Breakless Solar Green Power Systems

- Emission free natural energy
- Near zero maintenance system components
- Long life, high efficiency solar PV modules
- High efficiency true sine wave switch mode inverter
- Employs unique sleep mode to prevent no load drain
- Micro controller based charge controller with built in temp. compensation
- Electronic protection for short circuit/over current of solar and load

TURNKEY SOLAR POWER FOR HOMES AND OFFICES

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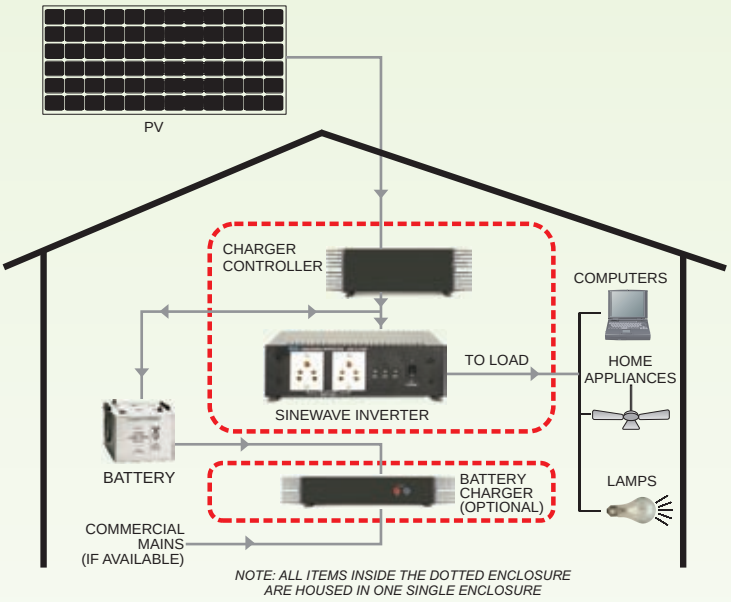
DE GREEN POWER SYSTEM, AGPS, is your renewable energy source from Sun, which generates DC power that includes a battery bank to store the DC power, and **DE** Sine Wave Power Inverter. Our inverter is at the centre of the intelligent renewable energy system, seamlessly converting DC power to clean and reliable AC electricity for your needs with many additional automatic features. When the sun is up, the solar panels generate power to charge batteries and simultaneously provide electricity. At night, the **DE** inverter takes stored power from battery bank.



SOLAR GREEN POWER SYSTEMS from **DE** essentially consist of the following sub systems:

- **Solar panels; Photo voltaic or PV panels:**
  These PV panels convert solar power into DC electrical power.
- **Pure sine wave power inverter with built-in solar charge controller:**
  This high efficiency power converter converts the DC power from the Sun into 230V AC 50Hz clean sinusoidal power for your load. Variable DC power from the Sun is regulated through its built in charge controller to ensure smooth charging under any sunlight condition.
- **Storage Batteries:**
  We need to store the solar DC power delivered by the solar panels into battery and use it at night. During the day free power from Sun is stored and then used in the night hours.
- **Commercial Line operated Charger as an Optional Add-on:**
  This is an optional but desirable system component if commercial power from Electricity Board is available.
- **Intelligent Power Source Selection Module**
  AGPS has built-in intelligence for power sourcing; first preference to Solar, if not (like after Sunset) then from the stored energy in battery and if both are exhausting then from line power, if available. Any desired logic sequence can be user selected.

SYSTEM CONFIGURATION:

Model	12V solar PV panel	No. of 12V solar PV Panels	No. of Batteries	System modules		
				Charge controller	Sine wave inverter 230V AC 50Hz	Mains charger (optional)
SPS 150	100Wp	2	1	12V/8A	150W	12V/6A
SPS 250	200Wp	2	1	12V/20A	250W	12V/10A
SPS 500	400Wp	4	2	24V/20A	500W	24V/10A
SPS 800	600Wp	6	2	48V/15A	800W	24V/15A
SPS 1500	1200WP	12	4	48V/20A	1500W	48V/15A
SPS 2000	1600Wp	16	4	48V/30A	2000W	48V/20A

HOW TO SELECT THE MODEL?

(A) CALCULATING YOUR NEED FOR POWER:

- The table below will help you calculate your load power to determine what Solar Green Power System you need from the six power options we offer.

Type of Load	Power Needed
CFL lamps	6W, 8W, 10W, 12W, 15W, 18W and 22W
Tungsten filament lamps	15W, 25W, 40W, 60W, 100W & 150W
Tube lights, 2 ft, 4 ft	20W & 40W
Ceiling fan 36", 48"	60W & 80W
Table fan	50W
Television 20" to 42"	100W
Personal computer with CRT Display	200W
Mobile charger	5W
Printer (any type)	60W
Mixer grinder	700W

- Make a list of the loads from the above table which you need to power and add them up to know the power needed. Start with the one that needs highest power. (*We suggest that you use CFL lamps that give light output four to five time higher than the traditional Tungsten Filament Bulbs. Note that a 12W CFL light will give same light output as a 60W conventional Tungsten Filament bulb.)*

- It is always desirable to choose at least 20% higher power rating than calculated as above. For example, if the total you arrive at say 480W then choose the SGP System with next higher output model, in this case of 600W.

(B) CHOOSING THE BATTERY CAPACITY RATING TO MEET YOUR NIGHT LOAD REQUIREMENT

- Next task is to choose appropriate battery rating to meet your power need after dark.

- For this you need to identify loads that you would simultaneously use at night and maximum duration in hours for which you will use them. From this you will know your need for total energy at night.

- Battery energy storing capacity is measured in AH, A stands for current it can deliver and H the maximum duration in hours.

- Solar Green Power Systems use 12V battery for low power models, 24V for medium power models and 48V for high power models.

- Energy stored in the battery is measured in Watt-Hours,

  WHr, which is the product of battery voltage and battery's AH capacity.

- After calculating the total energy you need at night in WHr, you divide the WHr by the battery voltage for the model chosen and that will give you your need in AH.

- Since batteries typically are discharged to about 70% of its rated AH capacity, choose a battery with 35 to 40% higher AH rating than your calculation. 12V batteries are available in various ratings ranging from 2AH to 200AH.

- *The example below will show you how to calculate your energy need and then the AH rating of the battery. Calculated AH capacity is about 50AH, when operated system voltage is 24V, so choose two 12 volt batteries in series of 65AH capacity.*

Night time Load	Power of the load	Hours used	Energy needed W x H
Lights and fan	300W	3	900W Hr
Personal computer	200W	1	200 WHr
Night light	10W	10	100 WHr
Cell phone charger	5W	10	50 WHr
Total energy			*1250 WHr*
AH capacity = Total energy ÷ Battery voltage			1250÷24 = 50.2

Note: The above load calculations are only illustrative and for actual load details, please workout as detailed above. Take help of any electrical engineer if you find it difficult to choose a suitable model.

INSTALLATION GUIDANCE

The solar PV module is installed in the open on the roof/ terrace, while the other sub units are installed in-door. Though these systems are primarily intended for its use in non electrified rural areas, they are equally relevant even in urban area where power failure is frequent and plenty. These systems are available in six different power rating to suit every essential application. However various tailor made systems can also be offered against specific requirements.

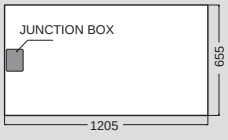
These Solar GREEN POWER SYSTEMS are ideally suited for homes in rural/ urban areas, fuel stations, call centers, hotels, hospitals, laboratories, ATM booths, kiosks, banks as well as in shop and commercial establishments, farm houses, community centers etc.

ELECTRICAL SPECIFICATION:

Description		SPS 150	SPS 250	SPS 500	SPS 800	SPS 1500	SPS 2000
System Power Output		150W	250W	500W	800W	1500W	2000W
Solar Photovoltaic Module							
Number of Modules		2x12V/50Wp in parallel	2x12V/100Wp in parallel	4x12V/100Wp 2 in series & 2 in parallel	6x12V/100Wp 2 in series & 3 in parallel	12x12V/100Wp 4 in series & 3 in parallel	16x12V/100Wp 4 in series & 4 in parallel
Charge Controller							
Rated Voltage		12.0V DC	12.0V DC	24.0V DC	24.0V DC	48.0V DC	48.0V DC
Rated Solar Input		10.0Amp	20.0Amp	20.0Amp	30.0Amp	30.0Amp	40.0Amp
Rated Load		10.0Amp	20.0Amp	20.0Amp	30.0Amp	30.0Amp	40.0Amp
Load Disconnect Voltage		11.08V DC	11.08V DC	22.16V DC	22.16V DC	44.32V DC	44.32V DC
Load Reconnect Voltage		12.58V DC	12.58V DC	25.16V DC	25.16V DC	50.32V DC	50.32V DC
Sine Wave Inverter							
Power output		150W	250W	500W	800W	1500W	2000W
Overload rating		225W	375W	750W	1200W	2250W	3000W
Voltage Output		230V AC	230V AC	230V AC	230V AC	230V AC	230V AC
Efficiency		82%	83%	85%	86%	88%	88%
No load Loss	Normal Mode	6.0W	6.0W	7.0W	12.0	15.0W	20.0W
	Sleep Mode	0.5W	0.5W	0.9W	0.9W	1.2W	1.2W
Dimensions in mm (HxWxD)		51 x 165 x 207		84 x 225 x 416		120 x 350 x 480	
Weight		1.4kG	1.5kG	4.2kG	5.2kG	7.5kG	9.5kG
Mains Charger (Optional)							
Type of Charger		Switch mode float cum boost charger with PFC					
Output Voltage, Nominal		12.0V DC	12.0V DC	24VDC	24V DC	48V DC	48V DC
Output Current		6.0A	10.0A	10.0A	15.0A	15.0A	20.0A

Note : The Battery need to be selected as per the back up requirement . Please refer our illustrative battery selection

SIZE & WEIGHT DETAILS OF SOLAR PV MODULE



	50Wp/12V	100Wp/12V
LENGTH	775mm	1205mm
WIDTH	655mm	655mm
THICK.	35mm	35mm
WEIGHT	6.5kg.	9.5kg.

POWER CONTROLS & CONVERSION DIVISION

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