



## Nature Power Solar Kit User Manual



### 53906 300 Watt Solar Kit



### 53907 400 Watt Solar Kit

Connecting cable maybe not same as picture shown.

**⚠ WARNING:** Read carefully and understand all ASSEMBLY AND OPERATION INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

**SAVE THESE INSTRUCTIONS**

# Index

<b>Important Safety Information</b>	<b>P3</b>
<b>Cautions</b>	<b>P4</b>
<b>Technical Specifications</b>	<b>P4</b>
<b>Part List</b>	<b>P5</b>
<b>Installation Instruction</b>	<b>P5-6</b>
<b>Mounting Solutions</b>	<b>P7</b>
<b>Connecting an Inverter</b>	<b>P7</b>
<b>Solar Kit Weekly Power Chart</b>	<b>P8</b>
<b>Connecting Additional Solar Panels</b>	<b>P8</b>
<b>Trouble Shooting</b>	<b>P9</b>
<b>FAQ</b>	<b>P10</b>
<b>Limited Warranty</b>	<b>P11</b>

## Important Safety Information

Thank you for choosing a Nature Power Product.

Save the receipt and these instructions. It is important that you read the entire manual to become familiar with this product before you begin using it.

This product is designed for certain applications only. The distributor cannot be responsible for issues arising from modification. We strongly recommend this product not be modified and/or used for any application other than that for which it was designed. If you have any question relative to a particular application, Do not use the product until you have first contacted the distributor to determine if it can or should be performed on the product.

For technical question please call 1800-588-0590

### **WARNING**

- Read and understand all instructions. Failure to follow all instructions may result in serious injury or property damage.
- The warnings, cautions, and instructions in this manual cannot cover all possible conditions or situations that could occur. Exercise common sense and caution when using this tool. Always be aware of the environment and ensure that the tool is used in a safe and responsible manner.
- Do not allow persons to operate or assemble the product until they have read this manual and have developed a thorough understanding of how it works.
- Do not modify this product in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the product. There are specific applications for which the product was designed.
- Use the right tool for the job. DO NOT attempt to force small equipment to do the work of larger industrial equipment. There are certain applications for which this equipment was designed. It will be a safer experience and do the job better at the capacity for which it was intended. DO NOT use this equipment for a purpose for which it was not intended.
- Industrial or commercial applications must follow OSHA requirements.



#### **WARNING**

This product can expose you to chemicals, including Di (2-ethylhexyl) phthalate (DEHP) which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information, go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)



#### **ADVERTENCIA**

Este producto puede exponerlo a productos químicos, incluidos Di (2-etilhexil) ftalato (DEHP) que el estado de California sabe que causa cáncer, defectos de nacimiento u otros daños reproductivos. Para obtener más información, vaya a [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

## Cautions

- Never touch the end of output cables with your bare hands when the modules are irradiated. Handle wires with rubbergloved hands to avoid electric shock
- Do not wear metallic jewelry when working on electrical equipment
- Product should be installed and maintained by qualified personnel
- Do not drop tools or other items on the glass of the solar module
- Do not scratch the back film of the solar panel
- Avoid exposing solar panels to partial sunlight or shadows. Partial sunlight can cause hot spots on the panel
- Do not pour chemicals on module when cleaning. To clean use a damp cloth do not apply excessive pressure to the cells
- Do not expose solar module to sunlight concentrated with mirrors, lenses or similar means
- Keep module away from children

### Precautions when working with batteries

- Never smoke or allow a spark or flame near the batteries
- Batteries generate hydrogen and oxygen during charging resulting in evolution of explosive gas mixture. Care should be taken to ventilate the battery area and follow the battery manufacturer's recommendations
- Batteries contain very corrosive diluted acid as electrolyte. Precautions should be taken to prevent contact with skin, eyes or clothing
- Use caution to reduce the risk of dropping a metal tool on the battery. It could spark or short circuit the battery or other electrical parts and could cause an explosion
- Remove metal items like rings, bracelets and watches when working with batteries. The batteries can produce a short circuit current high enough to weld a ring or the like to metal and thus cause a severe burn
- If you need to remove a battery, always remove the ground terminal from the battery first. Make sure that all the accessories are off so that you do not cause a spark
- Only use rechargeable 12 Volt batteries, ie. Sealed Lead Acid, Deep Cycle, Gel-Cell etc.
- Use properly insulated tools only when making battery connections
- When working with batteries please follow the battery's manufacturer manual and precautions

### Precautions when working with solar panels

With the incidence of sunlight or other light sources on all solar panels, a voltage appears at the output terminals of the solar panel turning it into a source of electricity. Do not make contact with the terminals when the panel is exposed to sunlight or other light sources. To avoid shock hazard make sure the solar panel is either turned over so the cells are not exposed to light or cover the cells with an opaque dark material such as paper/cloth during the installation process.

## Technical Specifications

Property	53906	53907
Maximum Power - Pmax	300 Watt / Polycrystalline	400 Watt / Polycrystalline
Voltage at Pmax	18V	18V
Open Circuit Voltage - Voc	21.6V	21.6V
Short Circuit Current - Isc	17.22A	22.96A
Current at Pmax-Imp	16.95A	22.6A
Solar Panel Class	A	A
*Solar System Battery Voltage	12V	12V

\*This is a 12V battery charging system only. Please call Nature Power Customer Service for more 24V system configuration.

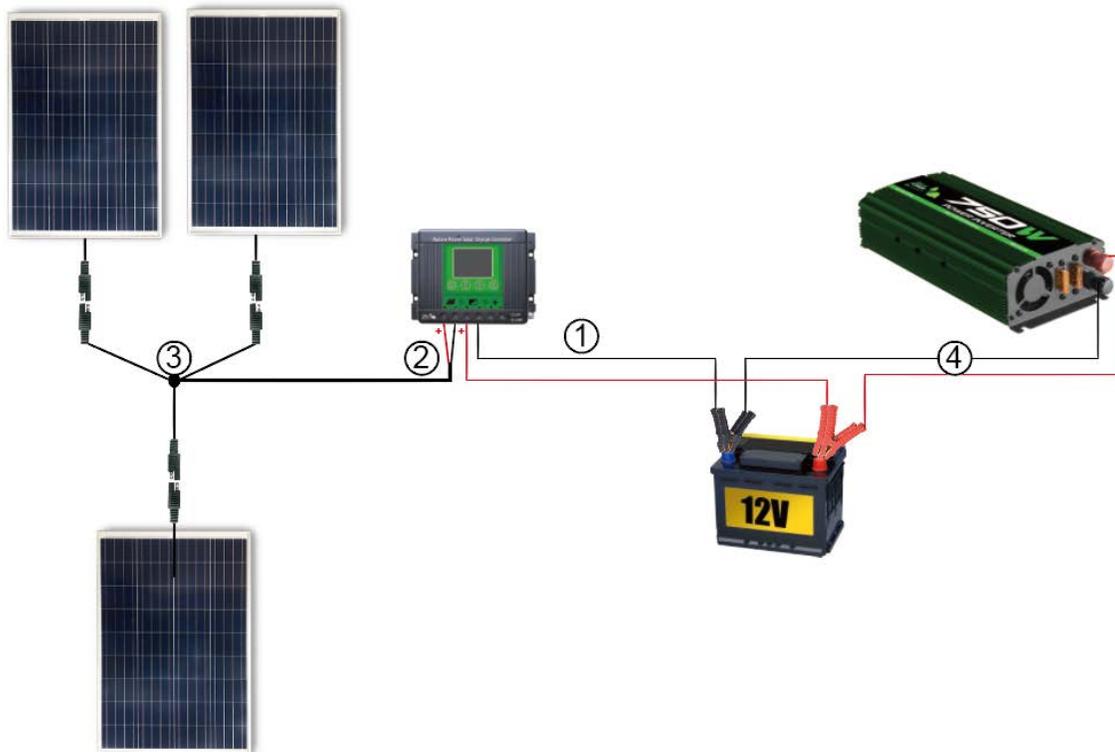
## Parts List

Reference	53906	Quantity	53907	Quantity
1	100W Solar panel	3	100W Solar panel	4
2	30 AMP charge controller	1	30 AMP charge controller	1
3	750W Power Inverter	1	750W Power Inverter	1
4	Manual	1	Manual	1
5	3in1 or 4in1 SAE cable	1	4in1 SAE cable	1
6	SAE-Bare end cable *	1	SAE-Bare end cable *	1
7	Bare end -Battery clamp cable	1	Bare end -Battery clamp cable	1

\* SAE-Bare end cable may not included

## Installation Instruction

### 53906-300W Solar Kit



**Step1** Connect the charge controller to battery with SAE-battery clamp cable, Parallel connections = Positive to Positive and Negative to Negative.

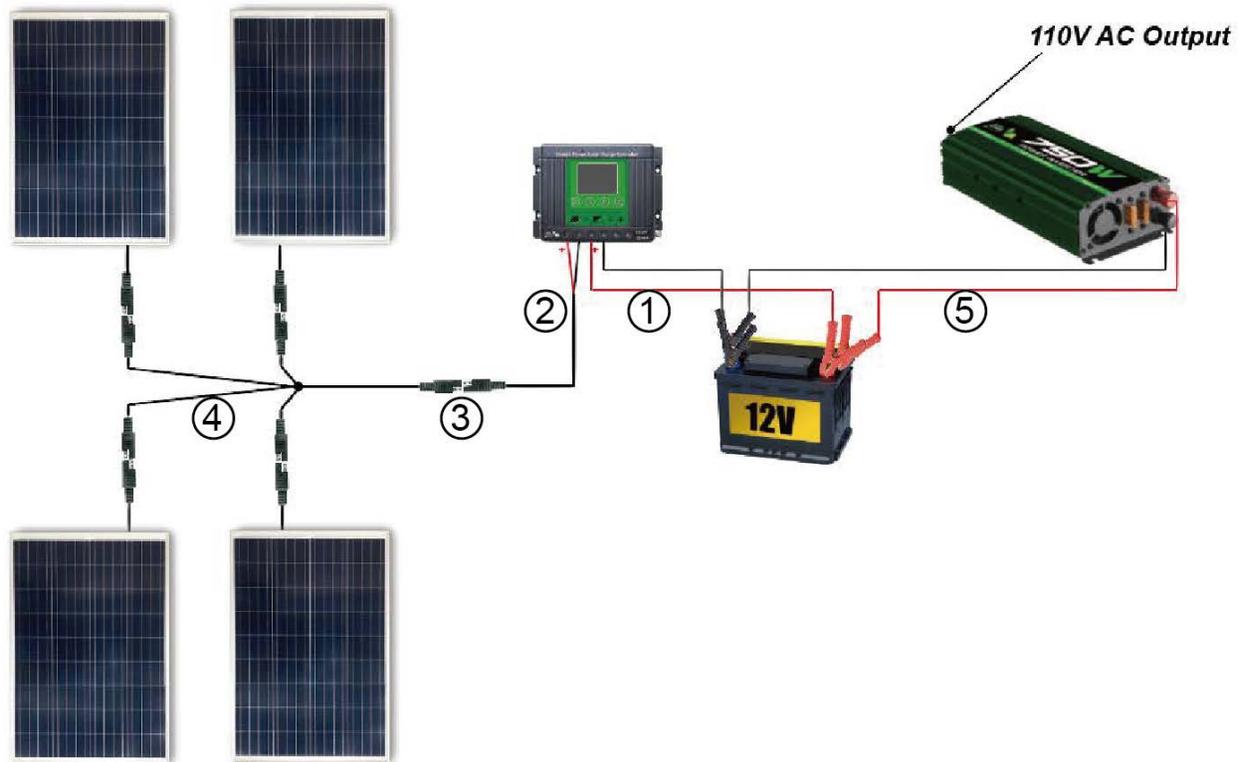
**Step2** Connect 3 in1 SAE-bare end cable\* with charge controller.

**Step3** Connect solar panels with the 3 in 1 SAE cable.

**Step4** Connect the 750 Watt power inverter to battery by "bare end - battery clamp" cable which included as the inverter accessories.

\* If 300W solar kit comes with 4 in 1 SAE cable, please refer to the 400W solar kit installation.

## 53907-400W Solar Kit



- Step1** Connect the charge controller to battery with SAE-battery clamp cable, Parallel connections = Positive to Positive and Negative to Negative
- Step2** Connect the SAE-Bare end cable to charge controller.
- Step3** Connect SAE 4 in1 cable\* with SAE-bare end cable.
- Step4** Connect solar panels with the 4 in 1 SAE
- Step5** Connect the 750 Watt power inverter to battery by "bare end - battery clamp" cable which included as the inverter accessories.

\* If 400W solar kit comes with 4 in 1 SAE- bare end cable, please refer to the 300W solar kit installation.

## Mounting Solutions

Choose a site for mounting the solar panels that is free from shade and located in an area that receives maximum sunlight daily. For maximum solar power absorption throughout the day, a tilt-mounting is recommended.

### Roof / RV Mounting



The solar panels can be permanently installed level using the Z-brackets.

Measure the distance between the mounting site and the battery location. The charge controller should be mounted in close proximity to the battery bank (within 5 feet). Refer to the DC electrical wire guide to choose an appropriate gauge wire for the length of the wire.

If you choose to mount your Solar Panel on your RV, be sure you solidly mount your panels to the roof. If you have a rubber roof over thin plywood you may want to use molly fasteners to get a better grip. If you have a fiberglass roof, drill some pilot holes through the fiberglass to reach plywood below. This will prevent cracking or damaging the fiberglass. If your RV is equipped with a metal roof you must mount the solar panel to the joists supporting the roof. Figure 3 shows an example of how the panel can be mounted with the z-brackets.

**\* Mounting Kit not Included,**

**Z- mounting brackets are available from Nature Power and sold separately.**

## Connecting an Inverter

An inverter can be used to converting the 12 Volt energy created to 120 Volt Electricity. Please Refer to the Inverters Manual for operation.

## Solar Kit Weekly Power Chart

Please refer to the run times chart to choose how much solar power your desired system requires.

**Note: All run times/ratings are estimates only and may vary depending on your location, time of day, time of year and are based on 7 Hours of full sunlight per day.**

Solar panel Rated Hourly (Maximum output)	100 Watt	200 Watt	300 Watt	400 Watt
		5.65 Amp	11.3 Amp	16.95 Amp
Weekly Output	4.9 kW·h	9.8 kW·h	14.7 kW·h	19.6 kW·h
Weekly Power Run Times				
Fluorescent Light 40 watts	122 hr	244 hr	366 hr	490 hr
Laptop 20-50 watts	98 hr	196 hr	294 hr	392 hr
Fan 10-50 watts	98 hr	196 hr	294 hr	392 hr
Halogen Light 100 watts	49 hr	98 hr	147 hr	196 hr
PC 120 watts	41 hr	82 hr	122 hr	163 hr
TV 40" Color 150 watts	32 hr	64 hr	98 hr	130 hr
Projector 300 watts	16 hr	32 hr	49 hr	65 hr
Coffee Maker 800 watts	6 hr	12 hr	28 hr	24 hr
Portable Heater 1500 watts	3 hr	6 hr	10 hr	13 hr

**\*Noted:** 750W inverter cannot be used with appliances require more than 750W power.

## Connecting Additional Solar Panels

**Go to [www.naturepowerproducts.com](http://www.naturepowerproducts.com)  
for a larger selection of renewable energy products and accessories.**

### Additional 12V DC Batteries

Addition batteries may be desired for extra electrical storage.

For 12 Volt battery bank configurations; make sure your batteries are connected in parallel Positive to Positive and Negative to Negative

1. From the charge controller attach the red battery clamp to the red terminal of the first battery in the bank, matching the polarities, positive to positive.
2. Then connect the black alligator clamp to the black terminal of the second or late battery in the bank, again matching polarities, negative to negative. This will ensure an equal charging across both or all batteries.

## Trouble Shooting

- **Charge controller not working after battery connected.**  
Confirm that it is a 12V battery and the voltage is higher than 6.5V.
- **Error code (E0X or C0X) flashing on the charge controller display.**  
Please refer to the charge controller manual for trouble shooting.
- **Inverter Red LED is on, alarm sounds, and/or inverter does not function.**  
Please refer to the Inverter manual for trouble shooting.
- **Device does not operate properly when first connected to the inverter.**  
The inverter may not have the required capacity to operate the device. Turn the inverter switch OFF and ON, to reset the inverter. If device still does not operate, the inverter should not be used with this device. Use a higher capacity inverter or lower rated device.
- **Battery are not charging.**
  - 1, Check your controller and battery first of all, make sure your battery is available 12V battery.
  - 2, Faulty connections  
The wires should always be water tight and insulated. Poor wiring may cause loose connections, corrosion and oxidation of the wires. Voltage levels at various parts of your connection can be checked by a multimeter to help you find out the points at which low voltage problems start. Do not connect the solar power to the controller during the solar power voltage check.
  - 3, Solar panel faults  
This condition is not common as most of the solar panels are able to sustain harsh weather conditions and last for a long period of time. Checking on your solar panels is also advised as the last resort. The main defects a solar panel may experience are: Delamination, junction box faults ( increased resistance in the junction boxes due to exposure to moisture).
- **Low power output from Solar panel / Battery charging slow.**
  - 1, Shading  
Shading should always be avoided at all times. Shading causes massive loss of power output and solar panels need high exposure to sun light so as to produce high power outputs. One should always make sure that there are no tree branches blocking the solar panels from direct sunlight. Dust and debris also causes shading. Solar panels should always be cleaned to prevent dust and debris particles from causing shading on the solar panels.

## FAQ

- **What electrical appliances can work with 750W output power inverter.**  
TV, Refrigerator, Iron, Computer, Laptop, Fan, Speakers, vacuum clean, Lights, washing machine  
Phone Charger, Water purifier etc.
- **Will this kit work with a 12V or 24V battery?**  
This is a 12V battery charging system only. Please call Nature Power Customer Service for more  
24V system configuration.
- **How do solar system work?**  
The panel's photovoltaic cells convert the energy in sunlight to electricity, the electricity is then stored  
in the battery and an inverter will allow you to plug in appliances. there is 4 major components  
needed to set up your solar off grid system. Solar panels, charge controller to control the charge to  
the battery bank, a battery for power storage and an inverter to transfer DC power from the battery to  
an AC power.
- **How should my solar panels be positioned in order to produce the most power?**  
In the Northern Hemisphere, The best direction to face solar panels is south. However, using your  
judgment in figuring out which location gets the most sun, would be helpful.
- **What is the maximum power consumption appliance I can use on this?**  
That will depend on your inverter, the rating of the inverter determine the maximum power you can  
use, like 300W, 400W.....3000W..Etc. the time of use is determined by the size of your battery.
- **Does the panels need to be in direct sun to work?**  
No, although solar panels produce the highest wattage output in direct sunlight, they will still produce  
power on cloudy days.
- **Do I need a battery to store Power?**  
Yes, a battery is needed to store the power from the solar panel, the inverter will also connect to the  
battery.
- **What size battery can I use?**  
The amount of battery storage you need is based on your energy usage. Energy usage is measured  
in Watts or kilowatt hours over a period of time. You can use any size battery, best used with Deep  
Cycle batteries. 12V only.
- **Can you connect this to the breaker box in the house?**  
No, this is an off grid only solar kit, you can not connect to the breaker box.
- **Will I need solar maintenance?**  
Solar panels generally require very little maintenance. They are very durable but should always be  
cleaned to prevent dust and debris particles from causing shading on the solar panels. batteries might  
need to be changed every few years.
- **How long does installation take?**  
This is a very basic setup plug and play, however, installing the panel to a flat surface might require  
able bodies with a little bit of know how's.
- **On what roof materials can solar be installed?**  
Solar panels can be installed on any roof material that can take the weight of the panel. properly  
mounted solar panel system is essential, as an improperly mounted solar panel can cause leaks or  
other roof issues.

## Limited Warranty

Nature Power warrants our products to the original purchaser that this product is free from defects in materials and workmanship for the period of 1 year from date of purchase, 5 year warranted on solar panels to generate up to 80% of rated power from date of purchase. In the case of product defect, contact Nature Power customer service to receive troubleshooting. If defective part or unit should be returned, a Return Authorization Number must be issued by Nature Power and the defective part or unit should be returned to the authorized location at the purchasers' expense. A dated proof of purchase is required to receive warranty service. Once received at authorized location and defect proves to be the result of defective material and workmanship, the defective part or unit will be replaced at warrantors' option and returned to the original purchaser at warrantors' expense. No refunds will be granted by the warrantor, in the event of buyer's remorse please contact your point of purchase within and in adherence to their return policy. Refunds are granted at the retailers' discretions.



**Please contact Nature Power Products to acquire more information:**

1-800-588-0590

[info@naturepowerproducts.com](mailto:info@naturepowerproducts.com)

[www.naturepowerproducts.com](http://www.naturepowerproducts.com)

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