Enviro Energy Solutions Ltd

Your Gateway to the Sun

EHSG Series
Hybrid Solar Generators

…BECAUSE WITH ENVIROENERGY SOLUTIONS THE SUN SHINES FOR EVERYONE…

Version 011019

Enviroenergy Solutions proposes a wide range of pre-assembled **OFF-GRID Hybrid Solar Generators** and also offers custom made Hybrid Solar Generators to fit every requirement.

Working Principle:

Enviroenergy EHSG Hybrid Solar Generators work on multiple levels and with multiple power sources in order to ensure a constant availability of energy in the most economical way.

On one hand they use batteries to store the solar energy produced by the Solar Panels and at the same time, they are connected to the grid so as to ensure a constant flow of electricity in case the solar energy stored is not sufficient.

Hybrid Solar Generators use Solar Power in priority. However, if solar radiation is not sufficient or if the consumption is too high and the battery storage is not enough, then the system automatically switches to the grid power supply to ensure uninterrupted availability of electricity.

When the batteries restore their capacity, then the system automatically switches back to using the battery power source.

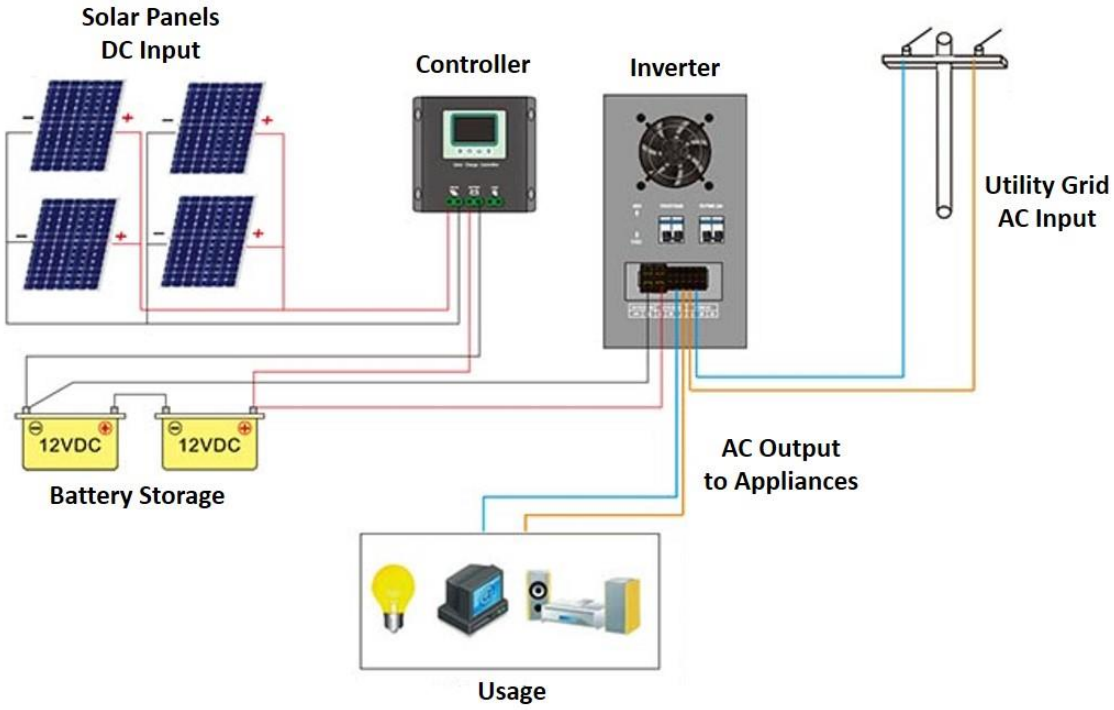
Other power sources (diesel generators for example) can also be connected to the Hybrid system offering an alternative source of electricity in the case of unreliable grid power and absence of solar energy.

When used Off-grid **Enviroenergy Hybrid Solar Generators** ensure electricity production and 24h power availability through battery storage.

When used in combination with the grid **Enviroenergy Hybrid Solar Generators** are designed to offer energy independence and work automatically switching between Solar Power and Grid to minimize the electricity bill.

Enviroenergy Hybrid Solar Generators will revolutionize your energy consumption so you IMMEDIATELY drop your electricity bills and limit the impact of the constant increase of the price of electricity.

By Day or night, in summer and winter, with or without power shortages, **Enviroenergy Solutions OFF-Grid Solar Hybrid Solar Generators** will always ensure energy sufficiency and independence.



EXAMPLES OF KIT COMPOSITIONS AND TECHNICAL SPECIFICATIONS

OFF-GRID HYBRID SOLAR GENERATORS		
Model	**EHSG1KW/300**	**EHSG2KW/700**
Nominal Load (W)	1000	2000
Max Power Consumption (kWh/Day)	1.2	2.8
Inverter Specifications		
NOMINAL POWER	1000W	1200W
Input Voltage (DC)	12V	24V
Output Voltage (AC)	220V Single Phase	220V Single Phase
Output Frequency (Hz)	50/60	50/60
Rated Charge Current	30A	
Output Wave	Pure Sine Wave	
Inverter type	Off-Grid with Grid Power Switch	
Battery Type	AGM	
Battery Specifications	12V/100AH	2 x 12V/120AH
Solar Modules Specifications		
Module Type	Polycrystalline Silicone	
Solar Module Nominal Power (Wp)	300	700
Number of Solar Modules (Wp)	2 x 150	2 x 350
Module Voltage at Maximum Power (VMP)	18.7V	39.1V
Module Current Maximum Power (IMP)	8.02A	8.94A
Size (mm)	1480 x 680 x 35	1956 x 992 x 40
Protections		
Short Circuit Protection	Yes	
Overload Protection	Yes	
Surge Current	Yes	
Over temperature	Yes	
Over/Under Voltage	Yes	
Lightning	Yes	
Reverse Polarity	Yes	
Other Accessories		
Solar Module Mounting Structure	Aluminium for Roof Top Installation	
Cabling	Photovoltaic Solar PV1-F Cable 20m	
Connectors	3-terminal connectors for parallel connection	

OFF-GRID HYBRID SOLAR GENERATORS		
MODEL	**EHSG3KW/2100**	**EHSG5KW/3500**
Nominal Load (W)	3000	5000
Max Power Consumption (kWh/Day)	10	17
Inverter Specifications		
NOMINAL POWER	3200W	5000W
Nominal DC Voltage	24V	48V
Grid Input Voltage (V)	220VAC	
Grid Input frequency (Hz)	50Hz	
Inverter Output Voltage (V)	220VAC	
Inverter Output Frequency (Hz)	50Hz	
Inverter Output Wave	Pure Sine Wave	
Nominal Solar Input (W)	4000	
Max. Solar Input Voltage (V)	500	
Max. Solar Input Current (A)	80	
Battery Rated Voltage	24V	48V
MPPT Range at Operating Voltage	120 ~ 450 VDC	
Battery Specifications		
Battery Type	Deep cycle, fully sealed, valve-regulated, lead-acid battery. Maintenance-free.	Deep cycle, fully sealed, valve-regulated, lead-acid battery. Maintenance-free.
Battery Specifications	12V/250Ah	12V/250Ah
Number of Batteries	4	4
Solar Modules Specifications		
Module Type	Polycrystalline Silicone	
Solar Module Nominal Power (Wp)	2100	3500
Number of Solar Modules (Wp)	6 x 350	10 x 350
Module Voltage at Maximum Power (VMP)	39.1V	39.1V
Module Current Maximum Power (IMP)	8.94A	8.94A
Size (mm)	1956 x 992 x 40	1956 x 992 x 40
Protections		
Short Circuit Protection	Yes	
Overload Protection	Yes	
Surge Current	Yes	
Over temperature	Yes	
Over/Under Voltage	Yes	
Lightning	Yes	
Reverse Polarity	Yes	
Other Accessories		
Solar Module Mounting Structure	Aluminium for Roof Top Installation	
Cabling	Photovoltaic Solar PV1-F Cable 30m	
Connectors	3-terminal connectors for parallel connection	
GPRS/WIFI Monitoring Module	For Monitoring, troubleshooting and communication	

OFF-GRID HYBRID SOLAR GENERATORS		
MODEL	**EHSG10KW/7000**	**EHSG10KW/9800**
Nominal Load (W)	10.000	10.000
Max Power Consumption (kWh/Day)	36	40
Inverter Specifications		
NOMINAL POWER	10.000W	10.000W
Nominal DC Voltage	48V	48V
Grid Input Voltage (V)	220VAC	
Grid Input frequency (Hz)	50/60Hz (Autodetecting)	
Inverter Output Voltage (V)	220VAC	
Inverter Output Frequency (Hz)	50/60Hz (Autodetecting)	
Inverter Output Wave	Pure Sine Wave	
Nominal Solar Input (W)	9600	
Max. Solar Input Voltage (V)	200	
Max. Solar Input Current (A)	100	
Battery Rated Voltage	48V	48V
MPPT Range at Operating Voltage	120 ~ 450 VDC	
Battery Specifications		
Battery Type	Deep cycle, fully sealed, valve-regulated, lead-acid battery. Maintenance-free.	Deep cycle, fully sealed, valve-regulated, lead-acid battery. Maintenance-free.
Battery Specifications	12V/250Ah	12V/250Ah
Number of Batteries	4	4
Solar Modules Specifications		
Module Type	Polycrystalline Silicone	
Solar Module Nominal Power (Wp)	7000	9800
Number of Solar Modules (Wp)	20 x 350	28 x 350
Module Voltage at Maximum Power (VMP)	39.1V	39.1V
Module Current Maximum Power (IMP)	8.94A	8.94A
Size (mm)	1956 x 992 x 40	1956 x 992 x 40
Protections		
Short Circuit Protection	Yes	
Overload Protection	Yes	
Surge Current	Yes	
Over temperature	Yes	
Over/Under Voltage	Yes	
Lightning	Yes	
Reverse Polarity	Yes	
Other Accessories		
Solar Module Mounting Structure	Aluminium for Roof Top Installation	
Cabling	PV1-F Photovoltaic Solar Cable 80m	
Cabling	BVR Photovoltaic Solar Cable 50m	

Note:

EHSG series Hybrid Solar Generators can be customized to fulfill any energy production requirements.

Note:

All **Enviroenergy Solutions Hybrid Solar Generators** can also be used without Battery Storage. In this case the system will work mainly on Solar Power during the day and the Utility Grid during the night, automatically switching between the two to ensure a constant flow of electricity and minimizing electricity bills.

Examples of Daily Electricity Consumption				
Appliance	**Quantity**	**Power**	**Working Hours per Day**	**Daily Power Consumption**
LED Light	3	10W	4 hours	120Wh
Refrigerator 300Lt	1	150W	12 hours	1800Wh
LED TV	1	70W	2 hours	140Wh
Fan	1	40W	4 hours	160Wh
Laptop Computer	1	70W	4 hours	280Wh
Electric Water Heater 80Lt	1	2000W	1 hour	2000Wh
			Total Daily Consumption:	**4500Wh (4.5kWh)**

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Note:

In the above case the household consumes an average of 4500Wh (4.5kWh) per day. If we want to operate only on Solar Power then It is advisable to always calculate a margin of 20% in case sometimes a devise is used for longer hours or more devises are added in time (4500Wh + 20%= 5400Wh).
When used in combination with the Grid then no margin needs to be added since the Hybrid Solar Generator will automatically use the electricity from the Grid to compensate for any extra requirements.

Tip:

The Electric Water Heater is the biggest energy consumer in the house. It is advisable to use **Enviroenergy Solutions Solar Water Heaters** for Free Hot Water and exclude this electricity consumption from the house instead of opting for a bigger Solar Generator. In the above case, without the use of an Electric water heater, instead of a Solar Generator of 5400Wh a Solar Generator of just 2500Wh would be enough.

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**We do not inherit the earth
from our fathers,
We borrow it
from our children..."**

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