



**eco wareness**

## **Solar Briefcase kit**

### User Manual



**60 Watt**

Item #15560

**150 Watt**

Item #15515

**220 Watt**

Item #15522



**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**

## Important Safety Information

Thank you for choosing a Ecowareness 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.

### 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		
	15560	15515	15522
Solar panel	1	1	1
SAE to bare end cable	1	1	1
SAE to battery clamp cable	1	1	1
SAE to Furrion cable	1	1	1
SAE Reverse Polarity Cable	1	1	1
Manual	1	1	1

## Solar Panel Specification

Property	15560	15515	15522
Solar cells	<i>Monocrystalline</i>		
Max Power	<i>60 W</i>	<i>150 W</i>	<i>220 W</i>
Current at Pmax(Imp)	<i>3.1 A</i>	<i>6.2 A</i>	<i>12.5 A</i>
Open Circuit Voltage(Voc)	<i>21.5 V</i>	<i>24.2 V</i>	<i>20.1 V</i>

## Installing Instructions

### Selecting the correct battery

Ecowareness 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

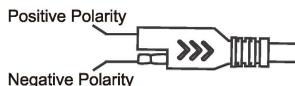
Please locate your solar module in a position where it can absorb direct sunlight on the solar panel, and generally free from cover and shade. The Solar Module can become very hot, please keep out of reach of children. Do not place heavy objects on Solar Module. Do not place the phone, tablet or camera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

### 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 With LCD Display

### Features

1. Build-in industrial micro controller.
2. Big LCD display.all adjustable parameter.
3. Fully 4-stage PWM charge management.
4. Build-in short-circuit protection,open-circuit protection,reverse protection.over-load protection.
5. Dual mosfet Reverse current protection,low heat production.



### Specification

MODEL	CM1024	CM1324	CM2024
Battery Voltage	12V/24V Auto		
Charge Current	11A	13A	20A
Discharge Current	11A	13A	20A
Max Solar Input	<50V		
Equalization*	B01 Sealed	B02 Gel	B03 Flood
	14.4V	14.2V	14.6V
Float Charge Voltage*	13.7V (Defaul, Adjustable)		
LVD*	10.7V (Defaul, Adjustable)		
LVR*	12.6V (Defaul, Adjustable)		
USB Output	5V/3A		
Self-Consume	<10mA		
Operation Temperature	-35~+60 C		
Size / Weight	150*78*35mm / 150g		

\*Value x2 while using in 24V system

### 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.

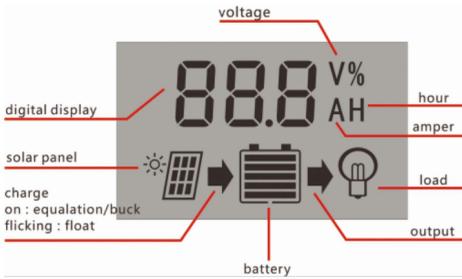
**Step2** Connect the charge controller to battery.

**Step3** Connect the solar panel to charge controller.

**\*Cautions: Disconnect charge controller and battery before remove the battery clamps.**



## LCD Display / Setting

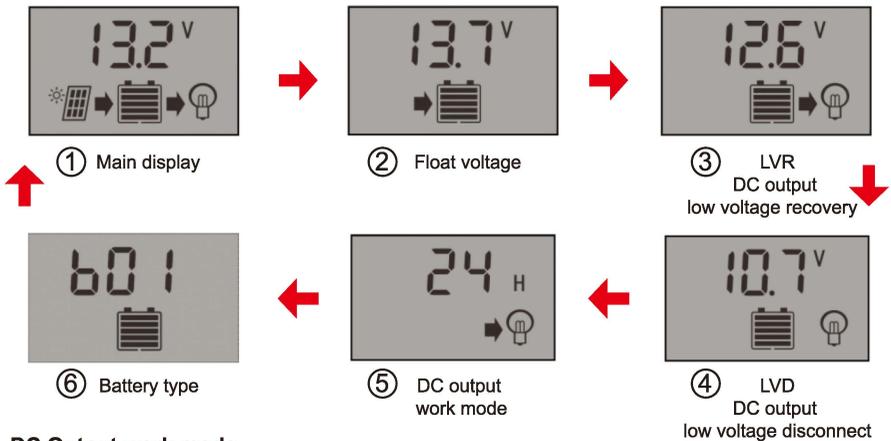


	MENU	Switching display, or to enter/exit setting by long Press.
	UP	Press to increase value
	DOWN/ ON/OFF	Press to increase value

Press MENU to browse different interface.

In interface2-5,long press MENU to enter setting,and using[UP] [DOWN] to set the parameter, long press MENU again to exit.

long press [DOWN] to restore parameter.



### DC Output work mode

1.Press the [Down] button to ON/OFF load manually at main display.

2.Selecting work mode as below:

(24H) load output 24hours

(1-23H) load on after sunset and closed after setting hours

(0H) Dusk to dawn

### Trouble shooting

Situation	Probable cause	Solution
Charge Icon Not On When Sunny	Solar panel opened or reversed connect	Reconnect
Load Icon Off	Mode setting wrong	Adjust setting
	Battery low	Charge battery
Load Icon Flashing	Over load	Reduce load power
	Short circuit protection	Auto reconnect
Power Off	Battery low	Check battery
	Reverse connection	Check and reconnect

## 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 Ecawareness 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.

- **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>60W</b>	<b>120W</b>	<b>150W</b>	<b>180W</b>	<b>220W</b>
<b>Weekly Output</b>	2.94KW·h	5.88KW·h	7.35KW·h	8.82 KW·h	10.78 KW·h
<b>Weekly Power Run Time</b>					
<b>Fluorescent Light 40 watts</b>	73 hr	147 hr	183 hr	220 hr	269 hr
<b>Laptop 20-50 watts</b>	58 hr	117 hr	147 hr	176 hr	215 hr
<b>Fan 80 watts</b>	36 hr	73 hr	91 hr	110 hr	134 hr
<b>PC 80-150 watts</b>	19 hr	39 hr	49 hr	58 hr	71 hr
<b>40" Television/ Projector 200 watts</b>	14 hr	29 hr	36 hr	44 hr	54 hr
<b>Coffee Maker 1000 Watts</b>	3 hr	5 hr	7 hr	8 hr	10 hr

## Limited Warranty

Ecawareness 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 Ecawareness customer service to receive trouble shooting. If defective part or unit should be returned, a Return Authorization Number must be issued by Ecawareness 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.



Made in Indonesia, Solar cells made in Laos