

2007/08



Solar electricity for non-grid systems

For Homes, Industries and Commercial Buildings, Boats, Yachts, RV's, Caravans, Lighting, Cooling and Pumping Systems, Buoys and Measurement Equipment.

With SOLARA® technology you can use power where and when you need it. Whether it's for rural electrification, remote areas or leisure applications – with SOLARA®, power is everywhere.





Source: "promobil, Europe's largest RV magazine"

SOLARA® modules S-Series

SOLARA® SM50S - SM500S

The SOLARA® modules are all "Made in Germany". These high performance modules withstand the hardest environmental conditions such as hail, ice and high humidity. The modules are extremely reliable and have a 26 year performance guarantee. The front is made of tempered glass and for easy mounting every module has a rigid hollow-profile aluminium frame that can be drilled.

Part. No.	SM50S	SM100S	SM200S
Performance:	48 Wh/d	108 Wh/d	200 Wh/d
Nom. Power:	12 Wp	27 Wp	55 Wp
Weight:	ca. 2,3 kg	ca. 3,0 kg	ca. 5,7 kg
Size (lxwxh):	468x250x35 mm	540x457x35 mm	998x457x35 mm

Part. No.	SM220S/M55	SM340S	SM500S
Performance :	220 Wh/d	340 Wh/d	500 Wh/d
Nom. Power:	55 Wp	85 Wp	125 Wp
Weight:	ca. 5,4 kg	ca. 7,9 kg	ca. 12,1 kg
Size (lxwxh):	1330x350x35 mm	1237x557x35 mm	1500x680x35 mm



SOLARA® modules M-Series

SOLARA® SM40M - SM225M



Tried and tested, this is the most popular marine solar module available. They are made of a high grade stainless steel backing. They are smaller, very thin, slightly flexible and very robust. If fixed to a solid surface they can also be walked on. This is due to the high resistant plastic front foil so there is no glass that can break. The high efficiency solar cells are very productive even under low light levels. For easy wiring all modules have 1.5m pre-mounted cable.

As an option the modules edge can be protected with a black UV-resistant edge protector.

New: Now with more power and a double layer powder coated steel backing plate.

Part. No.	SM40M	SM60M	SM80M
Performance:	48 Wh/d*	72 Wh/d*	92 Wh/d*
Nom. Power:	12 Wp	18 Wp	23 Wp
Weight:	ca. 1,3 kg	ca. 1,65 kg	ca. 2,0 kg
Size (lxwxh) mm:	445x267x2	620x250x2	440x460x2

optional: black UV-resistant edge protector:
KS40M KS60M KS80M

Part. No.	SM120M	SM160M	SM225M
Performance:	136 Wh/d*	180 Wh/d*	272 Wh/d*
Nom. Power:	34 Wp	45 Wp	68 Wp
Weight:	ca. 3,1 kg	ca. 3,75 kg	ca. 5,4 kg
Size (lxwxh) mm:	590x460x2	756x460x2	800x645x2
	-	with cell protector	-

optional: black UV-resistant edge protector:
KS120M KS160M KS225M



Source: "promobil, Europes largest RV magazine"

SOLARA® mounting systems

The simple way to mount

Mounting angles made of aluminium

Perfect for mounting modules to cottages with wooden roofs, SHS or RV's. The mounting angles are adjustable and include self fixing screws. The angle itself can be glued or screwed to the surface.

Part No.:	Type	For mounting the panels
HSP	Mounting angles (4 pcs)	SM 50S/100S/200S/220S
HSP400	Mounting angles (6 pcs)	SM 300S/340S/500S



HSP

SOLARA® mounting spoilers made of ABS plastic

- 100 % recyclable
- UV-resistant
- more than 50 % lighter
- ABS white in colour
- 5 years warranty

Part No.:	Type	For mounting the
HS35/W	mounting spoiler	SM220S/M55
HS45/W	mounting spoiler	SM200S
HS55/W	mounting spoiler	SM300S/SM340S/SM400SP
HS68/W	mounting spoiler	SM500S
HSE/W	mounting edge	all S-Series modules
HSV/W	mounting profile	all S-Series modules



HSV/W



HSE/W



HSxx/W

SOLARA® glue set

SOLARA® Special adhesive for ABS plastics

SOLARA® adhesive for HSP angles, M-Series an K-Series modules

Part.-No. HSKS/ABS

Part.-No. HSKS2

Mounting only with HSKS/ABS

SOLARA® roof grommet

More accessories for easy installation

These grommets only require adhesive for a safe and waterproof lead-through of the cable to the inside of the vehicle.

Part. No.	Description
DD1/W	roof grommet with 1 cable entry
DD2/W	roof grommet with 2 cable entry
DD4	roof grommet with 4 cable entry
PG-DD4	PG cable gland for DD4 (order cable glands separately)



DD1/W



DD2/W



DD4

Morningstar charge controllers



Best product from one of the leading manufacturers in the world

All of the Morningstar controllers have outstanding reliability, high performance, high efficiency and flexibility. They also have a 5 years warranty.

Part. No.	Name	Module power up to	Display
SR75UL	SunGuard	300 Wh/d (75 Wp)	/
SR110TL	SunSaver	440 Wh/d (110 Wp)	LED
SR165TL	SunSaver	660 Wh/d (165 Wp)	LED
SR331TL	SunSaver	1320 Wh/d (330 Wp)	LED
SR250TL	ProStar	1000 Wh/d (250 Wp)	LED
SR250LCD	ProStar	1000 Wh/d (250 Wp)	LCD-Disp.**
SR500TL	ProStar	2000 Wh/d (500 Wp)	LED
SR500LCD	ProStar	2000 Wh/d (500 Wp)	LCD-Disp.**
SR740TL	TriStar	2960 Wh/d (740 Wp)	*
SR990TL	TriStar	3600 Wh/d (990 Wp)	*
SR/RD-1	RelayDriver	for 4 Relais	
SR425DUO	SunSaver Duo	1700 Wh/d (425 Wp)	2 batteries



SunGuard



ProStar



TriStar



SunSaver

Morningstar-controllers - advantages

- micro processor controlled (ProStar and TriStar)
- automatic 12/24V detection (ProStar and TriStar)
- can charge wet or gel-type batteries
- temperature sensor and LVD
- IU charging characteristic
- electronically fused
- suitable for large solar systems with 45/60A (only TriStar)

** LCD display for battery voltage, charging current and load current.

* available accessories: LCD display, remote display or temp. sensor

SOLARA® charge controllers

For a long battery life

SOLARA® charge controllers are designed to protect batteries from overcharge and deep discharge. Coloured LED's or LCD displays help to provide a clear picture of the solar system.

Quality „Engineered in Germany”



- high reliability
- PWM charging characteristic
- Automatic 12/24V detection (except SR60UL)
- Low voltage disconnection (except SR60UL)
- Excellent value
- Mounting friendly due to DIN rail option

Part. No.	Module power up to	Voltage	Display
SR60UL	240 Wh/d (bis 60 Wp)	12V	LED
SR135TL	540 Wh/d (bis 135 Wp)	12V/24V	LED
SR170CX	680 Wh/d (bis 170 Wp)	12V/24V	LCD
SR340CX	1360 Wh/d (bis 340 Wp)	12V/24V	LCD
SR/CMM	digital display for SR135TL, display for module, load current and battery voltage		
SR/CXM	digital display for SRxxxCX, same as SR/CMM plus system state and datalogger		



SR/CMM



SR/CXM



SR60UL



SR135TL



SR170CX

SR340CX

SOLARA® battery manager

To recharge or trickle charge a second on-board battery:

The battery manager is a unit for charging or keeping a second battery fully charged in mobile applications like yachts or RV's. Furthermore special loads can be supplied with the built-in excess energy management. It can also be used to provide a constant voltage of 1.5,3,4.5,6,9,12 or 13.6 VDC for small loads.

Part.No.	Description	Voltage	Display
SR/ZB	battery manager	12V	LED



SR/ZB

SOLARA® charge controller for two battery circuits

To recharge two separate 12 or 24V batteries

The domestic battery will be charged first, and then the engine battery bank will be charged.

Part.-No.	Module power up to	Voltage	Display
SR260ZB	1040 Wh/d (bis 260 Wp)	12V/24V	LCD *
SR260ZB/E	1040 Wh/d (bis 260 Wp)	12V/24V	LCD *
SR300ZB	1040 Wh/d (bis 260 Wp)	12V/24V	LED

* with LCD display for battery voltage, charging current and load current.



SR260ZB/E



SR300ZB

SOLARA® charge controllers with PPT tracking

Micro-processor controlled charger for charging 12V systems with an intelligent peak-power-tracking. So you can get up to 30% more output from your panels.

Part. No.	Module power up to	Display	Extras
SR150PPT 1	600 Wh/d (bis 150 Wp)	LED	
SR240PPT 2	960 Wh/d (bis 240 Wp)	LED	second battery terminals



SR240PPT

SOLARA® digital displays

The DA20 is a simple LCD monitor displaying charging and discharging current plus battery voltage. Voltage 8-48V, max. current 20A. (Also available for flush mounting).

Part. No.: DA20
Part. No.: DA20/E



DA20/E



DA20



Source: "promobil, Europes largest RV magazine"

STUDER pure sine wave AC inverters

DC coupled system



Advantages of Studer

- high efficiency and steady output
- outstanding overload capacity
- digital regulation and micro processor controlled
- a supply to any kind of electrical device
- complete internal protection of the inverter (overload, overheat, short-circuit and reverse polarity)
- adjustable load detection
- complete with connection cable
- 24V and 48V units also available on request



WRSAJ275 - 2100

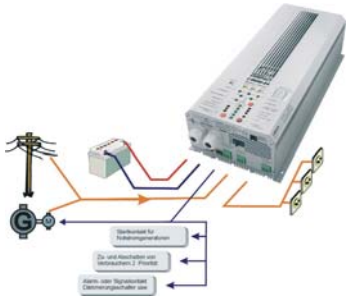
AJ series

Part. No.	Watt	Surge power (5sec.)	Size (lxwxh)	Weight
WRSAJ275	200 W	450 W	163x142x84 mm	2,4 kg
WRSAJ500	400 W	1000 W	240x142x84 mm	4,5 kg
WRSAJ1000	800 W	2200 W	428x142x84 mm	8,5 kg
WRSAJ2100	2000 W	5000 W	399x273x84 mm	19,0 kg

Compact/XPCompact series

The compact series features an integrated battery charger and inverter for uninterruptible power supply. They also have programmable contacts for generator starting or alarms.

Part. No.	Watt	Surge power	Size (lxwxh)	Weight
WRXPC1400	1100 W	3300W	140x215x124 mm	11,7 kg
WRSC1600	1300 W	3900 W	480x215x124 mm	16,0 kg

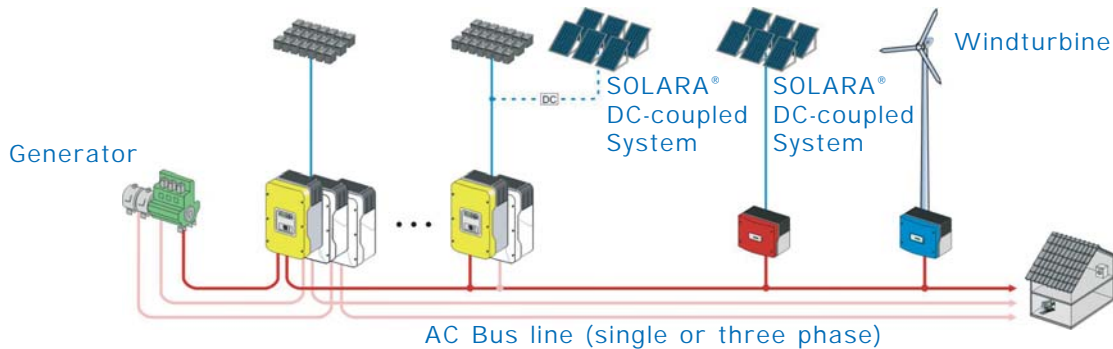


WRSXPC
WRSC

Off-grid power supply

AC coupled systems (Mini Grid)

AC coupled systems are designed for larger off-grid installations like villages power supply, farms, lodges, hospitals, schools, telecommunication stations etc.. With an AC coupled system nearly any type of electricity generator (PV, wind, water, biomass, diesel) can be integrated. All components, generators and consumers, are connected to the AC line. The major component is a special inverter/charger unit providing the AC-bus-line.



For further details and system design, please contact your local Solara distributor.

Energy saving lamps

DC bulbs with detachable tube

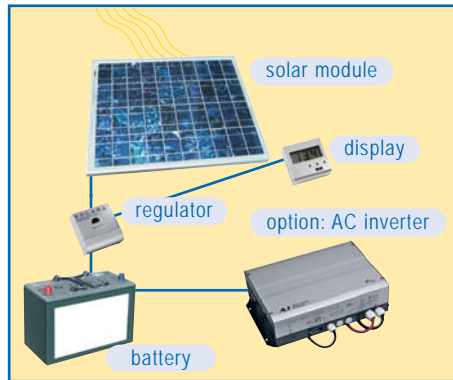
The detachable tube on these lamps can be removed and replaced in case of a failure or damage. This saves costs. These lamps have a high luminous efficiency with low power consumption. The life time expectancy is more than 10.000 hours. All lamps have an E27 socket and over-temperature protection. This lamp is perfect for your cottage or in SHS's.

Part.-No.	Voltage	Nom. Power
SL5CFL	11-15 V	5 W
SL7CFL	11-15 V	7 W
SL11CFL	11-15 V	11 W
SL15CFL	11-15 V	15 W



SOLARA® global solar solutions

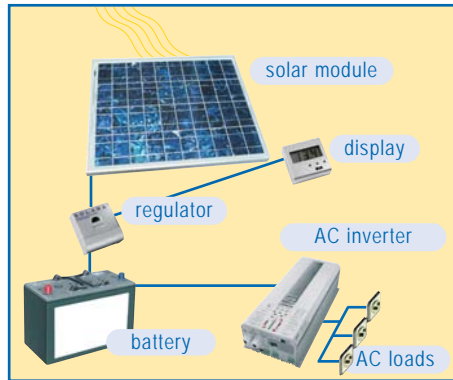
Around the world SOLARA® solar systems increase the lifestyle of the people, produce environmental friendly energy to secure power supply even for professional applications. SOLARA® technology makes it possible to use electricity where no grid is existing.



Small solar home system (SHS)

Small solar system to operate a few lights in a remote house/hut.

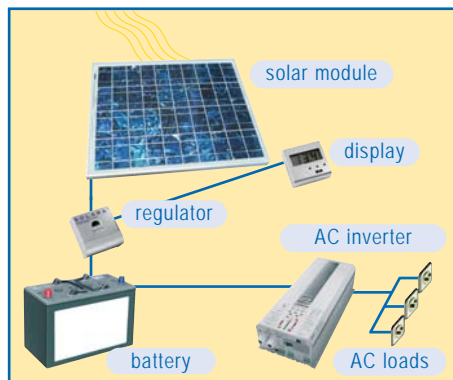
Solar: 20-75Wp
 Regulator: 8A, LVD, indication LEDs
 Battery: max. 100Ah
 Load: DC-lamps, radio
 Operation Time: less than 5h/day
 Option: AC inverter



Large solar house system

Solar system to electrify larger houses, schools or medical centers in rural areas.

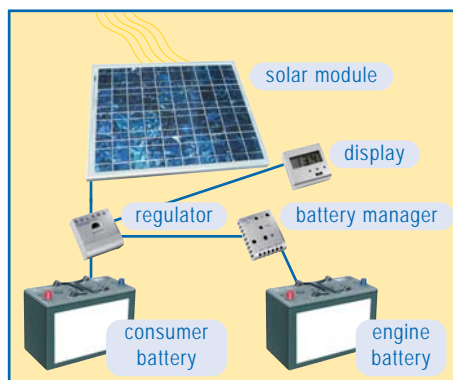
Solar: 500-1000Wp
 Regulator: 30A, LVD, LCD display
 Battery: ca. 400Ah
 Load: lamps, radio, fridges, TV, computer
 Operation Time: approx. 2-5h/day
 AC inverter: approx. 1500W



Solar powered telecom/measurement station

Solar system to electrify communication- and measurement stations

Solar: 55-500Wp
 Regulator: 30A, LVD, LCD display
 Battery: ca. 500Ah
 Load: lamps, radio, PC, technical equipment
 Operation Time: approx. 2-5h/day
 Option: AC inverter



Leisure time application

Solar energy to supply the 12V DC system in a boat or a RV

Solar: 55-150Wp
 Regulator: 10A, LVD, LCD display
 Battery: approx. 200Ah
 Load: lamps, radio, TV, pump, fridge
 Operation Time: approx 5-7h/day
 Option: AC inverter, engine battery charging

Your Questions - our answers

How to measure the size of equipment required?

Quite simply: you work out your average consumption per day: Add that to the specified power of an appliance (watts) and multiply it with the daily running hours.

For example:

Appliance	Specified power	Running time per day	Consumption per day
Radio	15 watts	4 hrs	60 Wh/d
Light	40 watts	5 hrs	200 Wh/d
Colour TV	40 watts	3 hrs	120 Wh/d
Receiver	40 watts	3 hrs	120 Wh/d
Total:			500 Wh/d

If you are using your RV, boat, cottage mainly weekends you have to calculate your weekly needs. According to the above example 1000Wh are needed for the weekend (two days). That means you would need one SM200S with 200Wh/d average production per day in the summer time. Over the week the panels is able to produces 1000Wh in 5 days and that will cover the need you have over the weekend.

More examples for the power of components:

water pump	60 watt	5,0 amps
12V colour TV	40 watt	3,3 amps
TFT- flat screen monitor	30 watt	2,5 amps
12V satellite receiver	40 watt	3,3 amps
cell phone charger	30 watt	2,5 amps
battery charger	48 watt	4,0 amps

How does solar equipment work?

The solar panels turn day and sunlight into electricity. The absorption of light in the solar cells builds up electric voltage (volts), as solar cells do not store any electricity all energy gained is fed through a regulator to the battery and stored there.

How long do solar modules last?

Life expectancy is larger than 26 years depending on the type. All parts are designed for outside use, even seawater, hail and storms can't damage a SOLARA® panel. 26 years SOLARA® performance guarantee is the proof for quality.

Do solar panels need maintenance?

The only maintenance a solar panel requires is cleaning with a damp cloth from time to time, no other maintenance is needed. However, if lead acid batteries are used the acid levels need to be checked every six months and topped up if necessary.

Are diodes fitted in the solar panels?

Bypass Diodes are integrated in all SOLARA® S-Series modules except SM50S. From the M-Series the SM120M, SM160M and SM225M have these diodes. Blocking diodes to avoid "back current" into the module are integrated in all our charge controllers.

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