	(160 - 280 V input range / 10 A charging current)	244 x 118 x 55 mm	724 g	101.997

Sundaya S3 Series



The Sundaya Storage System (S3) is a unique solution for installing your solar Home System in a neat and easy way. The S3 integrates battery, charge-discharge controller, battery condition indicator, switch panel and DC outlets in one enclosure which can either be mounted to a wall or put on a table. The unit is typically suitable lighting, television, audio-equipment etc. which can be powered 12VDC appliances. In general any size of 12V PV panel/array from 10 to 100 Wp can be connected to the unit. The unit is available in six sizes.



Article	Description	Dimensions	Weight	Article No.
Sundaya S3.1100 with Hub	(12 VDC / 6 A module / 6 A load / 1100 kJ storage capacity)	205 x 195 x 380 mm	1,3 kg	104.501
Sundaya S3.1700 with Hub	(12 VDC / 6 A module / 6 A load / 1700 kJ storage capacity)	255 x 195 x 380 mm	1,7 kg	104.513
Sundaya S3.2200 with Hub	(12 VDC / 10 A module / 10 A load / 2200 kJ storage capacity)	305 x 195 x 380 mm	1,9 kg	104.518
Sundaya S3.3000 with Hub	(12 VDC / 10 A module / 10 A load / 3000 kJ storage capacity)	350 x 195 x 380 mm	2,0 kg	104.519
Sundaya S3.4300 with Hub	(12 VDC / 14 A module / 14 A load / 4300 kJ storage capacity)	450 x 195 x 380 mm	2,3 kg	104.520
Sundaya S3.5200 with Hub	(12 VDC / 14 A module / 14 A load / 5200 kJ storage capacity)	560 x 195 x 380 mm	2,7 kg	104.521

Sundaya S4 Series

The S4 is a completely sealed and maintenance free 12VDC electricity storage system that can be charged directly from any size solar panel ranging from 10 up to 120 Wp or from other powersource like the Sundaya DC10. The unit is equipped with a unique electronic battery state of charge display (LCD) and a buzzer to warn user when battery is running low. It is completely Plug and Play and comes with a standart cable set that can be plugged into the S4.



Article	Description	Dimensions	Weight	Article No.
Sundaya S4.200 with Hub	(200 Wh capacity / 10 A at 12 VDC)	275 x 210 x 295 mm	15 kg	104.593
Sundaya S4.500 with Hub	(500 Wh capacity / 10 A at 12 VDC)	275 x 210 x 295 mm	18 kg	104.594

Sundaya Apple Solar Charge Controller

The Apple is a charge discharge regulator with a unique battery forced health improvement feature (FHI©). The apple is equipped with an alarm to warn the user when battery is close to forced disconnect . The Apple uses latest technology ultra efficient switching components which results in extreme low voltage drop and almost no heat generation. The unit has very sturdy terminals.



Article	Description	Dimensions	Weight	Article No.
Sundaya Apple 5	(5 A module current / 5 A load current / 12 VDC)	Ø 120 x 40 mm	100 g	101.994
Sundaya Apple 10	(10 A module current / 10 A load current / 12 VDC)	Ø 120 x 40 mm	100 g	101.995
Sundaya Apple 15	(15 A module current / 15 A load current / 12 VDC)	Ø 120 x 40 mm	100 g	101.996
Sundaya Apple 20	(20 A module current / 20 A load current / 12 VDC)	Ø 120 x 40 mm	100 g	104.537
Sundaya Apple 5 & cable set	(5 A module current / 5 A load current / 12 VDC)	Ø 120 x 40 mm	100 g	104.531
Sundaya Apple 10 & cable set	(10 A module current / 10 A load current / 12 VDC)	Ø 120 x 40 mm	100 g	104.532
Sundaya Apple 15 & cable set	(15 A module current / 15 A load current / 12 VDC)	Ø 120 x 40 mm	100 g	104.533

All components for an ultimate solar home system: check out the excellent Sundaya product range and configure individual solar systems.

Sundaya Multilight 1



The Multilight 1 is a sturdy waterproof (submersible to 25m) lamparmature with poly carbonate lamp cover. The Multilight has a preheat start inverter and is equipped with a replaceable Ulux tube. The lamp has a lifetime of over 100.000 On/Off cycles and over 10.000 burning hours.



Article	Description	Dimensions	Weight	Article No.
Sundaya Multilight 1 300 (6W)	(6 Watt / 12 V / 20 kJ/hr / 300 Lm)	Ø 260 x 64 mm	400 g	101.546
Sundaya Multilight 1 450 (9W)	(9 Watt / 12 V / 30 kJ/hr / 450 Lm)	Ø 260 x 64 mm	400 g	101.561
Sundaya Multilight 1 600 (12W)	(12 Watt / 12 V / 40 kJ/hr / 600 Lm)	Ø 260 x 64 mm	400 g	104.630
Sundaya Multilight 1 1000 (18W)	(18 Watt / 12 V / 60 kJ/hr / 1000 Lm)	Ø 260 x 64 mm	400 g	104.631

Sundaya Multilight 2



The Multilight 2 is a sturdy lamparmature with an extremely durable melamine lamp shade. The Multilight 2 has a preheat start inverter and is equipped with a replaceable Ulux tube. The lamp has a lifetime of over 100.000 On/Off cycles and over 10.000 burning hours.



Article	Description	Dimensions	Weight	Article No.
Sundaya Multilight 2 300 (6W)	(6 Watt / 12 V / 20 kJ/hr / 300 Lm)	Ø 260 x 300 mm	680 g	101.566
Sundaya Multilight 2 450 (9W)	(9 Watt / 12 V / 30 kJ/hr / 450 Lm)	Ø 260 x 300 mm	680 g	101.567
Sundaya Multilight 2 600 (12W)	(12 Watt / 12 V / 40 kJ/hr / 600 Lm)	Ø 260 x 300 mm	680 g	104.632
Sundaya Multilight 2 1000 (18W)	(18 Watt / 12 V / 60 kJ/hr / 1000 Lm)	Ø 260 x 300 mm	680 g	104.633

Sundaya Multilight 3



The Multilight 3 is a sturdy waterproof (submersible to 25m) lamparmature with mounting bracket and extremely durable melamine lamp shade. The Multilight 3 has a preheat start inverter and is equipped with a replaceable Ulux tube. The lamp has a lifetime of over 100.000 On/Off cycles and over 10.000 burning hours.



Article	Description	Dimensions	Weight	Article No.
Sundaya Multilight 3 300 (6W)	(6 Watt / 12 V / 20 kJ/hr / 300 Lm)	Ø 260 x 300 mm	870 g	101.568
Sundaya Multilight 3 450 (9W)	(9 Watt / 12 V / 30 kJ/hr / 450 Lm)	Ø 260 x 300 mm	870 g	101.569
Sundaya Multilight 3 600 (12W)	(12 Watt / 12 V / 40 kJ/hr / 600 Lm)	Ø 260 x 300 mm	870 g	104.634
Sundaya Multilight 3 1000 (18W)	(18 Watt / 12 V / 60 kJ/hr / 1000 Lm)	Ø 260 x 300 mm	870 g	104.635

Sunda ALight Lighting Units



The A-light is the best price performance ratio lamp in the industry. The A-light uses a Philips 10 W fluorescent tube and is equipped with the highest grade electronic components to ensure a long lifetime. The uniquely shaped UV-stabilized reflector takes care of a good diffusion of the light. The A-light displayed here produces 210 Lumens at 6 W or 360 Lumens at 10 W power consumption.



Article	Description	Dimensions	Weight	Article No.
Sunda ALight Regular				
Sunda ALight 210 (6W)	(6 Watt / 12 V / 210 Lm / 20 kJ/hr)	428 x 125 x 51 mm	280 g	101.573
Sunda ALight 360 (10W)	(10 Watt / 12 V / 360 Lm / 36 kJ/hr)	428 x 125 x 51 mm	280 g	101.575
Sunda ALight with built in Pull Switch (PS)				
Sunda ALight 210 (6W) + PS	(6 Watt / 12 V / 210 Lm / 20 kJ/hr)	428 x 125 x 51 mm	280 g	101.577
Sunda ALight 360 (10W) + PS	(10 Watt / 12 V / 360 Lm / 36 kJ/hr)	428 x 125 x 51 mm	280 g	101.579
Sunda ALight with built in Pull Switch and Night Light (PSNL)				
Sunda ALight 210 (6W) + PSNL	(6 Watt / 12 V / 210 Lm / 20 kJ/hr)	428 x 125 x 51 mm	280 g	101.581
Sunda ALight 360 (10W) + PSNL	(10 Watt / 12 V / 360 Lm / 36 kJ/hr)	428 x 125 x 51 mm	280 g	101.583
Sunda ALight with built in Rocker Switch (RS)				
Sunda ALight 210 (6W) + RS	(6 Watt / 12 V / 210 Lm / 20 kJ/hr)	428 x 125 x 51 mm	280 g	101.585
Sunda ALight 360 (10W) + RS	(10 Watt / 12 V / 360 Lm / 36 kJ/hr)	428 x 125 x 51 mm	280 g	101.587
Sunda ALight with built in Rocker Switch and Night Light (RSNL)				
Sunda ALight 210 (6W) + RSNL	(6 Watt / 12 V / 210 Lm / 20 kJ/hr)	428 x 125 x 51 mm	280 g	101.589
Sunda ALight 360 (10W) + RSNL	(10 Watt / 12 V / 360 Lm / 36 kJ/hr)	428 x 125 x 51 mm	280 g	101.591

Sunda E17 Ulite Energy Saving Lamps



The Ulite is a 12VDC instant start Compact Fluorescent Lamp with E17 Fitting. The Lamp has a lifetime of over 5.000 On/Off cycles and over 8.000 burning hours. The Ulite is available in 3 capacities from 3 up to 9 Watts.

E17 to E27 Adaptor see page 98.



Article	Description	Dimensions	Weight	Article No.
Sunda E17 Ulite 120 ESL	(3 W / 12 V / cool daylight / 6800K / 120 Lm)	Ø 47 x 108 mm	60 g	101.783
Sunda E17 Ulite 240 ESL	(6 W / 12 V / cool daylight / 6800K / 240 Lm)	Ø 47 x 115 mm	64 g	101.784
Sunda E17 Ulite 360 ESL	(9 W / 12 V / cool daylight / 6800K / 360 Lm)	Ø 47 x 135mm	72 g	101.785

Sundaya E17 Qlite Energy Saving Lamps



The Qlite is a 12 VDC preheat start Compact Fluorescent Lamp with E17 Fitting and replaceable tube. The Lamp has an extremely long lifetime of over 100.000 On/Off cycles and over 10.000 burning hours. The Qlite is available in 5 capacities from 3 up to 18 Watts. Qlite Spare tube as replacement tube for the Qlite range.

E17 to E27 Adaptor see page 98.



Sundaya E17 Qlite ESL



Sundaya Qlite Spare tube



Article	Description	Dimensions	Weight	Article No.
Sundaya E17 Qlite ESL				
Sundaya E17 Qlite 300 ESL	(6 W / 12 V / cool daylight / 6800K / 300 Lm)	Ø55 x 118 mm	78 g	101.787
Sundaya E17 Qlite 450 ESL	(9 W / 12 V / cool daylight / 6800K / 450 Lm)	Ø55 x 128 mm	82 g	101.788
Sundaya E17 Qlite 600 ESL	(12 W / 12 V / cool daylight / 6800K / 900 Lm)	Ø55 x 138 mm	86 g	101.789
Sundaya E17 Qlite 1000 ESL	(18 W / 12 V / cool daylight / 6800K / 1000 Lm)	Ø55 x 159 mm	94 g	101.790
Sundaya Qlite Spare tube for Qlite				
Sundaya E17 Qlite 300 Spare Tube	(for Qlite 300)	–	–	101.990
Sundaya E17 Qlite 450 Spare Tube	(for Qlite 450)	–	–	101.991
Sundaya E17 Qlite 600 Spare Tube	(for Qlite 600)	–	–	101.992
Sundaya E17 Qlite 1000 Spare Tube	(for Qlite 1000)	–	–	101.993

Sundaya E17 Luna 12 VDC LED-lamps



The Luna is a White LED lamp with a power consumption of only 0,25 to 1 Watt; The Luna is very suitable as a reading lamp when combined with the Tablo and Pointer. Including the Sundaya E17 fitting.

E17 to E27 Adaptor see page 98.



Article	Description	Dimensions	Weight	Article No.
Sundaya E17 Luna 60 (1W)	(1,00 W / 12 V / white light / E17 / 60 Lm)	Ø120 x 73 mm	69 g	102.980
Sundaya E17 Luna 30 (0,5W)	(0,50 W / 12 V / white light / E17 / 30 Lm)	Ø120 x 73 mm	69 g	102.981
Sundaya E17 Luna 15 (0,25W)	(0,25 W / 12 V / white light / E17 / 15 Lm)	Ø120 x 73 mm	69 g	102.982

Sundaya Extender

The extender is a flexible cable assembly to turn your ceiling lamp into a hanging ceiling lamp.

The cable clip that is included allows you to adjust different length. The extender has E17 fittings that can fit all Sundaya lamps (Ulite, Ulux and Luna) together with all available E17 shades.



Article	Description	Dimensions	Weight	Article No.
Sundaya E17 Extender 1 (black)	(30 - 60 cm length)	[L] = 600 mm	115 g	101.593
Sundaya E17 Extender 2 (black)	(70 - 120 cm length)	[L] = 1200 mm	199 g	101.595
Sundaya E17 Extender 3 (black)	(130 - 180 cm length)	[L] = 1800 mm	218 g	101.597

Sundaya Apollo

The Apollo is the E17 fitting Lamp base with extremely rigid terminals to ensure good electrical conductivity which is very important in low voltage DC installations.



Article	Description	Dimensions	Weight	Article No.
Sundaya E17 Apollo (black)		Ø 95 x 50 mm	49 g	101.774

Sundaya Pointer

The Pointer is a cable assembly with a solid bendable cable to direct the light in your desired direction. The pointer has a length of 60cm and can be used in combination with the Apollo fixed on the wall or as a table lamp with the Apollo fixed on the Tablo.



Article	Description	Dimensions	Weight	Article No.
Sundaya E17 Pointer (black)		Ø 60 x 600 mm	130 g	101.776

Sundaya Tablo

The Tablo is a Lamp base for a table lamp with a built-in switch and cable with DC plug. The Tablo can be completed with the Pointer and Ulite Ulux or Luna with a Halo or Skirt shade.



Article	Description	Dimensions	Weight	Article No.
Sundaya E17 Tablo (black)		Ø 175 x 20 mm	800 g	101.778

Sundaya's innovative S5: Sundaya Smart Scalable Storage System.

Sundaya E17 Lamp Shades



The Halo is a durable UV-stabilized lampshade that focusses the light downwards over a widespread area. The Halo is suitable for use as a hanging or standing table lamp or general purpose lamp in the living room.

The Wally is a durable UV-stabilized lampshade that can be mounted to the wall for indoor or outdoor lighting purposes.

The Skirt is a durable unbreakable polycarbonate lampshade to be used for a hanging or table lamp. The Skirt distributes the light nicely to create a cozy atmosphere.



Sundaya Halo



Sundaya Wally



Sundaya Skirt

Article	Description	Dimensions	Weight	Article No.
Sundaya E17 Halo	–	Ø222 x 33 mm	72 g	101.773
Sundaya E17 Wally	–	212 x 210 x 115 mm	117 g	101.772
Sundaya E17 Skirt clear	(clear color)	Ø 115 x 180 mm	121 g	101.599
Sundaya E17 Skirt red	(red color)	Ø 115 x 180 mm	121 g	101.770
Sundaya E17 Skirt green	(green color)	Ø 115 x 180 mm	121 g	101.771

Sundaya Showcase



The Sundaya Showcase includes the most important products and applications compactly combined in a suitcase. This case features rolls and allows to take the Sundaya product range mobile around and show the advantages at any place you want. As a consequence it is possible to show the user-friendly installation as well as the flexible system structure depending on the customer requirements both directly at the customers company and at exhibitions or similar events. It doesn't only include the most important lighting and storage systems, but also complete appropriate installation. That allows the customer to assure himself personally of the product quality, the easy installation and the many different possibilities of a Solar Home System compilation.



interior view



exterior view

Article	Description	Dimensions	Weight	Article No.
Sundaya Showcase (with accessories)	–	300 x 700 x 900 mm	42 kg	104.543

Sundaya C- and D-Plug



The D-Plug is the male part of the Sundaya 12 V DC shock-proof plug system. It's Design is comparable to a 230 VAC shock-proof plug, but in difference to the 230 V version it has got plugging poles with a square profile instead of round. And the poles are arranged in different directions – because of that a wrong polarisation is impossible. The C-Plug is the female counterpart to the D-Plug. Both are designed for currents up to 10 Ampere.



Sundaya C-Plug



Sundaya D-Plug

Article	Description	Dimensions	Weight	Article No.
Sundaya D-Plug	(12 VDC / 10 A / male)	70 x 20 x 10 mm	50 g	101.999
Sundaya C-Plug Cable	(12 VDC / 10 A / female / incl. cable)	[L] = 1 m	100 g	104.535
Sundaya D-Plug Cable	(12 VDC / 10 A / male / incl. cable)	[L] = 1 m	100 g	104.536

Sundaya F²Plug - M²Plug Cable



Sundaya's M²Plug delivers the electricity from a Sundaya solar module, DC10 or a grid generating system. The F²Plug is the counterpart and goes on to the input of a solar charge controller.

This plugset also includes the unique Sundaya shape to ensure the right polarisation.



Article	Description	Dimensions	Weight	Article No.
Sundaya F ² Plug - M ² Plug cable	(12 VDC / 10 A / female - male)	[L] = 4 m	250 g	101.798

Sundaya DCS Cable



Sundaya's DCS cables have an unique shape to differentiate the Positive and Negative wire. The DCS cable in combination with all Sundaya electrical accessories will ensure a highly reliable installation in shortest possible time. Rule :

Current(A) x Length(m) should not exceed 50(Am). Sundaya supplies the cable in standard lengths of 10, 15, 30, 50 or 100 m.



Article	Description	Dimensions	Weight	Article No.
Sundaya DCS Cable 50 Am x 10 m	(5 Amp at 10 m, 2 Amp at 25 m length)	2 x 2,5 mm ²	–	101.980
Sundaya DCS Cable 50 Am x 15 m	(5 Amp at 10 m, 2 Amp at 25 m length)	2 x 2,5 mm ²	–	101.981
Sundaya DCS Cable 50 Am x 30 m	(5 Amp at 10 m, 2 Amp at 25 m length)	2 x 2,5 mm ²	–	101.982
Sundaya DCS Cable 30 Am x 10 m	(3 Amp at 10 m, 1 Amp at 30 m length)	2 x 1,5 mm ²	–	101.983
Sundaya DCS Cable 30 Am x 15 m	(3 Amp at 10 m, 1 Amp at 30 m length)	2 x 1,5 mm ²	–	101.984
Sundaya DCS Cable 30 Am x 30 m	(3 Amp at 10 m, 1 Amp at 30 m length)	2 x 1,5 mm ²	–	101.985
Sundaya DCS Cable 15 Am x 10 m	(1,5 Amp at 10 m, 1 Amp at 15 m length)	2 x 0,75 mm ²	–	101.986
Sundaya DCS Cable 15 Am x 15 m	(1,5 Amp at 10 m, 1 Amp at 15 m length)	2 x 0,75 mm ²	–	101.987
Sundaya DCS Cable 15 Am x 30 m	(1,5 Amp at 10 m, 1 Amp at 15 m length)	2 x 0,75 mm ²	–	101.988

To speed up your order please use our order or inquiry form! You find it in the front of this catalogue and on www.phaesun.com > Components > Downloads

Sundaya Voltage Converter D-Con 12-X



Especially solar home systems of 12 V or 24 V require smaller voltages to supply loads as radios, cassette recorders or mobile phones. The Sundaya Voltage Converter VR12-X are designed

for supplying a large range of consumer electronics with voltages of 9 or 6 V.



NEW

Article	Description	Dimensions	Weight	Article No.
Sundaya Voltage Converter D-Con 12-3	(12 VDC input / 3 VDC output)	[L] = 1 m	50 g	106.795
Sundaya Voltage Converter D-Con 12-4,5	(12 VDC input / 4,5 VDC output)	[L] = 1 m	50 g	106.796
Sundaya Voltage Converter D-Con 12-6	(12 VDC input / 6 VDC output)	[L] = 1 m	50 g	101.909
Sundaya Voltage Converter D-Con 12-9	(12 VDC input / 9 VDC output)	[L] = 1 m	50 g	101.910

Sundaya Double C-Plug Socket



The Sundaya Double C-Plug socket is a built-in socket for the connection of up to two D-Plugs into the socket. It is designed for the use in vehicles (campmobiles, cars, etc.) and houses (tenu-

ments, summerhouses, etc.) The connection is very simple, by the help of a luster terminal.



Article	Description	Dimensions	Weight	Article No.
Sundaya Double C-Plug Socket	(12 VDC / 10 A / female)	65 x 25 x 25 mm	30 g	104.596

Sundaya E17 Refit



The Sundaya E17 Refit is a socket for the easy installation of Sundaya Ulite or Qlite. On the one side there are luster terminals to connect an DC

wire to the socket. On the other side is an E17 socket, to connect the energy saving lamp.



NEW

Article	Description	Dimensions	Weight	Article No.
Sundaya E17 Refit	–	–	50 g	104.595

Sundaya DCS Cable 4-way Socket



Sundaya's DCS cable 4 way sockets allow the connection of up to 4 cables with D-Plug to one power source as the case may be C-Plug. It is comparable to a 230 VAC multiway connector. It is available in different lengths and with T-Con or D-Plug.



Article	Description	Dimensions	Weight	Article No.
Sundaya 4-way Socket + T-Con 5 m	(12 VDC / 10 A)	[L] = 5 m	300 g	104.541
Sundaya 4-way Socket + T-Con 3 m	(12 VDC / 10 A)	[L] = 3 m	300 g	104.540
Sundaya 4-way Socket + D-Plug 3 m	(12 VDC / 10 A)	[L] = 3 m	300 g	104.597
Sundaya 4-way Socket + D-Plug 1,5 m	(12 VDC / 10 A)	[L] = 1,5 m	300 g	104.598
Sundaya 4-way Socket + D-Plug 0,75 m	(12 VDC / 10 A)	[L] = 0,75 m	300 g	104.599

Sundaya DCS Cable with Plugs



Sundaya's DCS cables have a unique shape to differentiate the Positive and Negative wire. The DCS cable in combination with all Sundaya electrical accessories will ensure a highly reliable installation in shortest possible time.

Rule : Current(A) x Length(m) should not exceed 50(Am). Sundaya supplies the cable in standard lengths of 10, 15, 30, 50 or 100 m. The following cables include also a connected D- and C-Plug and are used as extension cables.



Article	Description	Dimensions	Weight	Article No.
Sundaya DCS Cable 50 Am x 30 m C- & D-Plug	(5 Amp at 10 m, 2 Amp at 25 m length)	2 x 2,5 mm ²	–	104.553
Sundaya DCS Cable 50 Am x 15 m C- & D-Plug	(5 Amp at 10 m, 2 Amp at 25 m length)	2 x 2,5 mm ²	–	104.552
Sundaya DCS Cable 50 Am x 10 m C- & D-Plug	(5 Amp at 10 m, 2 Amp at 25 m length)	2 x 2,5 mm ²	–	104.551
Sundaya DCS Cable 30 Am x 30 m C- & D-Plug	(3 Amp at 10 m, 1 Amp at 30 m length)	2 x 1,5 mm ²	–	104.556
Sundaya DCS Cable 30 Am x 15 m C- & D-Plug	(3 Amp at 10 m, 1 Amp at 30 m length)	2 x 1,5 mm ²	–	104.555
Sundaya DCS Cable 30 Am x 10 m C- & D-Plug	(3 Amp at 10 m, 1 Amp at 30 m length)	2 x 1,5 mm ²	–	104.554
Sundaya DCS Cable 15 Am x 30 m C- & D-Plug	(1,5 Amp at 10 m, 1 Amp at 15 m length)	2 x 0,75 mm ²	–	104.559
Sundaya DCS Cable 15 Am x 15 m C- & D-Plug	(1,5 Amp at 10 m, 1 Amp at 15 m length)	2 x 0,75 mm ²	–	104.558
Sundaya DCS Cable 15 Am x 10 m C- & D-Plug	(1,5 Amp at 10 m, 1 Amp at 15 m length)	2 x 0,75 mm ²	–	104.557

Sundaya Hub 1 / 3



The Hub 1 and 3 are cables designed to keep your DC installation neat, with only 1 cable connecting both Charger and Load to your Storage System. Only one cable instead of numerous cables running up and down the wall.



Hub 3



Hub 1

Article	Description	Dimensions	Weight	Article No.
Sundaya Hub 1	(PVC fire retardant 2 m 3x2,5 mm ² + 11 m 2x2,5 mm ²)	375 x 135 mm	1,1 kg	101.792
Sundaya Hub 3	(PVC fire retardant 2,5 m 5x2,5 mm ² + 30 m 2x1,5 mm ²)	50 x 41 x 16 mm	2 kg	101.791
Sundaya Hub 1 & C-Plug	–	135 x 20 mm	100 g	104.600

Sundaya S-Con & T-Con



The T-Con and S-Con are connecting devices that can be used to make a T or a cross connection to create either 1 or 2 branches from the main distribution cable. They also prevent the possibility of a reverse polarity connection and

the installation is very simple. The difference between S- and T-Con is that the S-Con is used to connect the load to a switch.



T-Con



S-Con

Article	Description	Dimensions	Weight	Article No.
Sundaya S-Con	–	Ø 50 x 23 mm	33 g	101.795
Sundaya T-Con	–	Ø 50 x 23 mm	30 g	101.794

Fax your order to
+49 (8331) 990 42 - 12

Sundaya Cable Nail



Sundaya's DCS cable can be nailed to the wall by just driving a nail through the center of the cable. The special cable nails supplied for DCS type cable are extremely strong and can penetrate

all types of wall material. One pack of 20 pcs is sufficient for neatly mounting 5 meters of cable.



Article	Description	Dimensions	Weight	Article No.
Sundaya Cable Nail Pack	(20 pcs)	Ø 5 x 15 mm	5 g	101.799

Sundaya Lightng Accessories



Sundaya Broco Switch



Sundaya Pullite



Sundaya Pull-On

Article	Description	Dimensions	Weight	Article No.
Sundaya Single Wall Broco Switch	(on / off switch)	60 x 60 x 50 mm	50 g	101.793
Sundaya Pull-On	(pull switch)	Ø90 x 110 mm	100 g	101.797
Sundaya Pullite	(pull switch)	Ø90 x 700 mm	200 g	101.796

Sundaya Universal Mobile Phone Charger



Allows to charge many mobile phone types of well known suppliers like BenQ, Nokia, SonyE-ricsson and more. The 12 VDC power of the input is convertet to 6 VDC for the accumulator of the mobile phone.



Article	Description	Dimensions	Weight	Article No.
Sundaya Universal Mobile Phone Charger	(12 VDC input / 6 VDC output)	[L] = 1 m	50 g	101.911

Sundaya D-Plug Car Lighter Socket



The Sundaya D-Plug Car Lighter Socket has got a D-Plug on the one side and a car lighter socket on the other. This allows you to connect typicall car lighter applications to your Sundaya system..



NEW

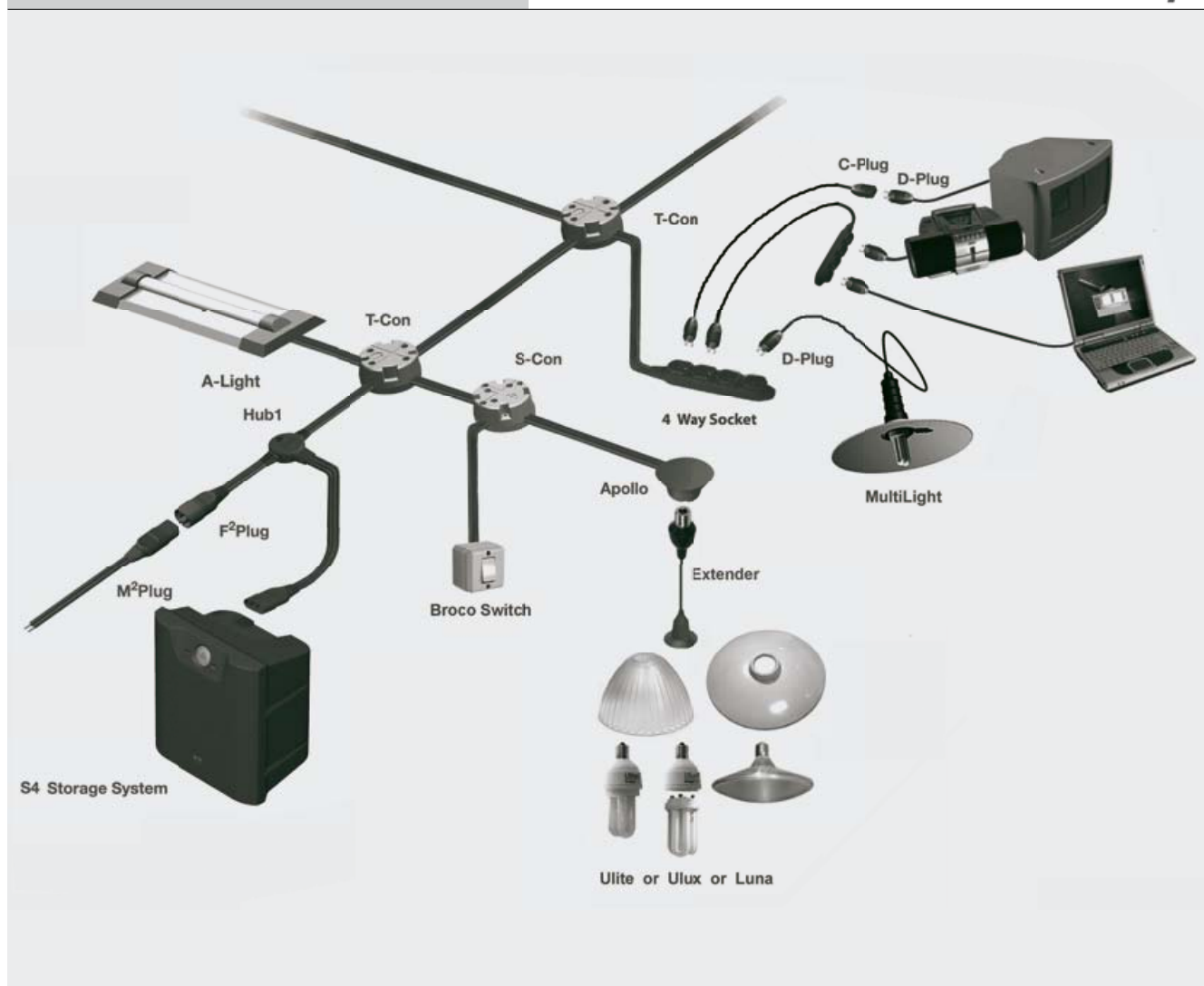
Article	Description	Dimensions	Weight	Article No.
Sundaya D-Plug Car Lighter Socket	–	–	100 g	104.602

E17 to E27 Adapter

Allows to put the Sundaya ESL Lighting Units into an european standard socket. E17 Medium can be „made“ to an E27 Intermediate adapter.



Article	Description	Dimensions	Weight	Article No.
E17 to E27 Adapter		Ø 25 mm	100 g	104.098

Sundaya System Overview

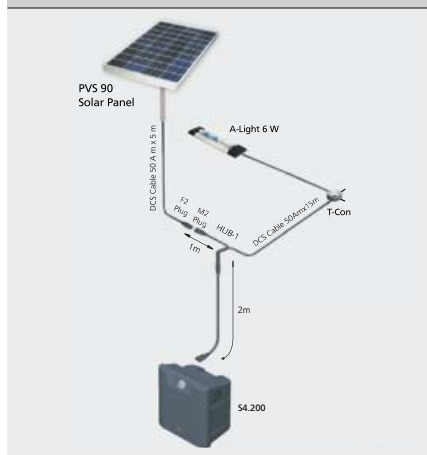
Sundaya Solar Home Systems



The Sundaya Solar Home Systems are made for the installation of a low-priced, but also nice designed illumination in your home. They are

designed for a permanent illumination of rooms or the complete house. They are available with different components for different applications.

Sundaya Solar Home System 1



PVS 90 Solar Panel



S4. 200



HUB-1

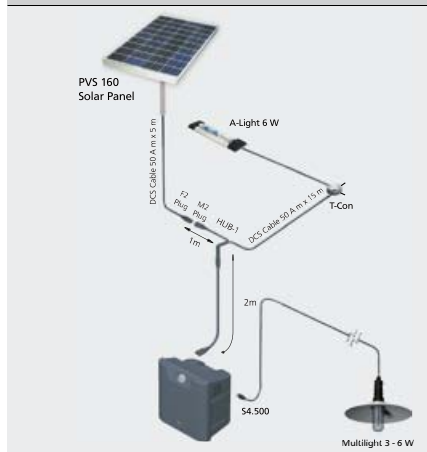


T-Con



A-Light 6W + RSNL

Sundaya Solar Home System 2



PVS160 Solar Panel



S4. 500



HUB-1



Multilight3- 6W



T-Con



A-Light 6 W + RSNL

Article	Description	Dimensions	Weight	Article No.
Sundaya Solar Home System 1		–	15 kg	104.561
PVS90 Solar Panel Kit - 20 W				
S4.200set - 20 Ah				
A-light 6W + RS				
T-con				
Sundaya Solar Home System 2		–	28 kg	104.562
PVS160 Solar Panel Kit - 40 W				
S4.500set - 55 Ah				
A-light 6W + RS				
Multilight 3 6W				
T-con				

Street Lighting

Street Lighting

Western Street Lighting Systems



LED Street Lighting Systems:

PV street lamps allow to create lighting systems by exploiting solar energy in areas that are not connected to the grid system. The new Western Co. PV LED street lamp is an important turning point in stand-alone lighting systems thanks to a new light source made of light emitting diodes (LED) thus introducing new standards of efficiency, production and reliability that seemed unreachable until a few years ago. The PV street lamp has been dimensioned to guarantee a working of 12h per night during the worst period of solar insolation in December with 4 days of autonomy in case of "no sun" condition.

The new Western Co. PV LED street lamp emits a white light; this colour allows a better perception of colours and details in comparison with a SOX lamp. In addition, the LED lamp allows to have a lighting value of the road plane greater than those of a sodium low pressure lamp (LPS) considering the same power and a duration superior to whatever kind of filament/discharge lamp with a mean time between failure (MTBF) of 100.000 hours.

SOX Street Lighting Systems:

PV street lamps allow to create lighting systems by exploiting solar energy in areas that are not connected to the grid system. This PV street

lamp has been dimensioned to guarantee a lamp activation of 12h per night during the worst period of sun insolation in December with 3 days of autonomy in case of "no sun condition". The timer function called "Self-Management" fixes a working of 12h per night and it manages the number of hours of lamp flux reduction according to the daily energy which is produced by PV modules. In the code SSLxx-B-M we have batteries and electronics on the top of the pole: compact and safe solution.



Article	Description	Dimensions	Weight	Article No.
Western LED Street Lighting Systems				
PV Street-Lamp with LED lamp SSL20-M-LED S-100	(20 LED Lamp / Battery box on ground)	–	50 kg	102.111
PV Street-Lamp with LED lamp SSL20B-M-LED S-100	(20 LED Lamp / Battery box on top)	–	50 kg	102.112
PV Street-Lamp with LED lamp SSL24-M-LED S-125	(24 LED Lamp / Battery box on ground)	–	50 kg	102.113
PV Street-Lamp with LED lamp SSL24B-M-LED S-125	(24 LED Lamp / Battery box on top)	–	50 kg	102.114
PV Street-Lamp with LED lamp SSL30-M-LED S-150	(30 LED Lamp / Battery box on ground)	–	50 kg	102.115
PV Street-Lamp with LED lamp SSL30B-M-LED S-150	(30 LED Lamp / Battery box on top)	–	50 kg	102.116
PV Street-Lamp with LED lamp SSL36B-M-LED S-150	(36 LED Lamp / Battery box on top)	–	50 kg	103.885
PV Street-Lamp with LED lamp SSL36-M-LED S-150	(36 LED Lamp / Battery box on ground)	–	50 kg	103.886
Western SOX Street Lighting Systems				
PV Street Lamp with SOX lamp SSL18B	(18 W SOX Lamp / Battery box on top)	–	53,5 kg	102.131
PV Street Lamp with SOX lamp SSL18	(18 W SOX Lamp / Battery box on ground)	–	68,5 kg	102.132
PV Street Lamp with SOX lamp SSL26B	(26 W SOX Lamp / Battery box on top)	–	53,6 kg	102.133
PV Street Lamp with SOX lamp SSL26	(26 W SOX Lamp / Battery box on ground)	–	68,5 kg	102.134
PV Street Lamp with SOX lamp SSL36B	(36 W SOX Lamp / Battery box on top)	–	58,6 kg	102.135
PV Street Lamp with SOX lamp SSL36	(36 W SOX Lamp / Battery box on ground)	–	73,6 kg	102.136
PV Street Lamp with SOX lamp SSL66B	(66 W SOX Lamp / Battery box on top)	–	53,6 kg	102.137
PV Street Lamp with SOX lamp SSL66	(66 W SOX Lamp / Battery box on ground)	–	68,5 kg	102.138

Western Grid LED Lamp



The solid state lighting LED lamp code LED.36K1-230 has been properly studied for the use in applications with high luminous efficiency and high energy saving as street lamps with power supplying from the grid system. The lamp has been optimized for installation inside a standard lamp holder and for outdoor installations considering its fixing and light projection to the ground. All this is the ideal solution for parks, pedestrian and cycle tracks, residential and suburban roads, squares and parking for heights

up to 7-8 meters. The lamp has got a power supplying and control electronic equipment with universal AC input / Full range (110-230Vac and frequency 50-60Hz) that has an average conversion efficiency > than 88% and a control system of the maximum working temperature for a total consumption of 60W. In the version of 36LEDs we reach total luminous fluxes of 5100lm and a total luminous efficiency of the lamp of 85lm/W.



Article	Description	Dimensions	Weight	Article No.
Grid Street-Lamp LED.30K1-230	(230 V / 30 LED Lamp / 4.500 lm)	622 x 380 x 211 mm	800 g	103.887
Grid Street-Lamp LED.36K1-230	(230 V / 36 LED Lamp / 5.100 lm)	622 x 380 x 211 mm	800 g	103.888

Western Mounting Material



Western Solar Module Bracket



Western Adaptable Street Lighting Pole



Pole and Brackets assembled

Article	Description	Dimensions	Weight	Article No.
Western Adaptable Street Lighting Pole	(4 segments)	Height: 8 m	–	103.884
Western Solar Module Bracket	(up to 200 W module)	–	–	103.889

WESTERN CO. PV LIGHTING SYSTEMS

Quality is our strength!



Western Co. deals with PV energy since 1990 producing systems for the exploitation of energy from renewable power sources. Its R&D Dept. is always studying and testing new products so to satisfy all customers' needs.

Main applications:

- PV street lamps with SOX (low pressure sodium) lamp
- PV street lamps with LED lamps (new generation)
- PV lamps for parks, cycle tracks, gardens and cities;
- PV flashing indicators
- PV billboards
- electronics for stand-alone systems (charge regulators, electronic ballasts, junction boxes and so on).

www.western.it



WESTERN CO.®
ELECTRONIC EQUIPMENTS - SOLAR SYSTEMS

The LED lamps
are now also available
@ 230VAC version

NEW

Western MPPT Solar Charge Controller



Western Co. charge regulators for lighting have been properly studied for PV street lamps with either SOX (low pressure sodium) and LED lamps. Their circuit has got a switching system with microcontroller for recharge of sealed or flooded lead acid 12Volt/24Volt (according to the version 12 or 24V) Pb batteries and search of the MPPT maximum power point of PV modules (switching Western Enhanced for a maximum exploitation of efficiency during recharge phase). A temperature sensor (which must be installed as near as possible to the battery) allows to adapt the recharge voltage to the variations of environment temperature as reported in the graphic at the end of this manual. This guar-

tees the best use of battery even in conditions of large thermal excursions and make these charge regulators suitable for outdoor applications. The recharge circuit needs to measure the battery voltage but, owing to the voltage drop on cables that connect regulator and battery, such measure is as more distorted as longer are the cables. For this reason there is an auxiliary input for the revelation of remote battery voltage that we advise to connect id the cables' length between SPB-LB and battery is > of 1.5 metres. All these expedients guarantee an optimum recharge and, therefore, a maximum life duration of the battery.


NEW

Article	Description	Dimensions	Weight	Article No.
MPPT Charge Regulator SPB-LB12	(10 A / output 12 V / switch controlled)	200 x 160 x 95 mm	1,5 kg	102.172
MPPT Charge Regulator SPB-LB24	(10 A / output 24 V / switch controlled)	200 x 160 x 95 mm	1,5 kg	103.881
MPPT Charge Regulator SPB-LR12	(10 A / output 12V / Radio controlled)	200 x 160 x 95 mm	1,5 kg	102.173
MPPT Charge Regulator SPB-LR24	(10 A / output 24 V / Radio controlled)	200 x 160 x 95 mm	1,5 kg	103.882
MPPT Charge Regulator SPB-LG12	(10 A / output 12V / GSM controlled)	200 x 160 x 95 mm	1,5 kg	102.174
MPPT Charge Regulator SPB-LG24	(10 A / output 24 V / GSM controlled)	200 x 160 x 95 mm	1,5 kg	103.883

Western Electronic Ballasts for SOX Lamps



It's an electronic ballast properly designed for the use of low pressure sodium lamps, kind sox and sox-e, in high efficiency and energy saving applications.

+ EFFICIENCY FOR CONVERSION > 90%

It is power supplied in low DC voltage (12Vdc or 24Vdc) and it has got an average conversion efficiency upper than 90% and a production greater than 140%, in comparison with a standard electromagnetic reactor.

+ EFFICIENCY FOR WAVE FORM

Lamp drive is characterized by high frequency (20 kHz) sine wave signal (low crest factor) for high lamp efficiency, in terms of lumen per watt and for longer lamp life. In case of reduced

energetic availability it is possible to have a flux reduction of the lamp with consequent energy saving up to 50%. For these reasons the ballast is ideal in PV street lamps for road lighting, as well as external places such as parks, gardens, parking-places, considering the possibility of direct connection to solar equipments as: SPB-LB, SPB-LR and SPB-GSM. The small dimensions of the ballast allow its fixing in almost all the lamp-holders which are on the market and make it a highly versatile product.


NEW

Article	Description	Dimensions	Weight	Article No.
Electronic Ballast SOX-E 18-36 24V	(for 18 W, 26 W, 36 W / 24 V SOX Lamps)	124 x 78 x 48 mm	300 g	102.169
Electronic Ballast SOX-E 18-36 12V	(for 18 W, 26 W, 36 W / 12 V SOX Lamps)	124 x 78 x 48 mm	300 g	103.673
Electronic Ballast SOX-E 35-55D 24V	(for 35 W, 55 W / 24 V SOX Lamps)	124 x 78 x 48 mm	300 g	103.880
Electronic Ballast SOX-E 66D 24V	(for 66 W / 24 V SOX Lamps)	124 x 78 x 48 mm	300 g	103.875
Electronic Ballast SOX-E 91D 24V	(for 91 W / 24 V SOX Lamps)	124 x 78 x 48 mm	300 g	103.876

Wind Generators



Wind Generators

Southwest Windpower Air Breeze Wind Generators

Southwest Windpower
Renewable Energy Made Simple

The all-new Air Breeze. Quieter, more efficient, and precision engineered to deliver more energy at lower wind speeds than any other wind generator in its class. Air Breeze is the next generation of Air turbines—with more than 100,000 units sold in 120 countries, the world's most popular small wind turbine.

Specifications Air X

Start up wind speed:	3,6 m/s
Pipe mount:	47,6 mm
Rated power:	400 W at 12,5 m/s



Article	Description	Dimensions	Weight	Article No.
Air Breeze Land				
Air Breeze Land, with built-in regulator 12 V	(12 V)	rotor Ø 1,17 m	5,9 kg	107.720
Air Breeze Land, with built-in regulator 24 V	(24 V)	rotor Ø 1,17 m	5,9 kg	107.721
Air Breeze Marine				
Air Breeze Marine, with built-in regulator 12 V	(12 V)	rotor Ø 1,17 m	5,9 kg	107.722
Air Breeze Marine, with built-in regulator 24 V	(24 V)	rotor Ø 1,17 m	5,9 kg	107.723
Air Breeze Towers				
29' EZ Tower	–	[h] = 8,83 m		102.567
27' AIR Guyed Tower Kit	–	[h] = 8,23 m		102.573
45' AIR Guyed Tower Kit	–	[h] = 13,72 m		102.574
Air Breeze Accessories				
Stop Switch	–	–	0,2 kg	102.582
Amp Meter	–	–	0,1 kg	102.583
Blade Set Air-X	–	–	1 kg	102.584

To speed up your order please use our order or inquiry form! You find it in the front of this catalogue and on www.phaesun.com > Components > Downloads

Southwest Windpower Whisper 100/200 Wind Generators

Southwest Windpower
Renewable Energy Made Simple

Electric power from a Whisper wind generator can easily provide the normal requirements of a sailboat, cabin, rural home, small farm or business without power lines. Solar panels complement the wind by providing electricity during the calm between weather fronts and during seasonal low wind months. Each system includes an EZ-Wire system center, a wiring center, load center, monitor and control device. The EZ-Wire system center is a universal overcharging controller. The EZ-Wire features a bright LED display to monitor batteries, wind output, solar output, and DC load; circuit breaker; stop switch and a diversion load option. The WHI-100/WHI-200 are factory setted 24V, but adjustable to 12, 36 and 48 V.



Specifications Whisper 100

Start up wind speed:	3,4 m/s
Pipe mount:	47,6 mm
Rated power:	900 W at 12,5 m/s
Voltage:	12/24/36/48 V

Specifications Whisper 200

Start up wind speed:	3,1 m/s
Pipe mount:	73 mm
Rated power:	1000 W at 12,5 m/s
Voltage:	12/24/36/48 V

Article	Description	Dimensions	Weight	Article No.
Whisper 100				
Whisper 100 (without controller)	–	rotor Ø 2,1 m	21 kg	102.463
Whisper 100 (with controller)	–	rotor Ø 2,1 m	21 kg	102.462
Whisper 100 Marine (without controller)	–	rotor Ø 2,1 m	21 kg	102.465
Whisper 100 Marine (with controller)	–	rotor Ø 2,1 m	21 kg	102.464
Whisper 200				
Whisper 200 (without controller)	–	rotor Ø 2,8 m	30 kg	102.467
Whisper 200 (with controller)	–	rotor Ø 2,8 m	30 kg	102.466
Whisper 200 Marine (without controller)	–	rotor Ø 2,8 m	30 kg	102.469
Whisper 200 Marine (with controller)	–	rotor Ø 2,8 m	30 kg	102.468
Whisper 200 Pump (with pump controller)	–	rotor Ø 2,8 m	30 kg	102.559
Whisper 200 Pump Marine (with pump controller)	–	rotor Ø 2,8 m	30 kg	102.560
Whisper 200 High voltage (without controller)	–	rotor Ø 2,8 m	30 kg	102.541

Whisper 100/200 Tower Kits

Southwest Windpower
Renewable Energy Made Simple

Article	Description	Dimensions	Weight	Article No.
Whisper 100/200 24' Guyed Tower Kit (7,2m)	–	[L] = 7,2 m	–	102.473
Whisper 100/200 30' Guyed Tower Kit (9m)	–	[L] = 9 m	–	102.550
Whisper 100/200 50' Guyed Tower Kit (15m)	–	[L] = 15 m	–	102.445
Whisper 100/200 65' Guyed Tower Kit (19,5m)	–	[L] = 19,5 m	–	102.551
Whisper 100/200 80' Guyed Tower Kit (24m)	–	[L] = 24 m	–	102.552

Small Wind. Big Energy.

Air Breeze, the latest generation of Southwest Windpower's popular AIR series, has been fully re-engineered for quieter operation and more energy in low wind speeds.



Technical Specifications

Rotor diameter	46 in (1.17 m)
Weight	13 lb (5.9 kg)
Voltage	12, 24 and 48 VDC
Rated power	200 watts at 28 mph (12.5 m/s)
Turbine controller	Microprocessor-based smart internal regulator with peak power tracking
Body	Cast aluminum (Air Breeze Marine is powder coated for corrosion protection)
Blades	Injection-molded composite (3)
Overspeed protection	Patented electronic torque control
Energy Production	38 kWh/month at 12 mph (5.4 m/s)
Survival wind speed	110 mph (49.2 m/s)
Warranty	3 Year Limited Warranty



Southwest Windpower
Renewable Energy Made Simple

aiR BREEZE™

Southwest Windpower Whisper 500 Wind Generators

Southwest Windpower
Renewable Energy Made Simple

Electric power from a Whisper wind generator can easily provide the normal requirements of a sailboat, cabin, rural home, small farm or business without power lines. Solar panels complement the wind by providing electricity during the calm between weather fronts and during seasonal low wind months. Each system includes an EZ-Wire system center, a wiring center, load center, monitor and control device. The EZ-Wire system center is a universal overcharging controller. The EZ-Wire features a bright LED display to monitor batteries, wind output, solar output, and DC load; circuit breaker; stop switch and a diversion load option. The WHI-100/WHI-200 are factory setted 24V, but adjustable to 12, 36 and 48 V.



Specifications Whisper 500

Start up wind speed:	3,1 m/s
Pipe mount:	141 mm
Rated power:	3000 W at 10,7 m/s
Voltage:	24/36/48 V

Article	Description	Dimensions	Weight	Article No.
Whisper 500 (with controller) 24 V		rotor Ø 4,5 m	70 kg	102.470
Whisper 500 (with controller) 48 V		rotor Ø 4,5 m	70 kg	102.471
Whisper 500 (without controller) 24/48 V		rotor Ø 4,5 m	70 kg	102.472
Whisper 500 High voltage (with controller) 24 V		rotor Ø 4,5 m	70 kg	102.540

Whisper 500 Tower Kits

Southwest Windpower
Renewable Energy Made Simple

Article	Description	Dimensions	Weight	Article No.
Whisper 500 30' Guyed Tower Kit (9m)	–	[L] = 9 m	–	102.553
Whisper 500 42' Guyed Tower Kit (14m)	–	[L] = 14 m	–	102.554
Whisper 500 70' Guyed Tower Kit (21m)	–	[L] = 21 m	–	102.555

Southwest Windpower Skystream 3.7

Skystream 3.7 is a breakthrough in a new generation of RPAs (Residential Power Appliances) that will change the energy landscape of how homes and small businesses receive electricity. Skystream is the first fully integrated system that produces energy for less than the average cost of electricity in the United States and it produces usable energy in exceptionally low winds. Skystream is available on towers ranging from 35' (10.67m) to 110' (33.5m). Its universal inverter will deliver power compatible with any utility grid from 110-240 VAC. Skystream will

efficiently and quietly provide up to 100% of the energy needs for a home or small business. Any extra energy is fed into the grid spinning the meter backward.

Specifications Skystream 3.7

Rated wind speed:	9 m/s
Rated capacity:	1,8 kW

Southwest Windpower

Renewable Energy Made Simple



Article	Description	Dimensions	Weight	Article No.
Skystream Land				
Skystream 3.7 Land 230V Complete	–	rotor Ø 3,72 m	77 kg	102.588
Skystream Marine				
Skystream 3.7 Marine 230V Complete	–	rotor Ø 3,72 m	77 kg	102.591
Skystream Towers				
Skystream Monopole Tower 10 Meter	–	[h] = 10 m	–	106.200
Skystream Guyed Tower Kit 9,1 Meter	(Kit w/o pipe & anchors)	[h] = 9,1 m	–	106.201
Skystream Guyed Tower Kit 12,8 Meter	(Kit w/o pipe & anchors)	[h] = 12,8 m	–	106.202
Skystream Guyed Tower Kit 21,3 Meter	(Kit w/o pipe & anchors)	[h] = 21,3 m	–	106.203
Skystream Accessories				
Skystream SMarT Foundation Kit	(foundation kit for 10 m Monopole Tower)	–	–	106.205
Skystream Foundation Bolt Kit 32"	(foundation bolt kit for 10 m Monopole Tower)	–	–	106.206
Skystream Foundation Bolt Kit 42"	(foundation bolt kit for 10 m Monopole Tower)	–	–	106.207
Skystream Gin Pole Kit	(includes gin pole, shackles and wire)	–	–	106.208
Skystream Hinge Plate Kit	(includes hinge plate and hardware)	–	–	106.209
Skystream Tower Adaptor Kit 5"	(for use with guyed tower kits)	–	–	106.210
Skystream Skyview Interface Kit	(incl. communications interface, CD and USB)	–	–	106.211
Skystream Battery Charging Controller Kit	–	–	–	106.212

A black and white photograph of a rural landscape. In the foreground, there is a wooden structure, possibly a fence or a small building, with several large rocks placed on top of it. In the middle ground, a solar panel array is visible, mounted on a structure. Behind it, there are several small buildings, including a larger one with a gabled roof. The background consists of a forested hillside. The sky is dark, and a bright sun is visible in the upper right corner, creating a lens flare effect.

SMA Solar Technology AG

SMA Solar Technology

SMA Sunny Island Inverter



Together with the battery unit, the stand-alone inverter Sunny Island creates a standard AC voltage grid into which all components, from electrical appliances to electricity generators, can be integrated. With this AC coupling and the Sunny Island as its system manager, SMA has developed the technological solution for energy supply in remote areas which are far away from the mains grid, or for emergency power supply in unstable grids.

For the first time, PV systems, wind turbines, diesel generators, hydroelectric or combined heat and power plants can now be coupled on the AC side along with 230 V loads, eliminating the need for expensive DC cabling and providing maximum flexibility. This makes it possible to adapt a stand-alone grid of this kind to increasing demands, quickly and without technical complexity. With SMA's technology it is possible to provide electricity to a large proportion of the 1.6 billion people who do not have access to it today.

New Sunny Island products: the **Sunny Island 2224** extend the product range for the lower power sector. The new devices do not only include the well-known features from the big brother Sunny Island 5048. A lower weight and a reduced size make the new inverters even easier to handle and install. The high protection class IP54 and the Sunny Remote Control (SRC-1) give you full flexibility for the installation location. The integrated data storage and update feature via SD card result in additional user and service friendliness. Easy to use technology at its best: the unbeatable combination for off-grid systems up to 9 kilowatts.

The **Sunny Island 5048** is flexible and expandable, takes on all control processes in an off-grid system, and ensures a continuous power supply. The extended battery management allows a very precise determination of the battery's state of charge. This enables improved utilization of the battery capacity. Intelligent temperature management and excellent overload characteristics make the Sunny Island 5048 particularly suitable for use in extreme conditions.



SMA Sunny Island 2224

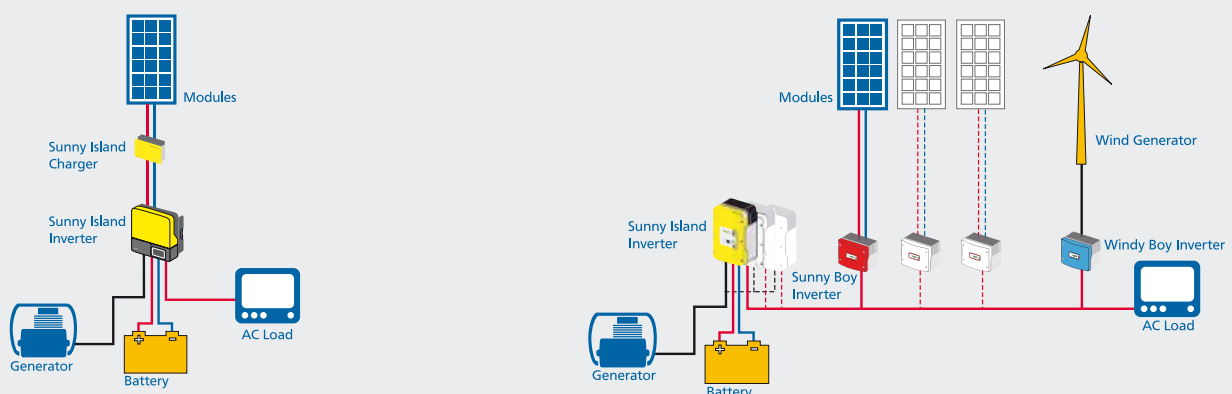
SMA Remote Control SRC-1



SMA Sunny Island 5048

Article	Description	Dimensions	Weight	Article No.
SMA Sunny Island 2224	(2.200 WAC / 230 VAC / 24 VDC / 90 A / IP54)	470 x 445 x 185 mm	18 kg	105.801
SMA Sunny Island 5048	(5.000 WAC / 230 VAC / 48 VDC / 120 A / IP30)	467 x 612 x 235 mm	63 kg	105.802

Sunny Island Inverter System Overview



SMA Sunny Island Bundles

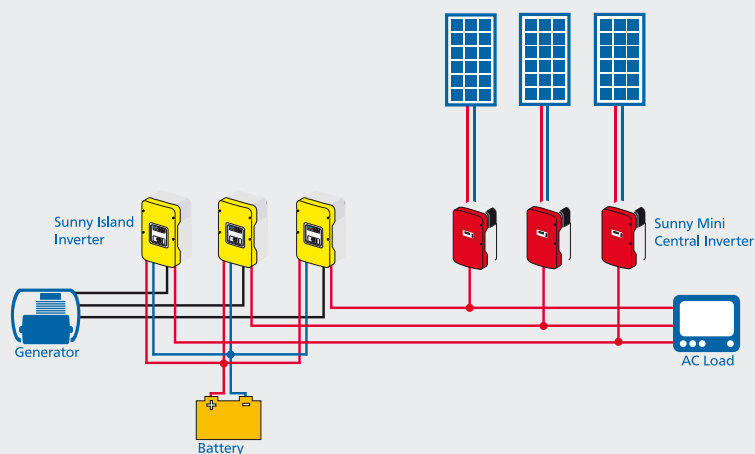
SMA

The SMA Sunny Island Bundles are sets which include several inverters with different configurations. Sunny Island 5048 Bundle 2 – also 3-phase system possible.



Article	Description	Dimensions	Weight	Article No.
SMA Sunny Island 5048 Bundle 1	(10.000 W)	–	135 kg	105.834
2 x Sunny Island 5048				
1 x Batfuse B.03				
1 x DC-cable.70-3				
2 x DC-cable.70-6				
SMA Sunny Island 5048 Bundle 2	(15.000 W)	–	200 kg	105.835
3 x Sunny Island 5048				
1 x Batfuse B.03				
1 x DC-cable.70-3				
3 x DC-cable.70-6				

Sunny Island 5048 Bundle 2 – 3-phase



The easiest way to place your purchase order:
Phaesun wholesaler order page coming soon at
www.phaesun.com

SMA Sunny Island Multiclusterc Systems



Install large off-grid systems with minimum efforts: the new Multiclusterc-Boxes for the Sunny Island 5048 are the ideal solution for the easy installation of island and hybrid systems from 30 up to 110 kW.

Two up to four 3-phase clusters each consisting of 3 Sunny Islands are connected in parallel. The Multiclusterc-Box is specially designed for this task as AC distribution with integrated generator

and load shedding contactor.

We made the installation as easy as possible for you: all wiring is ready for operation and the Multiclusterc-Boxes are equipped with a main connection for PV or wind energy systems for the desired power range. The communication cables necessary for the installation are all included in delivery.

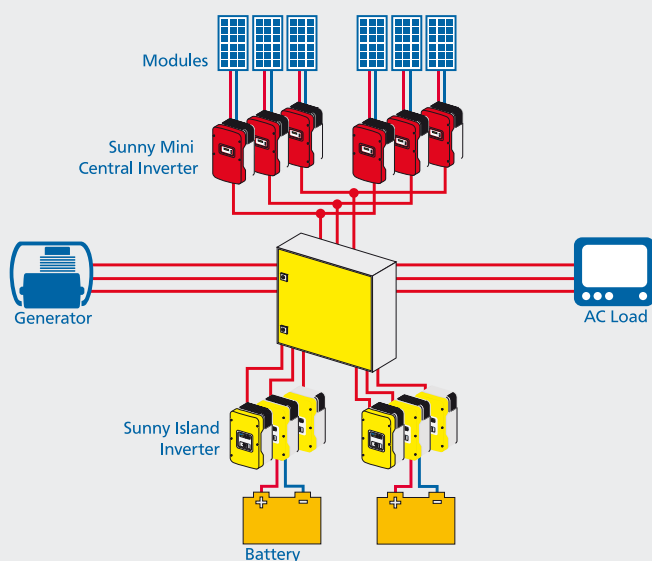


Multiclusterc Boxes

NEW

Article	Description	Dimensions	Weight	Article No.
SMA Sunny Island 5048 Multiclusterc System 1	(30.000 W)	760 x 760 x 210 mm	450 kg	105.836
1 x Multiclusterc Box 6.3				
6 x Sunny Island 5048				
2 x Batfuse B.03				
2 x DC-cable.70-3				
6 x DC-cable.70-9)				
SMA Sunny Island 5048 Multiclusterc System 2	(45.000 W)	1000 x 1200 x 300 mm	670 kg	105.837
1 x Multiclusterc Box 9.3				
9 x Sunny Island 5048				
3 x Batfuse B.03				
3 x DC-cable.70-3				
9 x DC-cable.70-9				
SMA Sunny Island 5048 Multiclusterc System 3	(60.000 W)	1000 x 1400 x 300 mm	885 kg	105.838
1 x Multiclusterc Box 12.3				
12 x Sunny Island 5048				
4 x Batfuse B.03				
4 x DC-cable.70-3				
12 x DC-cable.70-9				

Sunny Island 5048 Multiclusterc System – 3-phase



SMA Sunny Boy Inverter

SMA

A solar power system is only as good as its inverter. It converts direct current from the solar cells to grid-compliant alternating current. Its quality determines the yield; it is the heart of the solar power system.

Solar power systems are just as individual as the buildings on which they are installed. Therefore the installation engineer must be presented with a broad range from which to select the inverter which optimally suits the PV generator and which guarantees the highest yield.

As the first manufacturer of an inverter suitable for mass production, SMA has concentrated on repeatedly diversifying the implementation possibilities with new technologies, so that today any system constellation from 400 Wp and upwards can be optimally realized with an SMA inverter.

The **Sunny Boy 1100** has an extended input voltage range of 400 V, meaning that we offer you an inverter which allows the implementation of a multitude of module configurations.

Sunny Boy 1700, Sunny Boy 2500, Sunny Boy 3300, Sunny Boy 3800:

One of the most important criteria when purchasing an inverter is its efficiency. The higher the efficiency, the lower the losses that are incurred

when converting direct current produced by the solar modules into alternating current. SMA has set a new record for transformer-based devices of this power class by achieving a maximum efficiency of up to 95.6 %. As well as ensuring maximum effectiveness of the OptiCool active cooling system developed by SMA, an all-new, extra robust aluminum diecast housing with a dual chamber design also safely protects the electronic components from wind and weather.

The **Sunny Boy 4000TL/5000TL** offers more communication options, is easier to use and more efficient than ever - setting new standards in inverter technology. No other device on the market offers as many user-friendly features together with cutting edge SMA technology, and absolutely new communication and installation capabilities.


NEW


SMA Sunny Boy 1100



SMA Sunny Boy 3300



SMA Sunny Boy 5000TL

Article	Description	Dimensions	Weight	Article No.
SMA Sunny Boy 1100	(1.000 WAC / 230 VAC / 139 - 320 VDC / IP65)	434 x 295 x 214 mm	22 kg	105.805
SMA Sunny Boy 1700	(1.550 WAC / 230 VAC / 139 - 320 VDC / IP65)	434 x 295 x 214 mm	25 kg	105.806
SMA Sunny Boy 2500	(2.300 WAC / 230 VAC / 224 - 480 VDC / IP65)	434 x 295 x 214 mm	30 kg	105.807
SMA Sunny Boy 3300	(3.300 WAC / 230 VAC / 200 - 400 VDC / IP65)	450 x 352 x 236 mm	41 kg	105.808
SMA Sunny Boy 3800	(3.800 WAC / 230 VAC / 200 - 400 VDC / IP65)	450 x 352 x 236 mm	41 kg	105.809
SMA Sunny Boy 3000TL-20	(3.000 WAC / 230 VAC / 125 - 440 VDC / IP54)	470 x 445 x 180 mm	25 kg	105.812
SMA Sunny Boy 4000TL-20	(4.000 WAC / 230 VAC / 125 - 440 VDC / IP54)	470 x 445 x 180 mm	25 kg	105.810
SMA Sunny Boy 5000TL-20	(5.000 WAC / 230 VAC / 125 - 440 VDC / IP54)	470 x 445 x 180 mm	25 kg	105.811

SMA Sunny Mini Central Inverter

SMA

The Sunny Mini Central offers unlimited combination possibilities and is suitable for all solar power systems from 15 kW to over 100 kW. Almost any system configuration can be implemented using the four power classes 5, 6, 7 and 8 kW with three-phase switching. For all those who have large module surfaces that are divided into smaller units and want to keep the housing for the system technology close to the generator, there is no better alternative. The Sunny Mini Central can easily be installed indoors or outdoors and requires no additional construction. As the first inverter with the SMA-developed H5 topology, the transformerless Sunny Mini Central can operate at an efficiency level of over 98%. This means that the electricity generated from the modules can be converted into a grid-compatible alternating current at a near 1:1 ratio and then fed straight into the public mains grid. You not only get the maximum achievable yield, but also the lowest price per watt thanks to the low purchase costs. The

transformerless Sunny Mini Central hence offers the shortest amortization time available today. The inverter also includes Power Balancer, an intelligent unbalanced load management system that guarantees optimal compliance with power utility company guidelines. With the Electronic Solar Switch DC integrated circuit breaker and the SMA Grid guard 2 active grid-monitoring system, the Sunny Mini Central is equipped with the most advanced safety features for all work on either the solar power system or the AC voltage grid. By wiring fewer strings per inverter, additional string monitoring is no longer necessary. Defects can be immediately identified on the integrated display of each Sunny Mini Central. Its electronic configuration matches the smaller inverters as closely as possible. Since it requires no special knowledge in central inverter technology, maintenance work can be performed by any certified contractor.



SMA Sunny Mini Central 6000TL

NEW

SMA Sunny Mini Central 11000TL

Article	Description	Dimensions	Weight	Article No.
SMA Sunny Mini Central 6000TL	(6.000 WAC / 230 VAC / 333 - 500 VDC / IP65)	468 x 613 x 242 mm	31 kg	105.815
SMA Sunny Mini Central 7000TL	(7.000 WAC / 230 VAC / 333 - 500 VDC / IP65)	468 x 613 x 242 mm	32 kg	105.816
SMA Sunny Mini Central 8000TL	(8.000 WAC / 230 VAC / 333 - 500 VDC / IP65)	468 x 613 x 242 mm	33 kg	105.817
SMA Sunny Mini Central 9000TL	(9.000 WAC / 230 VAC / 333 - 500 VDC / IP65)	468 x 613 x 242 mm	35 kg	105.818
SMA Sunny Mini Central 10000TL	(10.000 WAC / 230 VAC / 333 - 500 VDC / IP65)	468 x 613 x 242 mm	35 kg	105.819
SMA Sunny Mini Central 11000TL	(11.000 WAC / 230 VAC / 333 - 500 VDC / IP65)	468 x 613 x 242 mm	35 kg	105.820

To speed up your order please use our order or inquiry form! You find it in the front of this catalogue and on www.phaesun.com > Components > Downloads

SMA Sunny Island Charger 40

SMA

AC and DC coupling optimally calibrated to each other and for the first time from one manufacturer: The Sunny Island Charger 40 developed by SMA can be used universally for 12, 24, and 48 V. Its broad DC input voltage range makes sensible system configuration possible for almost all PV modules. Thanks to the integrated MPP tracking, the charger guarantees an energy yield that is 15 – 30 % higher than that of conventional shunt and serial charge controllers.

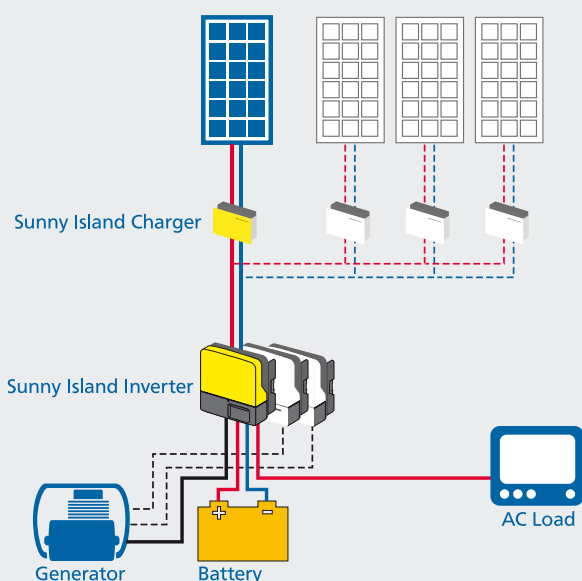
What is unique about charge controllers of this power range is the high protection class, the fanless operation, and the broad temperature range that makes worldwide use even in harsh ambient conditions possible. The easy installation and completely automatic customization of the controller settings by the Sunny Island make its commissioning very easy. Integrated in Sunny Island's battery management, the battery is always optimally charged.



NEW

Article	Description	Dimensions	Weight	Article No.
SMA Sunny Island Charger 40	(40 A / 12/24/48 V / 2.000 W / IP65)	467 x 612 x 235 mm	10 kg	105.804

Sunny Island Charger System Overview



SMA Windy Boy Inverter

SMA

In contrast to multi-megawatt systems, small wind turbines are used mainly as battery chargers for stand-alone power supplies, as heating mills for the support of heating systems, and as wind pumps for water supply systems. There are a number of very attractively priced wind generators for these application areas. In recent years another trend has become evident: the use of small grid-connected wind turbines from which the energy generated is fed into existing public grids or stand-alone grids, e.g. in combination with Sunny Island. Indirect feeding guarantees maximum flexibility: the energy generated can either be consumed or supplied as excess energy to the public grid without the need for interim storage in a battery. The resulting savings potentials are immense as there is no longer any need

for expensive high-maintenance batteries.

The conversion of direct current into alternating current in small wind turbine systems is now easier than ever before: with the Windy Boy inverters it is possible to operate small, grid-connected wind turbines with permanent magnet generators, and with 3-phase rectifiers downstream. The Windy Boy converts the rectified DC current from a wind generator, which varies with speed, into grid-compliant alternating current (AC). In order to protect the inverter from excessive input voltage, the system should also be equipped with overvoltage protection, available from many generator manufacturers.



SMA Windy Boy 3800



SMA Windy Boy 6000A

Article	Description	Dimensions	Weight	Article No.
SMA Windy Boy 1100	(1.000 WAC / 230 VAC / 139 - 400 VDC / IP65)	434 x 295 x 214 mm	22 kg	105.880
SMA Windy Boy 1100LV	(1.000 WAC / 230 VAC / 21 - 60 VDC / IP65)	434 x 295 x 214 mm	29 kg	105.881
SMA Windy Boy 1700	(1.700 WAC / 230 VAC / 139 - 400 VDC / IP65)	434 x 295 x 214 mm	25 kg	105.882
SMA Windy Boy 2500	(2.300 WAC / 230 VAC / 224 - 600 VDC / IP65)	434 x 295 x 214 mm	30 kg	105.883
SMA Windy Boy 3300	(3.300 WAC / 230 VAC / 200 - 500 VDC / IP65)	450 x 352 x 236 mm	41 kg	105.884
SMA Windy Boy 3800	(3.800 WAC / 230 VAC / 200 - 500 VDC / IP65)	450 x 352 x 236 mm	41 kg	105.885
SMA Windy Boy 5000A	(5.000 WAC / 230 VAC / 246 - 600 VDC / IP65)	468 x 613 x 242 mm	62 kg	105.886
SMA Windy Boy 6000A	(6.000 WAC / 230 VAC / 246 - 600 VDC / IP65)	468 x 613 x 242 mm	63 kg	105.887

SMA Windy Boy Protection Box

SMA

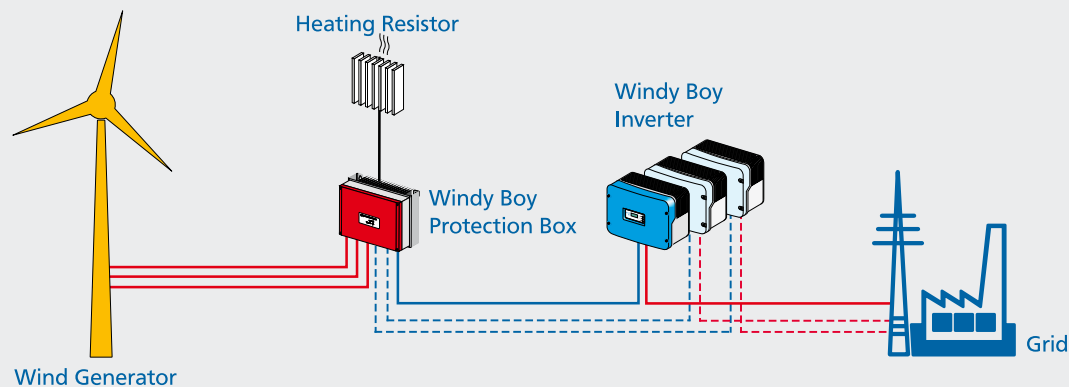
Rectifier and overvoltage protection – the Windy Boy Protection Box from SMA is multitasking: The WBP-Box limits excessive voltage and power from the generator and redirects it to a load resistor without limiting the power of your small wind energy plant. This reliably protects the inverter from high input voltages and ensures trouble-free operation. The Windy Boy Protection Box is equipped with a three-phase rectifier. It is delivered as a turnkey unit and can be used

with nearly all types of generators from various manufacturers and with different power classes. This makes the Windy Boy Protection Box the optimal solution for wind power plants, but also provides the perfect link between permanent magnet generators and the inverter.



Article	Description	Dimensions	Weight	Article No.
SMA Windy Boy Protection Box 400	(for WB 1100, WB 1700 / IP54 / 99,95% eff.)	280 x 220 x 130 mm	5 kg	105.890
SMA Windy Boy Protection Box 500	(for WB 3300, WB 3800 / IP54 / 99,95% eff.)	280 x 220 x 130 mm	5 kg	105.891
SMA Windy Boy Protection Box 600	(for WB 2500, WB 6000 / IP54 / 99,95% eff.)	280 x 220 x 130 mm	5 kg	105.892

Windy Boy Protection Box Overview



SMA Remote Control

SMA

Sunny Remote Control user interface
for SI 2224, SI 5048;
incl. 128 MB SD-Card and 5 m
communication cable for indoor
installations.



NEW

Article	Description	Dimensions	Weight	Article No.
SMA Remote Control SRC-1	–	210 x 150 x 50 mm	500 g	105.862

SMA Sunny WebBox and SMA Sunny SensorBox

SMA

SMA Sunny WebBox:

Central data acquisition and
diagnostics unit;
incl.: Ethernet interface, RS485,
128 MB SD-Card.

SMA Sunny SensorBox:

for determining environment data for PV
system monitoring, incl.: integrated
irradiation and external module
temperature sensor, RS485.



SMA Sunny WebBox

NEW

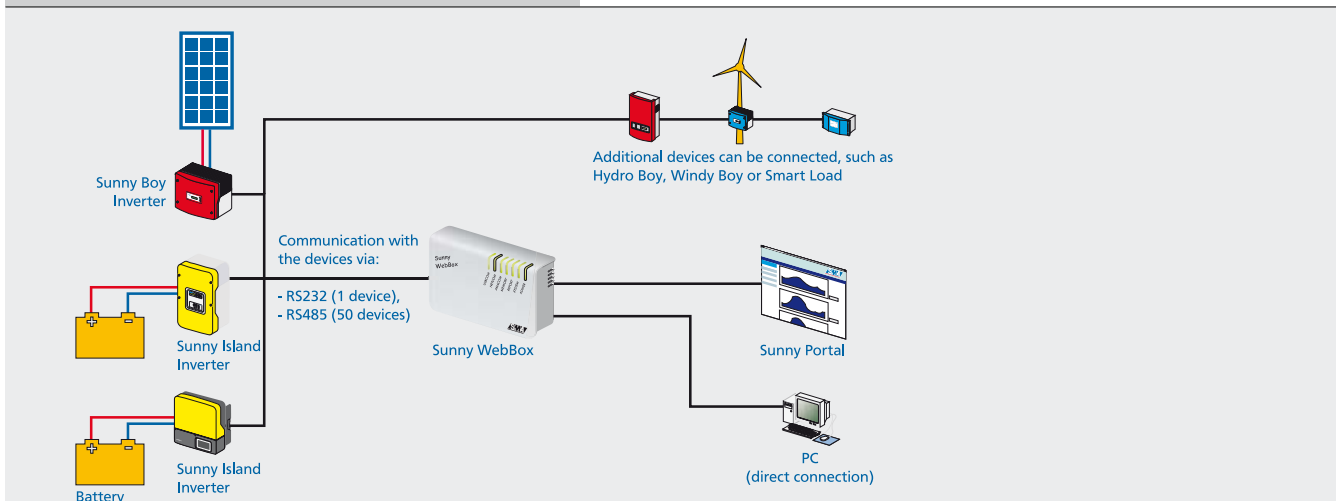


SMA Sunny SensorBox

NEW

Article	Description	Dimensions	Weight	Article No.
SMA Sunny WebBox	–	225 x 130 x 57 mm	750 g	105.863
SMA Sunny SensorBox	–	120 x 190 x 50 mm	500 g	105.864

Sunny Webbox System Overview



SMA

SMA Piggy Back

A full scope of communication products is available for simple and easy performance evaluation of your PV plant. These products are modular and can be put together nearly any way one wants, resulting in a wide range of individual monitoring concepts.

**NEW**

Article	Description	Dimensions	Weight	Article No.
SMA Piggy Back RS485	(for Sunny Island / RS485 Interface)	–	–	105.861

SMA

SMA Load Shedding Contactor

Shunts for load shedding for the use in AC-coupled Off-Grid-systems: In case of energetic overload of the system the reloading of the battery is possible again - e.g. by the PV-system. Only DC-shunts are used and energized by the battery.

Because of that a short-circuit can't damage the system.

Shunts are available for currents of 25, 40, 65 and 95 A and voltages of 48 and 24 V.

**NEW**

Article	Description	Dimensions	Weight	Article No.
SMA Load Shedding Contactor SI-LS25	(max. 25 A / for SI 5048)	–	–	105.840
SMA Load Shedding Contactor SI-LS40	(max. 40 A / for SI 5048)	–	–	105.841
SMA Load Shedding Contactor SI-LS65	(max. 65 A / for SI 5048)	–	–	105.842
SMA Load Shedding Contactor SI-LS95	(max. 95 A / for SI 5048)	–	–	105.843

SMA

SMA Battery Current Sensor

Shunt for the measurement of the battery current. Suitable for use with generators and loads, which can not be measured by the Sunny Island. These battery shunts are available for maximum DC-currents of 200, 400, 600 and 800 A.

**NEW**

Article	Description	Dimensions	Weight	Article No.
SMA Battery Current Sensor SI-Shunt200	(200 A nominal current / 60 mV / for 1 SI 5048)	–	–	105.844
SMA Battery Current Sensor SI-Shunt400	(400 A nominal current / 60 mV / for 2 SI 5048)	–	–	105.845
SMA Battery Current Sensor SI-Shunt600	(600 A nominal current / 60 mV / for 3 SI 5048)	–	–	105.846
SMA Battery Current Sensor SI-Shunt800	(800 A nominal current / 60 mV / for 4 SI 5048)	–	–	105.847

SMA Battery Connection Boxes



The SI-Batfuse.01 and SI-Batfuse.03 battery cases serve to protect the battery cables, to enable easier maintenance of stand-alone grid systems, and to simplify the installation process. The SI-Batfuse.01 enables the connection of one stand-alone grid inverter, while the SI-Batfuse.03 can be connected to up to three stand-alone grid inverters.


NEW

Article	Description	Dimensions	Weight	Article No.
SMA BatFuse-A.01 (for SI 2224)	(125 A / for 1 SI 2224)	–	–	105.850
SMA BatFuse-A.03 (for SI 2224)	(125 A / for 3 SI 2224)	–	–	105.851
SMA BatFuse-B.01 (for SI 5048)	(250 A / for 1 SI 5048)	–	–	105.852
SMA BatFuse-B.03 (for SI 5048)	(250 A / for 3 SI 5048)	–	–	105.853

SMA Battery Cable Sets



Cable for the DC-connection of the battery, BatFuse and Sunny Island - or the direct connection of battery and inverter. Up to 90°C cable temperatur.

NEW

Article	Description	Dimensions	Weight	Article No.
SMA DC-cable.70-3	(for SI 5048 / 2 x 3 m, cable shoes pre-crimped)	Diameter: 70 mm ²	–	105.854
SMA DC-cable.70-6	(for SI 5048 / 2 x 6 m, cable shoes pre-crimped)	Diameter: 70 mm ²	–	105.855
SMA DC-cable.70-9	(for SI 5048 / 2 x 9 m, cable shoes pre-crimped)	Diameter: 70 mm ²	–	105.856
SMA DC-cable.35-2	(for SI 2224 / 2 x 2 m, raw cable lugs M8)	Diameter: 35 mm ²	–	105.857
SMA DC-cable.35-4	(for SI 2224 / 2 x 4 m, raw cable lugs M8)	Diameter: 35 mm ²	–	105.858
SMA DC-cable.35-6	(for SI 2224 / 2 x 6 m, raw cable lugs M8)	Diameter: 35 mm ²	–	105.859

SMA Battery Temperature Sensor



Battery temperature sensor type KTY with 10 m connection cable for Sunny Island.

NEW

Article	Description	Dimensions	Weight	Article No.
SMA BatTempSensor	–	Length: 10 m	–	105.860

Small Products



Small Products

Phaesun Solar Mini Torch Comfort / Steel



The **Phaesun Solar Mini Torch Comfort** is a solar pocket lamp with a white LED (7,8 candela) with vanadium lithium accumulator for approx. 6 hours of lighting. It includes a on/off switch with auto-off and the case is made of waterproofed materials. The lifetime of the LED is more than 100.000 hours of burning and it is up to 10.000 times rechargeable. It has also got an integrated overcharge protection.

The **Phaesun Solar Mini Torch Steel** is a solar pocket lamp with a white LED (23 candela) with vanadium lithium accumulator for approx. 6 hours of lighting. It includes a on/off switch with 10 min. auto-off and the case is made of waterproofed stainless steel. The lifetime of the LED is more than 100.000 hours of burning and it is up to 10.000 times rechargeable.



Phaesun Solar Mini Torch Comfort



Phaesun Solar Mini Torch Steel

Article	Description	Dimensions	Weight	Article No.
Phaesun Solar Mini Torch Comfort	(7,8 candela / Lithium accumulator)	23 x 55 x 10 mm	47 g	102.599
Phaesun Solar Mini Torch Steel	(23 candela / Lithium accumulator)	62 x 36 x 11,5 mm	30 g	301.005

Osram Camping LED Lantern



The Osram Camping LED Lamp is a very small lantern, which fits in any pocket. The highpower GOLDEN DRAGON® LED is the brightest LED that OSRAM can currently offer. The light from the Camping LED can be dimmed to 25% of its full output simply by pushing the button. The batteries last - in dimmed mode - up to 100 hours of lighting.



Article	Description	Dimensions	Weight	Article No.
Osram Camping LED Lantern	(1,2W / 30.000 mLumen / 4 mignon AA batteries)	Ø 50 x 143 mm	112 g	102.627
Osram Camping LED Lantern (incl Module)	(1,2W / 30.000 mLumen / incl. solar module)	Ø 50 x 143 mm	112 g	102.628

Phaesun Solar LED Torch

The Phaesun Solar LED Torch includes 7 super bright LEDs, providing 12 Lumen and is visible for up to 1 km. The LED technology radically reduces battery consumption for extended operation between charges. The casing is made of durable aluminum and by that small and light enough to easily fit into a pocket. It can be used up to 8 hours from a 5 hour charge.



Article	Description	Dimensions	Weight	Article No.
Phaesun Solar LED Torch	(7 LEDs / 12 Lumen)	Ø 35 x 180 mm	25 g	301.009

Phaesun LED Solar Lantern

The Phaesun LED Solar Lantern is a very well processed Lantern which uses LEDs as light source. By that it is very economical and has a very long lifetime of about 100.000 burning hours. This is a very long lifetime compared to halogen lamps (about 1.000 h) and u-type lamps (about 5.000 h). It includes a very stabil case, but also a very elegant looking design. The brightness of the LEDs is continuously adjustable. The Phaesun

LED Solar Lantern can, besides the solar module, also be charged by the normal grid or by the 12 VDC car voltage with special, included adaptors.



available with NiMH batteries

Article	Description	Dimensions	Weight	Article No.
Phaesun Solar Lantern Set AGM	(32 LEDs / 2,5 Watt / 12 V / 2,5 Ah)	Ø110 x 235 mm	850 g	102.629
Phaesun Solar Lantern Set NiMH	(32 LEDs / 2,5 Watt / 12 V / 2,5 Ah)	Ø110 x 235 mm	850 g	102.630

Solar Clock with Smoke Detector (radio controlled)

Radio controlled Solar clock with smoke detector and long lasting battery. Recharging is not necessary. It includes an amorphous solar module, made in Germany and ventilation slots for smoke detection. The smoke detector and the clock are powered by a common rechargeable battery. The clock fully adjusts automatically summer/winter time.



Article	Description	Dimensions	Weight	Article No.
Quantys Solar Wall Clock (silver-black)	–	276 x 276 x 46 mm	350 g	105.500
Quantys Solar Wall Clock (silver-white)	–	276 x 276 x 46 mm	350 g	105.501

Don't forget to check the Phaesun internet page:
www.phaesun.com

Solar Alarm Clock (radio controlled)

quantys next energy systems gmbh

Radio controlled Solar clock with long lasting battery. Recharging is not necessary. It includes an amorphous solar module, made in Germany. The clock is powered by a common rechargeable battery. The clock fully adjusts automatically summer/winter time. The alarm can be activated by an on/off switch at the side and the activated alarm is shown in the clockface as an orange spot. A snooze-alarm repeat of alarm every 5 minutes is possible.



Article	Description	Dimensions	Weight	Article No.
Quantys Solar Alarm Clock (silver-white)	–	13 x 95 x 50 mm	100 g	105.502
Quantys Solar Alarm Clock (silver-black)	–	13 x 95 x 50 mm	100 g	105.503
Quantys Solar Alarm Clock (green-white)	–	13 x 95 x 50 mm	100 g	105.504

Solar Backpack & Messenger Voltaic

quantys next energy systems gmbh

The Voltaic solar bag is designed to provide a mobile power supply for a wide range of portable electronic devices such as cell phones, PDA's, digital cameras, GPS's, MP3 players etc. The solar panels generate 4 watts of power, enough to charge most devices smaller than a laptop computer. They are lightweight, water-proof and UV resistant, but are tough enough to withstand the rigors of everyday use. The solar panels charge a 2200mAh Lithium Ion Battery Pack inside the front pouch. This stores any power generated by the panels, and delivers a smooth regulated flow of power to your devices, even when the sun is not shining. The battery pack can also be charged using the included AC (wall) charger, or car charger, which means the Voltaic backpack is convenient portable power reservoir, whether you are in the city or off the grid. Most small devices can be charged using a standard car charger, just plug them into the Car Charger Socket. We also include a USB adaptor, and a range of common phone and universal adaptors.



Laptop Bag



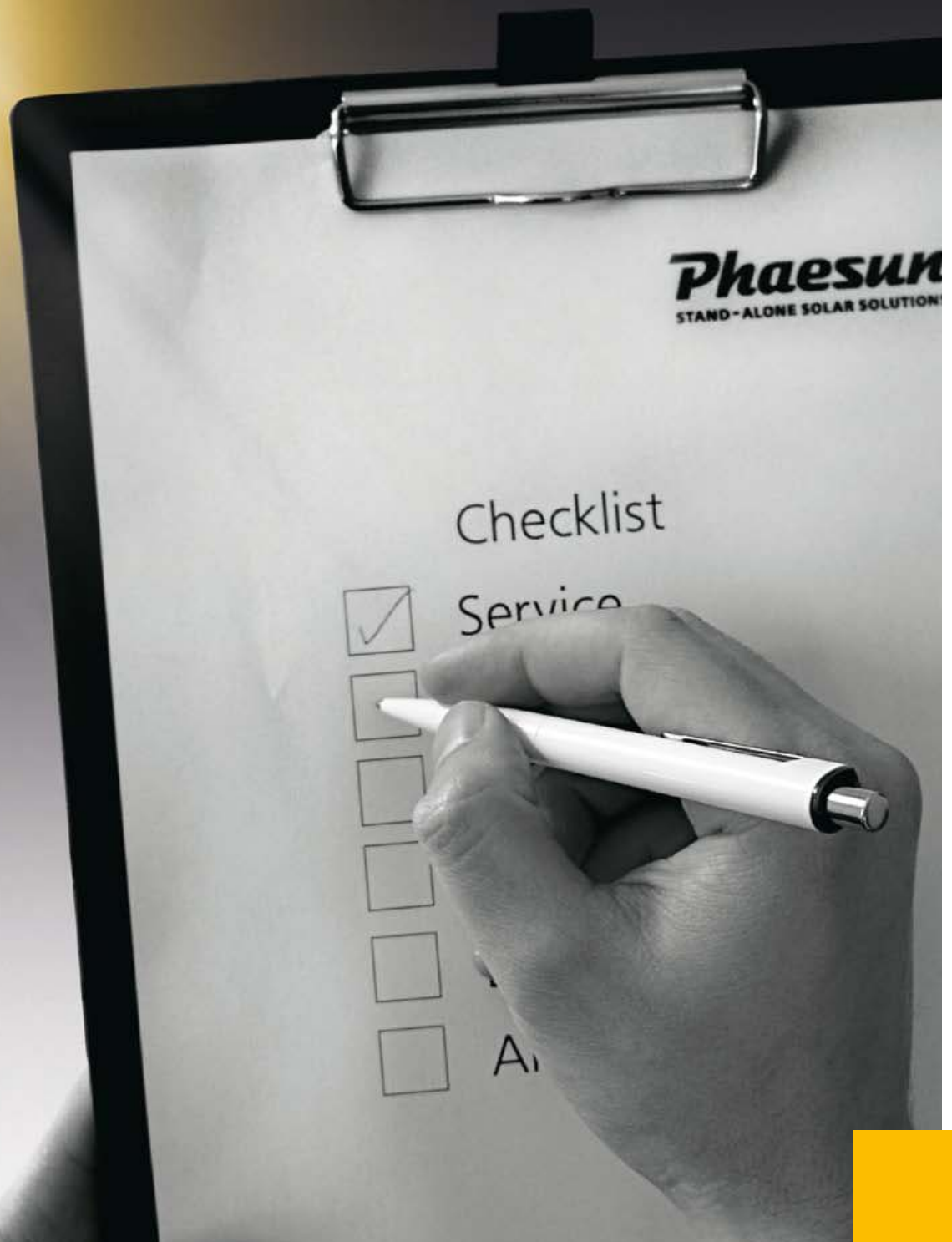
Backpack Voltaic



Business Bag Voltaic

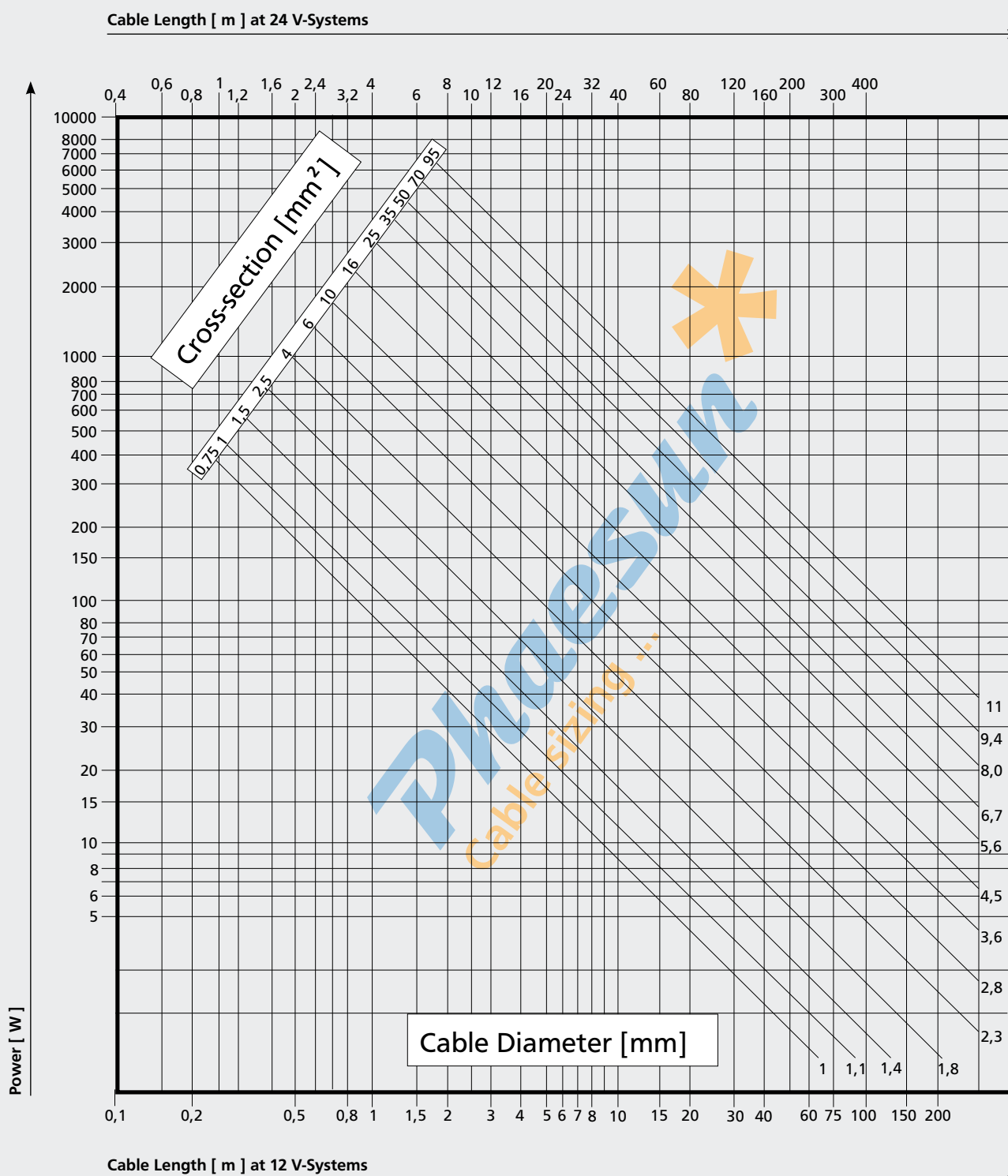
Article	Description	Dimensions	Weight	Article No.
Quantys Solar Backpack Voltaic	(30 l / 2,2 Ah / 4 Watt)	–	1,8 kg	105.505
Quantys Solar Business Bag Voltaic	(30 l / 2,2 Ah / 4 Watt)	–	1,8 kg	105.506
Quantys Solar Laptop Bag	(17" Notebook / 17 Watt)	430 x 320 x 90 mm	2 kg	108.777

Service



Cable Size Diagram

Cable Size Diagram



Checklist for Pump Systems

Checklist for Customer Enquiries on PV Systems

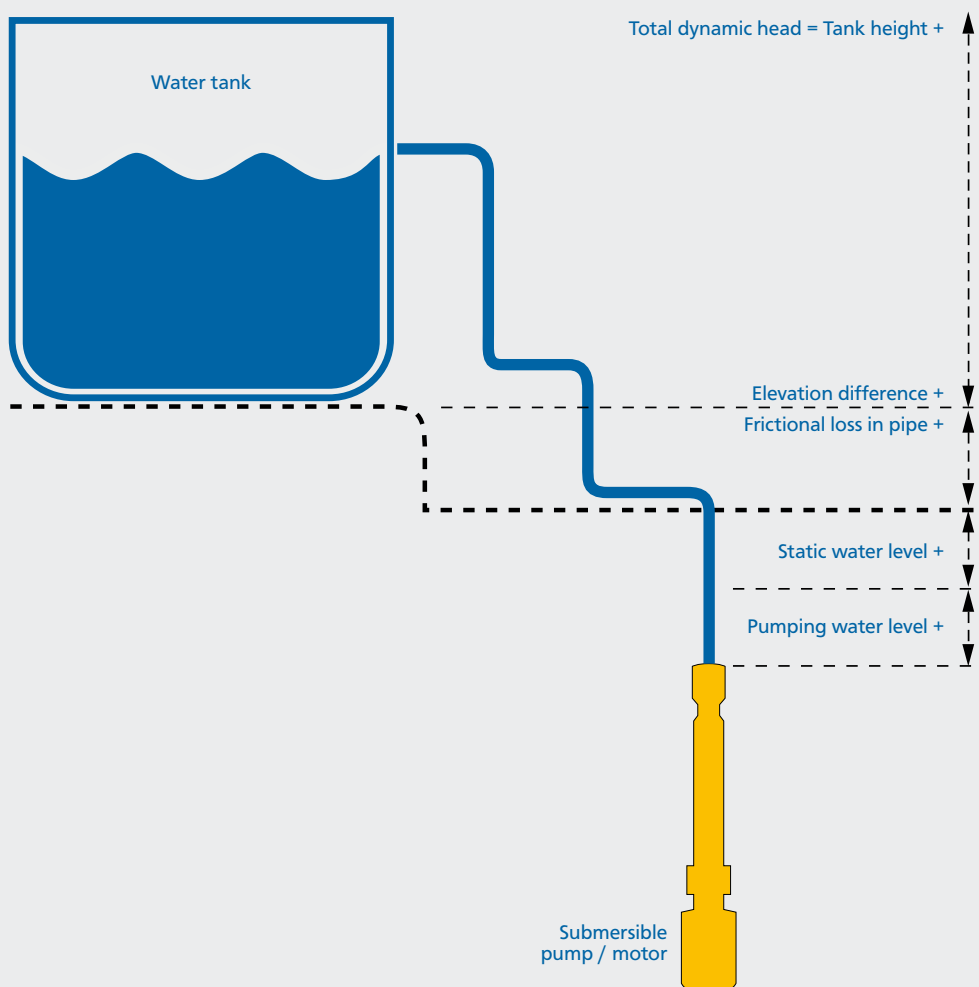
Customer Data

Company name			
Contact person			
Company address			
Phone No.		Fax No.	
E-mail		www	

Location of the PV System

Nearest town/country			
Latitude		Longitude	

Pump System Overview



Well

Static water level [m]		
Dynamic well characteristics [m]		at [m ³ /h]
Well diameter [inch]		
Water quality data		

Others

Tank height [m]			
Tank volume [m ³]			
Volume of water required a day [m ³]			
Horizontal distance between well and tank [m]			
Piping site	Total length [m]		
	Diameter [inch]		
Deviation North/South direction	North		South
Watermeter required	Yes		No
Well head offer	Yes		No
Support structure offer	Ground SGM		No
Piping offer	Yes		No
Information on utilization of the system	Min. water output of a certain month (month)		
	Optimization all year round		
Intended use of water	Min. Drinking water		
	Field irrigation		

Days of Autonomy

Required days	
---------------	--

Information on Utilization of the System

Optimization all year round (yes/no)			
Optimization for a period	from (month)	to (month)	

Checklist for Street Lamps

NEW

Checklist for Customer Enquiries on Street Lamp Systems

Customer Data

Company name

Contact person

Company adress

Phone No.

Fax No.

E-mail

www

Quantity

or

meter (length of street)

Location of the PV System

Nearest town/country

Latitude

Longitude

Pole

with pole

Height Pole in meter (not applicable by indicating Lux)

without pole

Battery Box

Top of pole mounting structure with battery box on the top:

Top of pole mounting structure with battery box on the bottom:



Lamp

18 W SOX lamp	1,800 lm
26 W SOX lamp	3,600 lm
36 W SOX lamp	6,100 lm
66 W SOX lamp	10,500 lm
20 W LED lamp	2,000 lm
24 W LED lamp	2,400 lm
30 W LED lamp	3,000 lm

or Lux

Lampholder

Single lampholder
Double lampholder

MPPT Charge Controller

without monitoring

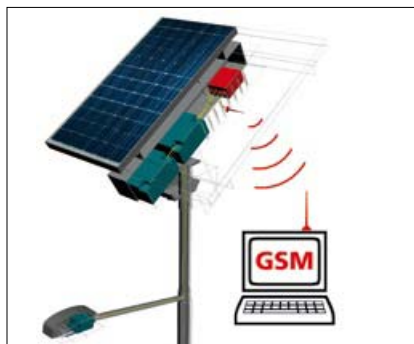
monitoring by GSM remote control of the following functions:

monitoring by remote control (max. 15 meters) of the following functions:

1. Functions programming
2. Monitoring of electrical parameters
3. System check-up
4. Troubleshooting detection
5. Identification number given for each single equipment



without monitoring



monitoring by GSM remote control



monitoring by remote control (max. 15 meters)

General Conditions – 01. January 2006

I. General conditions

1. The scope of the supplies or services (hereinafter called "Supplies") shall be defined by the written declarations of both parties to the contract. General terms and conditions of the Purchaser shall apply only where expressly accepted in writing by the supplier or service provider (hereinafter called "Supplier").
2. For cost estimates, drawings and other documents (hereinafter called „Documents“), the Supplier reserves all rights, right, title and interest in the property and the copyright. Such Documents may not be made available to third parties without the prior consent of the Supplier and they shall, upon request, be immediately returned to the Supplier if he is not awarded the contract. Sentences 1 and 2 shall apply reciprocally to Purchaser's Documents; however, these may be made available to those third parties to whom the Supplier may transfer Supplies.
3. The Purchaser shall have the non-exclusive right to use standard software in unchanged form with the stipulated performance characteristics for the agreed equipment. The Purchaser is allowed to make two back-up copies without the Supplier's express consent.
4. Partial Supplies shall be permissible where they can be reasonably expected of the Supplier.

II. Prices and terms of payment

1. Prices shall be ex works and shall exclude packing and the sales tax payable under the applicable law.
2. If the Supplier has undertaken the assembly or erection, the Purchaser shall bear all required incidental costs in addition to the agreed contract price unless otherwise agreed.
3. Payments shall be made free at Supplier's paying office.
4. The Purchaser may set off only those claims that are undisputed or have been finally determined in a legally binding manner.

III. Retention of title

1. The items of Supplies (Secured Goods) shall remain the property of the Supplier until each and every claim against the Purchaser to which the Supplier is entitled under this business relationship has been duly satisfied. If the value of all security rights of the Supplier exceeds the value of all secured claims by more than 20%, the Supplier shall release a corresponding part of the security rights at the Purchaser's request.
2. For the duration of the retention of title, the Purchaser is prohibited from giving the items of Supplies in pledge or as security, and resale shall be permissible only to resellers in the ordinary course of business and only on condition that the reseller receives payment from his customer or retains title so that the property is transferred to the customer only after fulfillment of his obligation to pay.
3. In case of seizure or other acts or interventions by third parties, the Supplier shall be immediately informed thereof in writing by the Purchaser.
4. In cases of fundamental non-performance of contractual obligations by the Purchaser, especially a delay in payment, the Supplier shall be entitled to take back the goods following a demand for payment. The Purchaser shall be obliged to return the purchased goods. The taking back, the assertion of the retention of title or the seizure of the Secured Goods by the Supplier does not mean termination of the contract except if expressly stated by the Supplier.

IV. Time for delivery and delay

1. Observance of the stipulated time for delivery is conditional upon the timely receipt of all documents, necessary permits and releases, especially of plans to be provided by the Purchaser, as well as fulfillment of the agreed terms of payment and other obligations by the Purchaser. Unless these conditions are fulfilled on time, the time for delivery will be extended accordingly except where the Supplier is responsible for the delay.
2. If non-observance of the time for delivery is due to force majeure such as mobilization, war, riot or similar events, e.g. strike or lockout, such time shall be extended accordingly.
3. If the Supplier is responsible for a delay in delivery, the Purchaser who can establish credibly that he suffered a loss from such delay may claim agreed compensation of 0.5% for every completed week of delay but in no event shall the aggregate of such compensation exceed a total of 5% of the price of that part of the Supplies which, because of the delay, could not be put to the intended use.
4. Purchaser's claims for compensation which exceed the limits specified in para. IV.3. shall be excluded in all cases of delayed delivery even after expiry of an extension of time that may have been granted to the Supplier. This exclusion shall not apply where in cases of wilful misconduct or gross negligence there is a legally binding liability on the part of the Supplier. No change in the burden of proof to the detriment of the Purchaser is involved. Purchaser's right to terminate the contract shall remain unaffected after the expiry of an extension granted to the Supplier that did not result in delivery.

If dispatch or delivery is delayed at Purchaser's request by more than one month after notice was given of the readiness for dispatch, the Purchaser may be charged storage costs for each month thereafter to the amount of 0.5% of the price of the supplied goods but in no event shall the aggregate storage charges exceed a total of 5% of the price. The parties to the contract are at liberty to furnish proof of higher or lower storage costs.

V. Transfer of risk

1. Even where „carriage paid“ delivery has been agreed, the risk shall pass to the Purchaser as follows:
 - a) If the supply does not include assembly or erection, when goods have been delivered to or picked up by carrier. At the Purchaser's request and expense, Supplies shall be insured by the Supplier against the ordinary risks of transport.
 - b) If the supply includes assembly or erection, the day on which they are taken over into Purchaser's own service or, if so stipulated, after a satisfactory trial run.
2. If the dispatch, the delivery, the beginning or completion of assembly or erection, the taking over into Purchaser's own service or the trial run is delayed for reasons within the Purchaser's responsibility, or if the Purchaser has failed for other reasons to accept delivery, the risk shall pass to the Purchaser.

VI. Assembly and erection

Unless otherwise agreed in writing, assembly and erection shall be subject to the following provisions:

1. The Purchaser shall provide at his own expense and in a timely manner:
 - a) all earth-moving and construction work and other ancillary services not specific to the Supplier's trade as well as the necessary skilled and unskilled labour, materials and tools,
 - b) the equipment and materials necessary for assembly, erection and commissioning such as scaffolds, lifting equipment etc., fuels and lubricants,
 - c) energy and water at the point of use, including connections, heating and lighting,
 - d) suitable, dry and lockable rooms of sufficient size at the site for the storage of machine parts, apparatus, materials, tools etc. and adequate working and recreation rooms for the assembly personnel including appropriate sanitary facilities. Furthermore, the Purchaser shall take all measures he would take for the protection of his own property to safeguard the property of the Supplier and of the assembly personnel,
 - e) protective clothing and protective devices which are needed because of particular conditions on the site.
2. Before the start of assembly or erection, the Purchaser shall make available of his own accord all necessary information concerning the location of concealed electric power, gas and water lines or of similar installations as well as the required data concerning statics and underlying conditions of the site.
3. Before the beginning of assembly or erection, the necessary materials and equipment to start work must be provided at the site and all preparations must have advanced to such a point that the assembly or erection can be started as agreed and carried out without interruption. Access roads and the site itself must be level and clear.
4. If the assembly, erection or commissioning is delayed by circumstances for which the Supplier is not responsible, the Purchaser shall bear an appropriate amount of the costs of waiting periods and of any additional travelling of the Supplier or the assembly personnel that may be necessary.
5. The Purchaser shall attest to the Supplier at weekly intervals the hours worked by the assembly personnel and he shall immediately confirm in writing the completion of assembly, erection or commissioning.
6. If, after completion, the Supplier requests acceptance of the Supplies, it shall be carried out by the Purchaser within two weeks of the Supplier's request, failing which acceptance is deemed to have taken place. Acceptance is also deemed to have taken place if after completion of any agreed test phase the Supplies are put to use.

VII. Taking delivery

Deliveries, even with minor defects, have to be accepted by the Purchaser.

VIII. Warranty

For defects which include the absence of expressly warranted characteristics, the Supplier shall be liable as follows:

1. The Supplier shall, at his option and expense, repair, replace or newly provide any parts or services whose usefulness is impaired more than insignificantly within 12 months from the date of the transfer of risk – regardless of the period of operation – owing to circumstances that existed before the transfer of risk.
2. Warranty claims are subject to a limitation period of 12 months after notification of the defect. Notice in writing shall be given to the Supplier immediately after discovery of the defect.
3. In case of notification of a defect, Purchaser's payments may be withheld in reasonable proportion to the notified defect. If the contract pertains to the conduct of a Purchaser's business, the Purchaser can withhold payments only if the legitimacy of the asserted complaint can be established beyond doubt.
4. The Supplier shall be given adequate time and opportunity to remedy the defect. If he is refused these, the Supplier shall have no liability for the defect.
5. If an adequate extension granted to the Supplier expires without the defect being remedied, the Purchaser shall have the right to demand cancellation of the contract or a reduction of the purchase price.
6. The warranty does not cover natural wear and tear or damage arising, after the transfer of risk, from faulty or negligent handling, excessive strain, unsuitable equipment, defective workmanship, inappropriate foundation soil or from particular external influences not assumed under the contract, or from non-reproducible software errors. The warranty does not cover modifications or repairs carried out improperly by the Purchaser or by third parties.

7. The warranty period for repairs or replacement Supplies (of goods or services) shall be 6 months. It shall be the later of: (1) 6 months from the date of repair or replacement; or (2) the remaining length of the original warranty period for the Supplies. For those parts which cannot be put to the intended use because of the interruption of service, the warranty period shall be extended by the period of service interruption caused by the repair or replacement supply.
8. The periods specified in paras 1., 2. and 7. shall not apply where longer periods are provided by law according to § 638 BGB.
9. Except as provided above, any other warranty claims of the Purchaser against the Supplier and the Supplier's agent shall be excluded. However, clause XI (Further liability) shall remain unaffected.

IX. Industrial property rights and copyright

1. If a third party, because of an infringement of an industrial property right or copyright (hereinafter called „Property Rights“) by products furnished by the Supplier and used in conformity with the contract, asserts legitimate claims against the Purchaser, the Supplier shall be liable to the Purchaser as follows:
 - a) At his own option and expense, the Supplier shall either obtain a right to use the product, modify the product so as not to infringe the Property Rights or replace the product. If this is not possible to the Supplier on acceptable terms, he shall have to take back the product and refund the purchase price.
 - b) Supplier's aforesaid obligations shall exist only on condition that the Purchaser immediately notifies the Supplier in writing of the claims asserted by the third party, that he does not acknowledge an infringement and that all countermeasures and settlement negotiations are reserved to the Supplier. If the Purchaser stops using the product to reduce the damage or for other important reasons, he shall be obliged to make it clear to the third party that the suspended use does not mean acknowledgment of an infringement of Property Rights.
2. Claims of the Purchaser shall be excluded if he is responsible for an infringement of Property Rights.
3. Claims of the Purchaser shall also be excluded if the infringement of Property Rights was caused by specific demands of the Purchaser, by a use of the product not foreseeable by the Supplier or by the product being altered by the Purchaser or being used together with products not provided by the Supplier.
4. Further claims against the Supplier shall be excluded. However, Clause XI (Further liability) shall remain unaffected and so shall be Purchaser's right to terminate the contract.

X. Impossibility of performance, contract adaptation

1. If it is impossible for the Supplier to carry out the Supplies for reasons for which he is responsible, the Purchaser shall be entitled to claim damages but the Purchaser's claim for damages shall be limited to 10% of the value of that part of the Supplies which, owing to the impossibility, cannot be put to the intended use. This shall not apply where in cases of wilful misconduct, of gross negligence or of initial impossibility, there is a legally binding liability. No change in the burden of proof to the detriment of the Purchaser is involved. Purchaser's right to terminate the contract shall remain unaffected.
2. Where unforeseeable events as described in Clause IV, para 2., substantially change the economic importance or the contents of the Supplies or considerably affect the Supplier's business, the contract shall be adapted accordingly with due regard to the principle of good faith. Where this is not economically reasonable, the Supplier shall have the right to terminate the contract. If the Supplier wants to make use of this right of termination, he shall notify the Purchaser in writing immediately after becoming aware of the significance of the event. This shall apply even where at first an extension of the delivery time had been agreed with the Purchaser.

XI. Further Liability

Except as provided herein, any other claims for damages of the Purchaser shall be excluded regardless of whether they are based on positive breach of contractual obligations, violation of obligations in contract negotiations, breach of warranty, tort or other legal theory. This exclusion shall not apply where e.g. under the product liability law or in cases of wilful misconduct, of gross negligence, of the absence of warranted characteristics or of the fundamental non-performance of contractual obligations, there is a legally binding liability. However, liability for damages arising from the fundamental non-performance of contractual obligations shall be limited to the foreseeable damage normally covered by a contract except in cases of wilful misconduct or gross negligence. This limitation does not imply a change in the burden of proof to the detriment of the Purchaser.

XII. Choice of forum

1. If the Purchaser is a businessman, the sole forum for all disputes arising directly or indirectly out of the contract shall be the place of the Supplier's head or branch office at the Supplier's option.
2. All relations arising out of the contract shall be governed by German law not including the United Nations Convention on Contracts for the International Sale of Goods (CISG).

XIII. Validity of the contract

Even in case of legal invalidity of individual items, the remaining parts of the contract shall remain binding save where adherence to the contract would mean an undue hardship on one of the parties.

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