



## 120 Watt Portable Folding Solar Power Kit User Manual



**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.

#55120K

SAVE THESE INSTRUCTIONS

## 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 rubber-gloved 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 tool or other item 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.
- 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 sulphuric 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.
- Use properly insulated tools only when making battery connections.

### **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. To avoid a shock hazard make sure the solar panel is covered with an opaque (dark) material such as paper/cloth during the installation. Do not make contact with the terminals when the panel is exposed to sunlight or other light sources.

### **Precautions when working with Charge Controllers**

If two or more solar panels are connected in series/parallel make sure that the sum of the short circuit current ratings of all panel strings does not exceed 80% of the charge controller's current rating.

## Parts List

Parts Description	Quantity
120W Folding Solar panel	1
SAE to Anderson cable	1
SAE to battery clamp cable	1
SAE to Furrion cable	1
SAE Reverse Polarity Cable	1
8 Amp Charge Controller	1
300W Power Inverter (with connecting cable)	1
Solar Power Charger (with charging cable)	1
Manual	1

## Solar Panel Specification

Property		Property	
Peak Power	120 W	Fast Charge	5V/3A 9V/2A 12V/1.5A
Current at Pmax(Imp)	6.66 A	USB-C PD	5V/3A 9V/3A 12V/3A 15V/3A 20V/3A
Voltage at Pmax(Vmp)	18 V		
Short Circuit Current(Isc)	7.32 A	DC Socket	120W / 18V DC5521
Open Circuit Voltage(Voc)	21.6 V	Dimensions Folded	16.3 x 13.5 x 2 in
Reverse charging protect	Yes	Dimensions Unfolded	80 x 16.4 x 0.2 in
USB	5V/2.4A	Operation temperature	-4°F to 149°F (-20°C to 65°C)

## Installing Instructions

### Selecting the correct battery

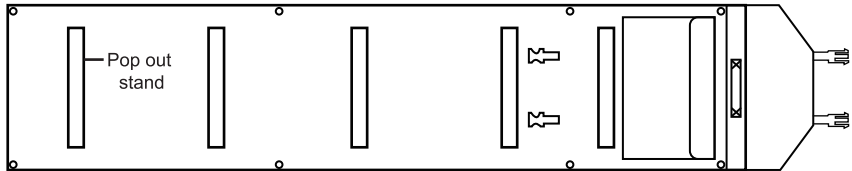
Nature Power does not offer batteries. However, please choose a 12 Volt rechargeable battery. Do not attempt to recharge non-rechargeable batteries. 6 Volt battery configurations may also be used if connected in series (Negative to Positive). You may choose a Sealed Lead Acid battery, a Gel-Cell or a Deep Cycle 12 Volt battery. Batteries come in all different sizes, please converse with your battery dealer for more information on which type of battery you should use for your system. Note your solar panel amperage rating when selecting your battery size.

### Location of solar module

Please locate your solar module in a position where it can absorb direct sunlight on the solar panel, and generally free from cover and shade. The Solar Module can become very hot, please keep out of reach of children. Do not place heavy objects on Solar Module. Do not place the phone, tablet or camera in direct sunlight or in an overheated environment. Place the device in the pocket of the panel or place it in the shade.

### Mounting the solar panel

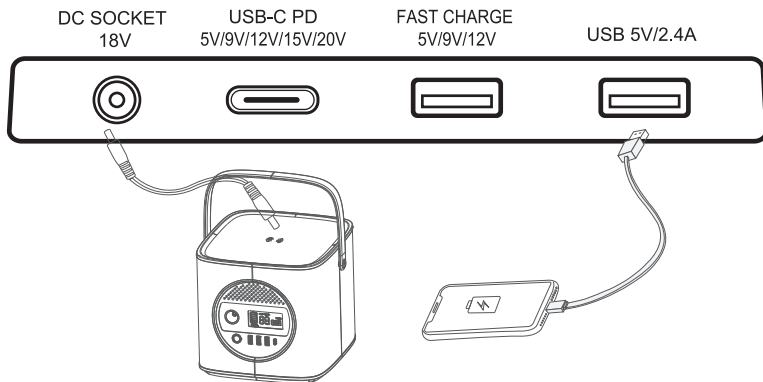
- 1, Pull out the support stand on the back of solar panel and place on a flat surface, Then it can be placed stably and at an angle to obtain the maximum sunlight at different sun heights.
- 2, Use the ropes and holes on solar panel to hang the solar panel where you need.



### Out put power testing

You may use a voltage meter or a digital multi-meter to measure the voltage of your Solar Module before connecting to the battery. Voltage can range between 15-22 volts; Testing will ensure correct charging operation. Testing equipment not included.

## Operating Instructions



**DC output ports of the solar panel can directly charge a variety of portable electronic devices.**

#### 1, DC 18V

For charging various of the devices that require 18V DC charging power, such as laptop and portable back up power stations.

#### 2, USB-C PD 5V/9V/12V/15V/20V

For the USB-C charging cable and devices has quick charge function, The internal circuit will automatically use best voltage that matches the device to charge.

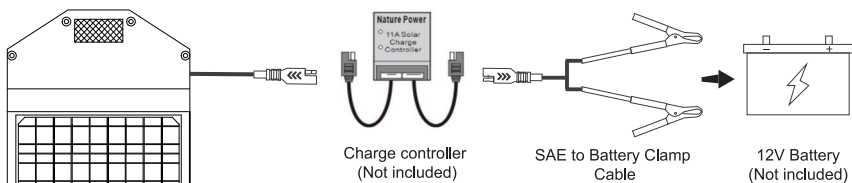
#### 3, FAST CHARGE 5V/9V/12V

For the devices has quick charge function, The internal circuit will automatically use best voltage that matches the devices to charge.

#### 4, USB 5V/2.4A

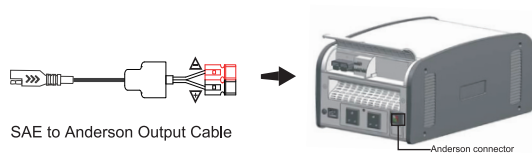
For most of the 5V rechargeable portable devices,

# Operating Instructions



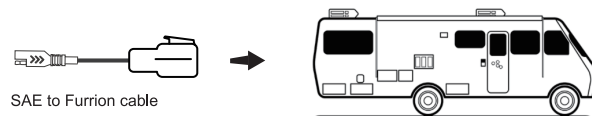
## 1, SAE-Battery Clamp Cable

For 12V battery charging, Charge controller is required and some other connecting cable might be needed depends on the model of charge controller, Please contact Nature Power for more information.



## 2, SAE-Anderson Cable

This cable for charging some of the solar generators and portable power stations that has Anderson connector for charge. please make sure the solar generators and power stations has internal charge controller to prevent batteries over charge.



## 3, SAE-Furrion Cable

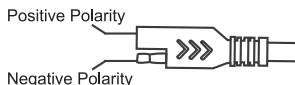
This cable for charging RVs batteries that has furrion charge port. please make sure the RVs has internal battery charge controller to prevent batteries over charge.

## 4, SAE Reverse Polarity Cable

Your solar panel output terminals, either directly from the solar pane, or via the Charge Controller, are always Female Positive Polarity.

In case you need to have a Female Negative Polarity output, you may use the Reverse Polarity Adapter provided:

**CAUTION:** Reversing the polarity may damage the electrical appliances! Please check carefully the correct polarity before using.



SAE Reverse Polarity Cable

## Charge Controller

### Specification

Battery Voltage	12V Only
Cut-in Voltage	13V
Cut-out Voltage	14.2V
Max Input Charge Current	8A



LED light indicates a full battery charge "green" at 14.2 Volts, at this time the charge controller will cut out to prevent overcharging.

LED light indicates battery charging "yellow" when battery reaches below 13 Volts, charge controller will cut in and allow solar panel to be charging.

### Electrical Installation

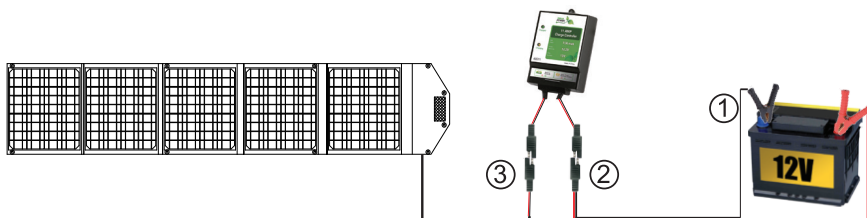
Please confirm that you have all parts to your system before starting installation.

**\* Charge controller is optional and may not be included. below image just showing how to connect the solar panel to charge your battery. Reverse below steps to uninstall.**

**Step1** Connect the battery with SAE-battery clamp cable, Always connecting the positive to positive, negative to negative.

**Step2** Connect the SAE connector to charge controller (battery side of charge controller)

**Step3** Connect the solar panel to charge controller (solar panel side of charge controller)



## FAQ

- **Will this solar panel work with a 24V battery?**  
This solar panel can use with 24V battery while the charge controller are suitable for 24V system. 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.
- **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.
- **How to use a charge controller?**  
Charge controllers are required for installations of solar systems arrays that are rated 12 Watts and higher. Charge Controllers help to protect the battery(s) and solar panel(s) from harmful reverse currents, battery over charging and high wattage surges, addition protections are found on larger charge controllers. Nature Power Products offers charge controllers from 8Amp-32Amp. One Charge Controller can regulate multiple solar panels.
- **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.

## Solar Panels Weekly Power Chart

Please noted 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.

<b>Solar panel Rated Hourly (Maximum output)</b>	<b>90W</b>	<b>120W</b>	<b>165W</b>	<b>180W</b>	<b>200W</b>
<b>Weekly Output</b>	4.4KW·h	5.88KW·h	8.08KW·h	8.82 KW·h	9.8 KW·h
<b>Weekly Power Run Time</b>					
<b>Fluorescent Light 40 watts</b>	110 hr	147 hr	202 hr	220 hr	244 hr
<b>Laptop 20-50 watts</b>	88 hr	117 hr	161 hr	176 hr	196 hr
<b>Fan 80 watts</b>	55 hr	73 hr	101 hr	110 hr	122 hr
<b>PC 80-150 watts</b>	29 hr	39 hr	54 hr	58 hr	64 hr
<b>40" Television/ Projector 200 watts</b>	22 hr	29 hr	40 hr	44 hr	48 hr
<b>Coffee Maker 1000 Watts</b>	4.4 hr	5 hr	8 hr	8 hr	9.8 hr

## 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, 2 year warranted to solar panel generate up to 80% of rated power from date of purchase. In the case of product defect, contact Nature Power customer service to receive trouble shooting. 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

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