

Return to nature  
it's so simple

**F**un

Practice an efficient, flexible and responsible water conservation strategy at GreenWays and Children have fun, without incident or increasing the waste water. Or even, woodens time to make your home cozier with easy, consistent? (water) through the use of rainwater for multi-purpose cleaning, water. Your Rainwater System collects, filtered water and flow it back to the soil, bringing back the natural ecology and temperature. Rain Pump optimizes indoor and water temperature for various usage. It is environmental friendly and yet, it makes the most out of energy savings.\*

SIGN UP A TOTAL PACKAGE TODAY AND ENJOY GOOD DISCOUNTS!

**Leaf**

LEAF WATER SYSTEMS (SINGAPORE) PTE. LTD.  
100, CLEMENTI ROAD, #01-01, SINGAPORE 120239  
TEL: 6760 8888 FAX: 6760 8889  
WWW.LEAFWATER.COM

**Leaf Water Systems**

**Home Pump**

**Domestic Rainwater Harvesting**

**Water Replenish**

# Return to nature

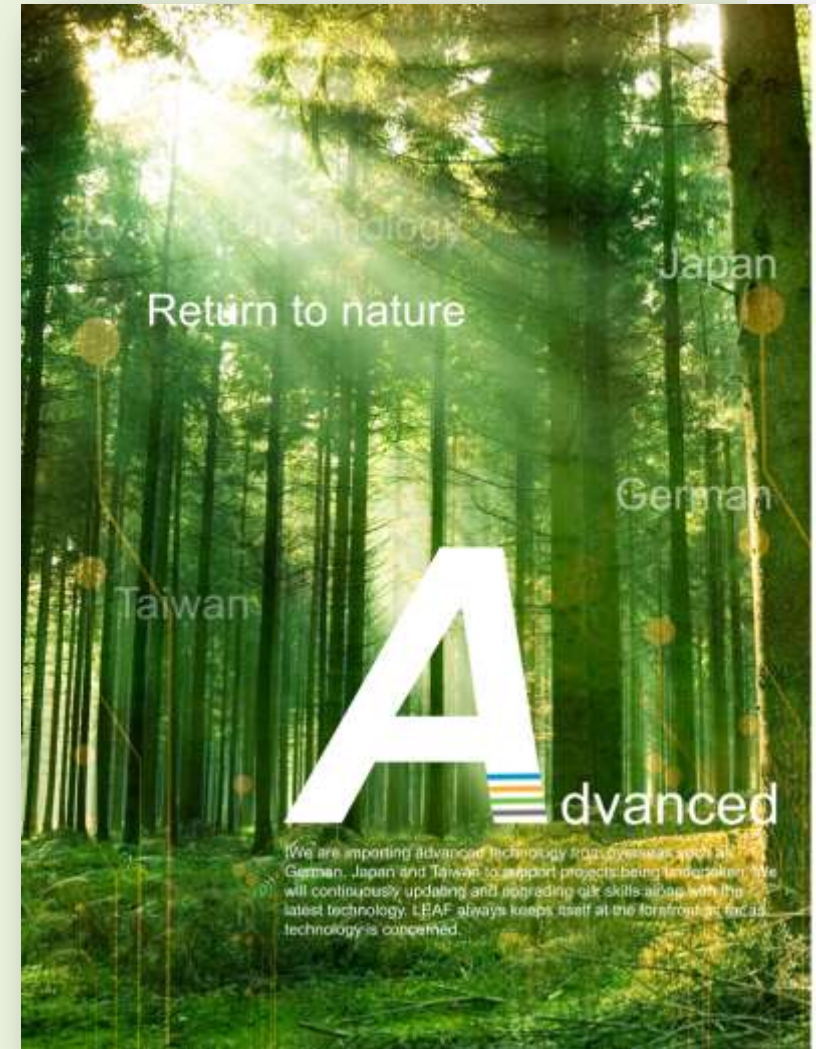
## it's so simple



## Introduction

Established in 2003, Lian Shun Technology started in manufacturing, alongside with its mother company – Feiti (M) Sdn Bhd, a metal stamping company founded in Taiwan since 1969.

Being a green lover and determined to become a green contributor, Lian Shun is revamping its business in providing green living concept and lifestyle to more people. Therefore, a new label “LEAF” is set up under Lian Shun to offer solutions and consultations to obtain affordable green homes.





## Intelligent Green Building

Let the combination of technology and nature brings us the best out of our livings, to achieve the basic six major requirements of green living: Safety, Convenience, Healthy, Energy Efficiency, Comfortable, Everlasting.

Our engineering team in Lian Shun Technology endeavors to simplify the vague understanding of green concepts, to be more conceptual based on product design, so that it can easily be understood in terms of its functions and how can it be achieved. With the application of statistical function of the smart home system, performance analysis and reports of solar energy, LED lighting, green vertical walls, green roof, heat pump water heater, and even rainwater harvesting system as well as water retention, all can be demonstrated and reflected directly on your screen, either by using a smart phone or an IPAD. Just touch a few buttons and you are able to experience and enjoy the most comfortable natural environment.

To return to nature and enjoy greener livings, the four key words say them all: Lifestyle, Easy, Advanced and Fun.

LEAF will provide all you need in green living.

### Lifestyle

Pursuing ideal natural living with elegance lifestyle....that's what we insist on lifestyle living. It is also our commitment to provide you the best lifestyle living.

### Easy

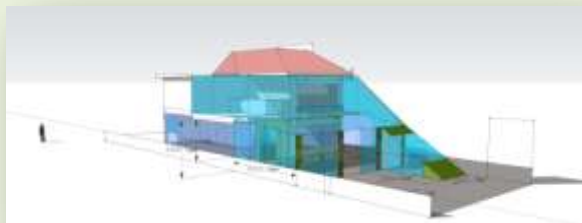
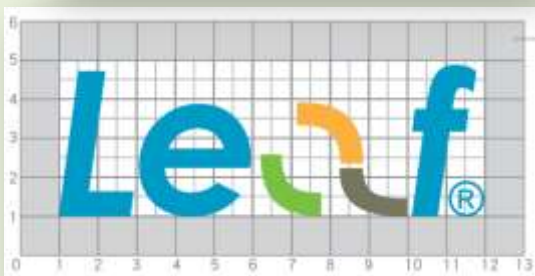
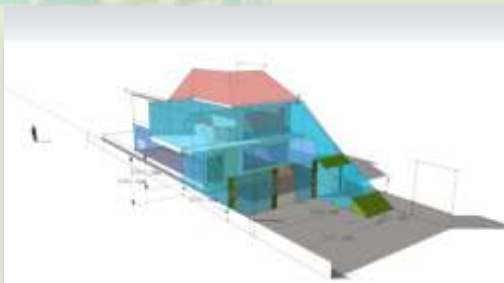
Just touch a few buttons and let the intelligent system takes over the duties. Let your finger do the job.

### Advanced

Combine the nature and advanced technology to create a futuristic new living lifestyle. You will be surprised how much you can enjoy, once they are put together.

### Fun

When things are under your control, life will be more meaningful and interesting. Enhance your lifestyle and experience a new, yet very different atmosphere.



## Products & Services

We offer various types of green products and attempt to package them together, and ultimately, sell them as a concept i.e. Intelligent Green Building. Our products include:

- Solar Panel
- Green Wall
- Green Roof
- Smart Home
- LED
- Rainwater Harvesting
- Water Retention System
- Heat Pump



## Intelligent Green Building      Consolidation of Green Products Experience the Genuine Feelings    Practical Test of the Reality

LEAF solves your psychological Doubt

We will take all the green recycle products, researching each and every one of the product's features, and will examine all the details, efficiency and investment benefits, display and put it in figures, to inform you of the differences, and using the high-tech , wireless scientific equipment, to monitor all the green recycle products, we strongly believe "seeing is believing" !

We know which details you are particularly mind.

In fact, what we mind and concern is .....your satisfaction



- **Solar energy , how much electricity being generated, how much money has been saved ?**

Take it easy, the wireless control panel will explain to you accurately how much electricity has been generated, and also the monthly effect of the electric generated . This result will be compiled through the internet passage and then send to our monitor centre (with your permission), and if there is anything unusual, we will keep you informed immediately and you need not worry!

- **LED really saves electricity ? What's the bill for this month? How long it takes to recover the cost?**

The wireless electricity meter panel will notify you in advance your electric bill, in fact, right at the moment the meter is installed, you could even notice the bill differences instantly!

- **The Smart Home wireless system is so cool ? Is it save to use and cost effective?**

Just press the buttons with your fingers slowly, all the pictures, all the figures, will instantly displayed — "safety", "healthy", "convenient" , "comfortable", "energy savings", "sustaining"

Visit LEAF showroom and experience yourself directly the demonstration , by processing you a full set of information.

- **Green wall, Green roof, what is the value ?**

Beside compliments from friends around, you will get the room temperature reading being disclosed to you that your indoor temperature has reduced.(according to statistics, every drop of 1 degree is equivalent to a 5% reduction of air-conditioner electricity consumption)

- **Rain Water Harvesting, what are the benefits?**

When the water supply stops, and your house is the only one that still has water to flush the toilet, then you may imagine how convenient it is! At this crucial moment of activating your rain water harvesting system, you will be most satisfied, LEAF wireless remote control system will notify how much water has been conserved , as well as how much has been saved !

- **The concept of Water Retention/Conservation System**

Check this out, why is it that there is no drain in the jungle? Why is it that the trees in the jungle are thriving prosperously with without watering? The answer is, when the nature rains, the soil retains the water ,when the soil is full of nutrients, plants will definitely prosperous; so, when you walk through the jungle, the feeling of serene environment , the soil cooling effect takes place . To make your backyard similar to the jungle absorbing water module, and even adjusting the temperature, just let LEAF proves to you, your backyard will become like the jungle with flourishing living plants.

- **Is Heat Pump a cheaper option?**

Don't worry, we are more concerned how it can save you even more , through the remote control of the wireless meter , a complete report of the electricity usage well be presented, and we ensure you will be deeply satisfied .



## Solar Panels

Using solar to produce renewable energy is a high-tech, yet fashionable green technology of the 21st century (also known as Photovoltaic (PV), which converts light into electric current). Install a Solar Panel today. Let's save energy and build a better environment.

Return Of Investment  
Within  
4-6 years



## Solar Panel (Solar Renewable Energy)

Solar energy is an alternative energy source that involves harnessing the radiant light energy emitted by the sun and converting it into electrical current. Since the middle of the 20th century, the ability to harness and utilize solar energy has greatly increased, making it possible for homes and businesses to make use of the renewal energy source rather than rely on more conventional means of generating power.

Renewable energy generated via solar power is called Photovoltaic or "PV", which is being seen as the most potential and renewable energy in future, vis-à-vis hydro, wind and biomass.

Take a look at what LEAF can offer on solar energy.





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# Solar PV system 2011

# *JIN HUA CHEN*

## **Introduction**

Jin Hua Chen Metal Engineering Co., Ltd established in 1992 have been enjoying a high reputation in Metal design and construction technique. Furthermore, to improve ecological environment and to fulfill the ideal of Green Energy Development, we devoted ourselves to developing recycling energy —PV solar System at 2002 and have deeply been affirmed and highly praised by the industry.

We care every project and execute each one according to the professional quality management systems of TUV-ISO9002 led in 2000 which is then upgraded to TUV-ISO9001 in 2002 and we also dispatched our engineers attending various professional technical seminars from which to enhance their skills and vision such as MW degrees PV Solar System Technique Training Program in German and in Japan during 2004-2007 and the generating PV Solar System Technique Training held by Taiwan Industrial Technology Research Institute in 2009.

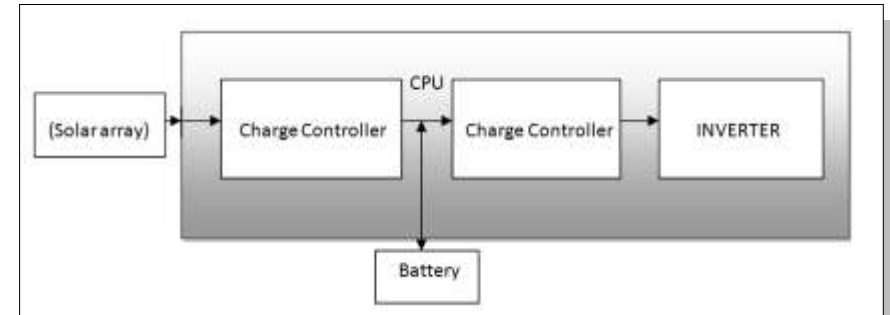
With the pursuing top-grade attitude and fruitful application as well as experiences in this industry, we truly believe that we could guide the industry into an innovating high quality era.



### Stand Alone Solar System



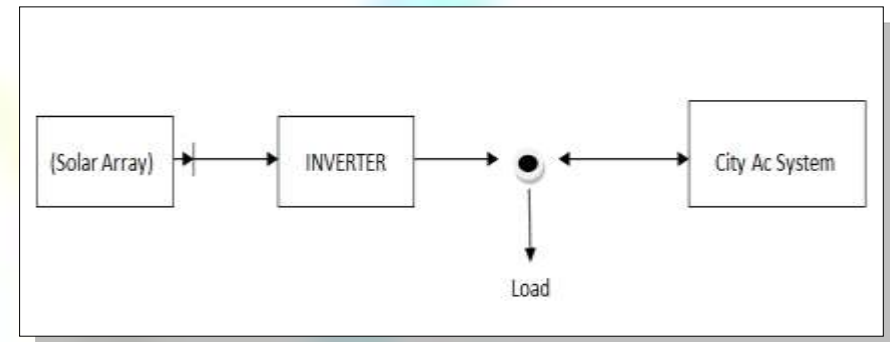
This type does not have a connection to the electricity mains. The generated power needs to be buffered with a battery from which to supply the power when need and is often found on the areas where there are no power supplies.



### Grid-tied System



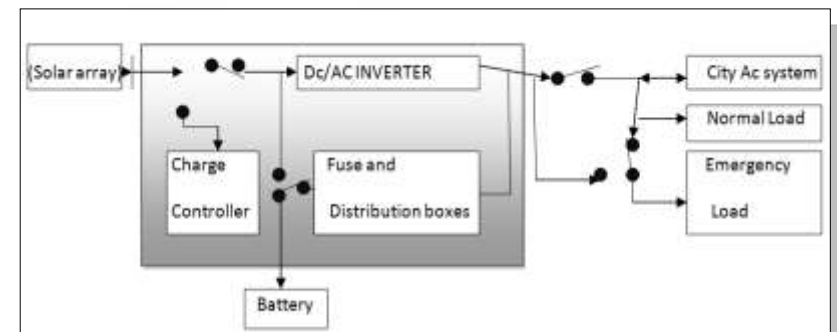
This type of system tends to be an optimum configuration from an economic viewpoint because all the electricity is utilized by the owner during the day and any surplus is exported to the grid. Meanwhile, the cost of storage to meet night-time needs is avoided, because the owner simply draws on the grid in the usual way. Also, with access to the grid, the system does not need to be sized to meet peak loads and required no storage equipment (i.e. Batteries).



### Hybrid System (Stand-alone Grid-tied Solar System)



This type of solar energy system is the same as the grid-tied system above except that battery storage is added to enable power to be generated even when the electricity grid fails, which is most often found on off-island area, mountain area the areas where the power supply is not stable.





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## **What Is Radiant Heat**

We all know when light irradiate on the surface of a triangle prism it will be differentiate into 7 colors, and as the radiant heat is one of the light beams it should be able to be differentiate into 7 colors in which only the red beam can be seen by human being, it is also named as “infrared”.

## **The 5 Benefits for BIPV Application**

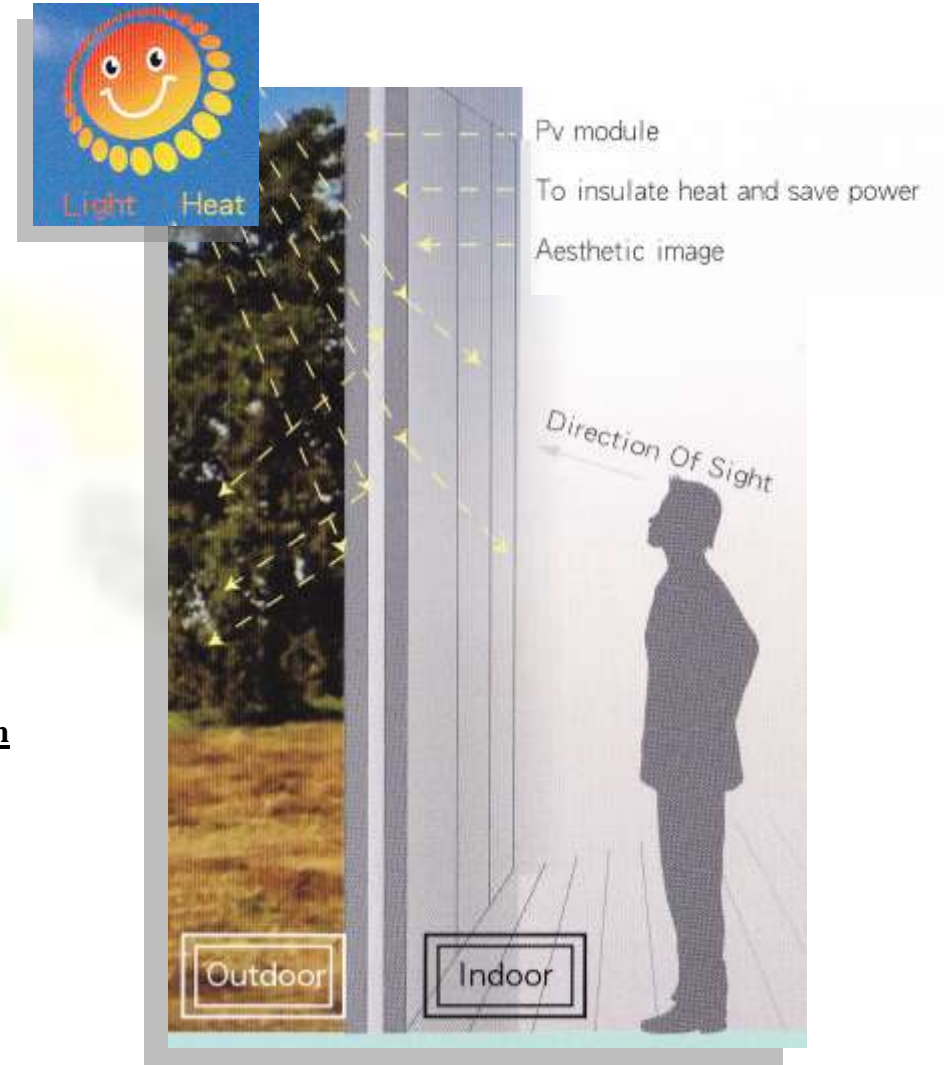
- To use the superficial measure of structure effectively
- To replace conventional materials
- To build structures such as roofs, windows, and facades
- To be inherently environmentally friendly
- To allow architectures more aesthetic

## **BIPV Extended Applications**

- The concept of Photovoltaic art wall
- The Concept of Photovoltaic Commercial Walls
- The Fusion of Art and Photovoltaic Power

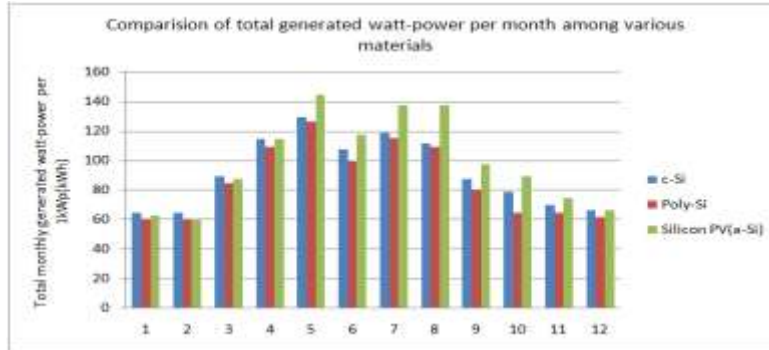
## **Aesthetic Insulating Solar Module-the Innovative Invention for Construction**

Aesthetic Insulating Modules are the ideal for construction, which not only take advantage of photovoltaic to power the devices, but also insulate heat, absorb voice and beautify the facades.





## ● Superior Performance Under High-Temperature Conditions

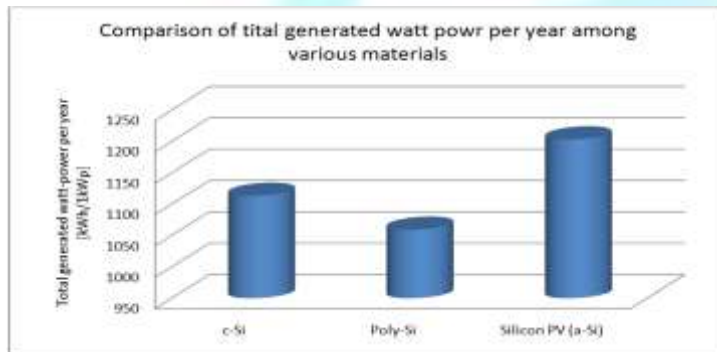


Crystalline-Si PV modules lose some power-generating capability with rises in temperatures. But Amorphous-Si PV modules can deliver maximum performance during summer when the electricity is needed most for air-conditions in houses and offices.

Source: “NEDO/Ritsumeikan University Module Field Test and Operational Analysis” presented at the International PV SEC-11, Sapporo, Hokkaido, Japan, 1999.

Installation Location: Kusatsu, Shiga Prefecture Japan Slope angle: 15.3 degree

## ● Superior Light Absorption



Assuming that the total solar radiation per year (1.323kWh/m²) is 100%, Silicon PV Modules can produce 90.95% of actually generated watt-power, about 80 to 84% higher than that of other crystalline silicon PV Modules.

Source: “NEDO/Ritsumeikan University Module Field Test and Operational Analysis” presented at the International PV SEC-11, Sapporo, Hokkaido, Japan, 1999.

Installation Location: Kusatsu, Shiga Prefecture Japan Slope angle: 15.3 degree

## ● Environment-Friendly

The thickness of a-Si cell is 0.3, which is 2/600 of that of crystalline silicon cell (approx. 200). This means that a-Si cell use less material and energy thereby enabling high productivity for mass production.

## ● Shorter Energy Pay-Pack Time (EPT)

EPT is the time a PV module to “pay back” the energy used in its manufacture by its own power generation. The EPT of amorphous-Si PV is 1.6 years, which is approximately 6 months shorter than that of crystalline silicon PV (2.2 years). EPT is one of the most important points when evaluating the ecological benefit of PV systems.



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## CRSTALLINE SILICON Module

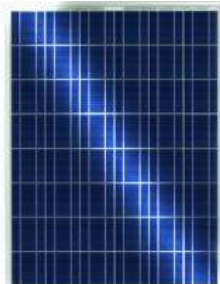


Electrical Characteristics:	205W	210W	215W	220W	225W
Module Type	SSR205MG	SSR210MG	SSR215MG	SSR220MG	SSR225MG
Nominal Peak Power, Pmax	205W±5%	210W±5%	215W±5%	220W±5%	225W±5%
Peak Power Voltage, Vpm	28.72V	29.06V	29.17V	29.51V	29.79V
Peak Power Current, Ipm	7.07A	7.19A	7.32A	7.36A	7.45A
Open Circuit Voltage, Voc	36.43V	36.96V	37.08V	37.31V	37.49V
Short Circuit Current, Isc	7.65A	7.75A	7.87A	7.94A	8.03A
Module Efficiency	10.93%	11.19%	11.50%	11.73%	11.99%
Dimension (L X W X H)	1760 X 1066 X 14 mm	1760 X 1066 X 14 mm	1760 X 1066 X 14 mm	1760 X 1066 X 14 mm	1760 X 1066 X 14 mm
Weight (kg)	56 kg	56 kg	56 kg	56 kg	56 kg
Thermal Characteristics					
Temperature Coefficient TK Pmax	-0.52%/°C	-0.52%/°C	-0.52%/°C	-0.52%/°C	-0.52%/°C
Temperature Coefficient TK Voc	-0.38%/°C	-0.38%/°C	-0.38%/°C	-0.38%/°C	-0.38%/°C
Temperature Coefficient TK Isc	+0.03%/°C	+0.03%/°C	+0.03%/°C	+0.03%/°C	+0.03%/°C



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## CRSTALLINE SILICON Module



Module Type	Standard Module	Standard Module	Standard Module	Standard Module	Standard Module	Standard Module	Standard Module	Structural BIPV Module
Electrical Characteristics:	205W	210W	215W	220W	225W	230W	235W	200W
Module Type	SSR205P	SSR210P	SSR215P	SSR220P	SSR225P	SSR230P	SSR235P	SSTA200PG33S
Nominal Peak Power, Pmax	205W±5%	210W±5%	215W±5%	220W±5%	225W±5%	230W±5%	235W±5%	200W±5%
Peak Power Voltage, Vpm	28.27V	28.27V	28.50V	28.79V	29.13V	29.30V	29.59V	26.38V
Peak Power Current, Ipm	7.31A	7.40A	7.55A	7.67A	7.77A	7.82A	7.92A	7.62A
Open Circuit Voltage, Voc	36.25V	36.25V	36.43V	36.72V	37.08V	37.20V	37.50V	33.80V
Short Circuit Current, Isc	7.74A	7.83A	7.98A	8.10A	8.20A	8.25A	8.33A	7.72A
Module Efficiency	12.36%	12.66%	12.96%	13.26%	13.56%	13.86%	14.17%	13.10%
Dimension (L X W X H) /mm	1659X 1000 X42	1659 X 1000 X42	1659 X 1000 X 42	1659 X 1000 X 42	1659 X 1000 X 42	1659 X 1000 X 42	1659 X 1000 X 42	1534 X 1000 X33.5 mm
Weight (kg)	21kg	21kg	21 kg	21 kg	21 kg	21 kg	21 kg	84.5kg

Thermal Characteristics								
NOCT(Nominal Operating Cell Temperature)	44.2°C	44.2°C	44.2°C	44.2°C	44.2°C	44.2°C	44.2°C	
Temperature Coefficient TK Pmax	-0.52%/°C	-0.52%/°C	-0.52%/°C	-0.52%/°C	-0.52%/°C	-0.52%/°C	-0.52%/°C	
Temperature Coefficient TK Voc	-0.37%/°C	-0.37%/°C	-0.37%/°C	-0.37%/°C	-0.37%/°C	-0.37%/°C	-0.37%/°C	
Temperature Coefficient TK Isc	+0.07%/°C	+0.07%/°C	+0.07%/°C	+0.07%/°C	+0.07%/°C	+0.07%/°C	+0.07%/°C	



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## Thin-Film Module /See-Through



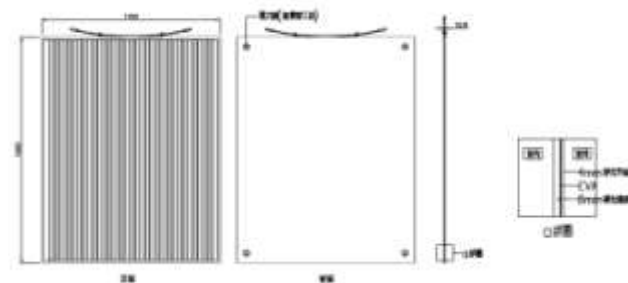
	Standard Module	Transparent Module
Certification	IEC	-
Transparency	0%	10% / 5% / 1%
power	60W	42/ 50 / 52
open circuit voltage	91.8V	91.8
max power voltage	67.0V	59.6 / 66.0 / 68.0
max power current	0.90A	0.705/ 0.758 / 0.765
short circuit current	1.19A	0.972 / 1.09 / 1.14
dimensions (mm)	L960xW990xD40	L950xW980xD10.5
weight (kg)	13.7	23





SMILE SOLAR products

## Thin-Film Module /See-Through



	110W-T10.9mm Structural Transparent Module	110W-T10.9mm Normal Transparent Module	110W-T12.9mm Structural Transparent Module	110W-T12.9mm Normal Transparent Module	110W-T30mm Structural Transparent Module	110W-T30mm Normal Transparent Module
Electrical Characteristics:						
Module Type	SSNP 110TG10.9S	SSNP 110TG10.9	SSNP 110TG12.9S	SSNP 110TG12.9	SSNP 110TA30S	SSNP 110TA30
Nominal Peak Power, Pmax	110W	110W	110W	110W	110W	110W
Peak Power Voltage, Vpm	119.6V	119.6V	119.6V	119.6V	119.6V	119.6V
Peak Power Current, Ipm	0.92A	0.92A	0.92A	0.92A	0.92A	0.92A
Open Circuit Voltage, Voc	155.2V	155.2V	155.2V	155.2V	155.2V	155.2V
Short Circuit Current, Isc	1.08A	1.08A	1.08A	1.08A	1.08A	1.08A
Module Efficiency	7.14%	7.14%	7.14%	7.14%	7.14%	7.14%
Transmittance	10%	10%	10%	10%		
Dimension (LxWx T)/mm	1400 X 1100 X 10.9	1400 X 1100 X 10.9	1400 X 1100 X 12.9	1400 X 1100 X 12.9	1400 X 1100 X 30	1400 X 1100 X 30
Weight (kg)	40 kg	40 kg	47.5 kg	47.5 kg	63 kg	63 kg
Frame	No	No	No	No	No	No
Temperature Data						
Nominal Circuit Voltage	-0.28%/°C	-0.28%/°C	-0.28%/°C	-0.28%/°C	-0.28%/°C	-0.28%/°C
Open Circuit Voltage	-0.32%/°C	-0.32%/°C	-0.32%/°C	-0.32%/°C	-0.32%/°C	-0.32%/°C
Short Circuit Current	0.07%/°C	0.07%/°C	0.07%/°C	0.07%/°C	0.07%/°C	0.07%/°C



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## Specifications of Inverter



INVERTER	ES2200/ES3300	ES4200/ES5000
<b>DC Input</b>		
Rated Voltage	2000W/2000W	4000W/5000W
Max. Voltage	DC 500V	DC 500V
Operation Voltage	DC 120V-DC 500V	DC 120V-DC500V
Max. power point tracking range	DC 100V-DC 450V	DC 100V-DC450V
No. of input connection	1	2
<b>AC Output</b>		
Max. current for each connection	14.5A/22A	14A/17.65A
Rated Frequency	50 or 60 Hz	50 or 60Hz
Rated output	8.7A/13A	17.4A/21.7A
Current THD	Total Harmonic current: less than 5%	Total Harmonic current: less than 5%
Efficiency	96%	96%
Waterproof	IP65	IP65
Dimension(mm)	170*455*430	170*455*510
Net Weight(kgs)	22	25

## Other support brackets



AA087- MConnector10	JHC-0004	BD006-425-1.2	DD012-A	DD012-B	DD012-C
AA087-ConnectorM16	DD007-2001AA				
AA087-Connector M24					

## Contract Procedure

- **Business negotiation procedure**

Residential categories: Understanding and identify customer needs, budget, usage purposes

Commercial categories: Company Overview, future growth rate, budget, philosophy and etc.

- **Preliminary proposal**

Budget setting, product proposal and quotation submission.

Site surveying, analysis and photos taking for reference.

Preliminary planning and preparing the draft of design.

- **Contract**

Advance payment of 50% total amount upon contract signed. Draft reviewing for necessary amendments, final verification on the construction details and explanations, construct Gantt Chart of Progress.

- **Construction site**

Launch construction according to design drawings and progress schedule.

Advance payment of 40% of total amount upon shipment of equipment along with installation of equipment, program setting and testing.

- **Completion**

Verification and acceptance of work completion with issuance of guarantee letter. Final settlement of 10% of total amount upon completion.



# Return to nature it's so simple

