

Welcome to

The Solar Suitcase



INSIDE THIS MANUAL

About The Solar Suitcase
Understanding The Solar Suitcase
The Charge Controller
Batteries, Panels and Lights
Getting Started
Usage and Charging
Helpful Hints

About The Solar Suitcase

The Solar Suitcase is an easy-to-use 12V DC solar electric system that provides highly efficient power, medical quality lighting and charges AAA and AA rechargeable batteries, cell phones, laptop computers and other appliances.



The Solar Suitcase Includes:

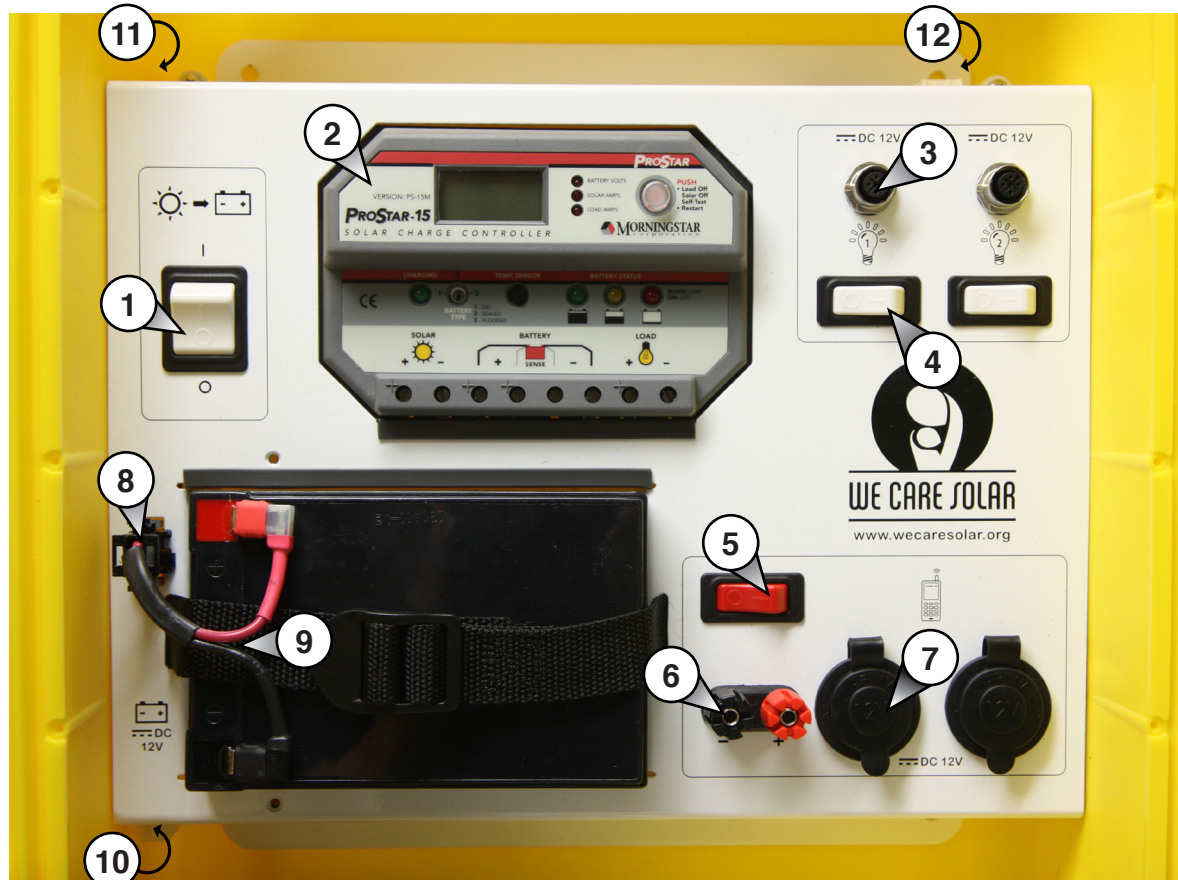
- 2** 20 Watt Solar Panels
- 2** Bright, Rugged LED Lamps
- 1** 12 Volt Sealed Battery
- 1** Homerun Cable for Panels

Optional Accessories:

- 2** LED headlamps
- 12** Rechargeable AAA Batteries
- 1** AA/AAA Battery Charger
- 1** Universal Cell Phone Charger
- 1** USB Adapter
- 1** Fetal Doppler
- 1** Satellite Box

Understanding The Solar Suitcase

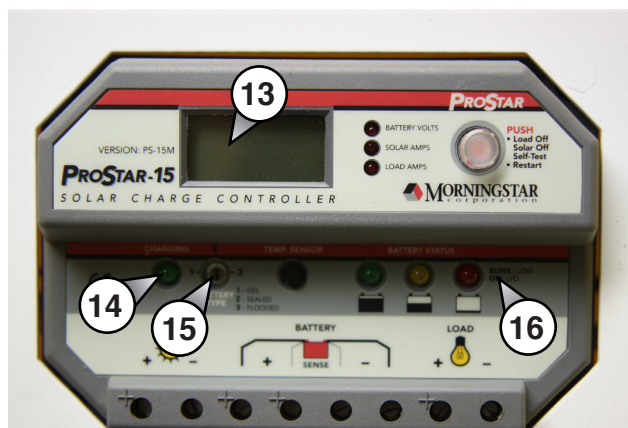
The Solar Suitcase connects external solar panels to a **Charge Controller** which optimizes the charge being stored in a battery. The energy stored in the battery can be used via a set of **Lamp Connectors** or a set of **Appliance Connectors** to power cell phones with an adapter.



- | | |
|----------------------|------------------------------|
| ① Main Power Switch | ⑦ Appliance Connectors |
| ② Charge Controller | ⑧ Battery Connector |
| ③ Lamp Connectors | ⑨ Battery Wire |
| ④ Lamp Switches | ⑩ External Battery Connector |
| ⑤ Appliance Switch | ⑪ Solar Connector |
| ⑥ Dual Binding Posts | ⑫ Satellite Box Connector |

The Charge Controller

The **Charge Controller** optimizes the solar charge into the battery and protects the battery from over-charging or being over-discharged when lamps and appliances are on. To learn more about the **Charge Controller**, voltage and amperage, see the Advanced Manual.



13 Digital Display


The screen cycles sequentially through three information displays. Each display is indicated by a label to the right of the screen. A small red light appears next to the label of the information being displayed on the screen.

“BATTERY VOLTS” - Indicates the voltage of the battery. When the sun is out this can read as high as 14.2 Volts.

“SOLAR AMPS” - Indicates how much amperage is entering battery from the solar panel.

“LOAD AMPS” - Indicates how much amperage is used by every appliance plugged in.

14 Solar Charging Indicator

 **READY** indicates the **Charge Controller** is receiving a charge from a connected solar panel and is powering the battery.


15 Battery Type Selector


The selector must be on **“2-SEALED”** for all sealed lead acid and AGM batteries like the kind that comes with the Solar Suitcase. If you are using a GEL battery then set the selector must be on **“1-GEL”**.


Never set the selector to **“3-FLOODED”** when using a sealed battery as this will damage the battery.

16 Status Lights

The three colored lights allow the user to assess the level of charge in the battery.

 **FULL** blinks when the battery is 100% full. A continuous light indicates the battery is over 50% full.

 **HALF-FULL** indicates the battery is 50% full or less.

 **LOW** blinks when the battery is running low and the **Charge Controller** will soon turn off all loads. A continuous light indicates the charge controller has turned off all loads. This status is called “low voltage disconnect” The **Charge Controller** will reconnect the battery to the loads once the battery has regained sufficient charge.

Battery



The Solar Suitcase includes a 12 volt 15 amp-hour sealed lead acid battery (AGM, or “absorbed glass mat”) that both stores electricity and provides electricity.

The battery has a limited lifetime and can be fully charged and discharged 100’s of times before a replacement is needed. If the battery is discharged less than 50% each day, it will cycle twice as many times.

For optimal longevity, the battery should charge to ● FULL at least once a week.

The battery will need to be replaced when it reaches the end of its useful life. If you notice the battery is full at the beginning of the evening, but runs out of charge quickly (for example, the battery cannot provide enough power for one LED lamp through the night), it is time to replace your battery. Only replace your battery with another 12V sealed lead-acid battery. This could be either AGM or GEL. See the Advanced Manual for more information about replacing batteries.

Panels



The solar panels turn sunlight into electricity. The electricity is used to charge the main battery in the Solar Suitcase. The solar panel for the Solar Suitcase is sized so that the battery can fully charge every day.

The panels should be kept clean for optimal performance. When panels are dirty or dusty, rinse them off with water.

Lights

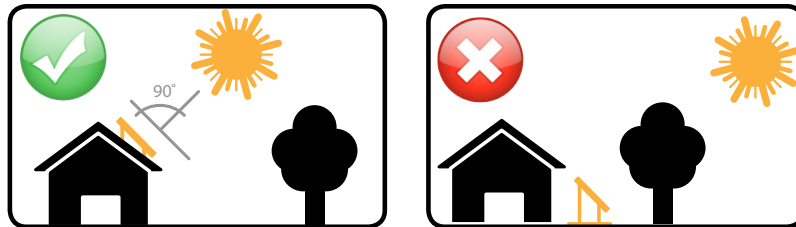
The Solar Suitcase can power the two LED lamps that come pre-connected. The LED lamps must plug into the **Lamp Connector** and be secured with the attached threaded screw. Use the **Lamp Switches** to individually turn on the lights.

Getting Started

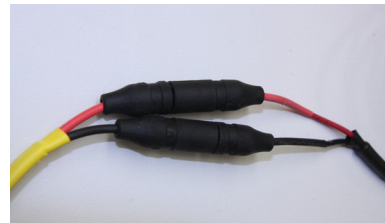
The Solar Suitcase can be used as a portable or stationary energy system. If you plan to keep the Solar Suitcase in one location, we recommend you mount the case to a wall before placing the solar panels on the roof. Make sure the Solar Suitcase is in a clean, dry area and that the **Main Power Switch** is in the OFF position before you follow these steps.

1 Place and Connect the Solar Panels

Place the solar panels in a safe, sunny location that won't be shaded between 9am and 4pm. The panels can be permanently mounted on a rooftop or other high surface with unobstructed sunlight. Don't mount the panels completely flat to allow rain to run off easily.



Connect one end of the **Homerun Cable** to the **Solar Connector**.
Connect the other end of the **Homerun Cable** to the solar panel.



2 Connect the Battery

Attach the end of the Battery Wire to the **Battery Connector**. The Solar Suitcase arrives with a **Battery Wire** already on the battery. If the **Battery Wire** has come loose from the battery terminals then:

Attach the **+ RED** terminal on the battery to the **+ RED** wire

Attach the **- BLACK** terminal on the battery to the **- BLACK** wire.

3 Turn on the System



Once the solar panel and battery connections are secure, you can turn on the system. Use the **Main Power Switch** to turn ON the system. The **Status Lights** will flash in sequence and the **Charge Controller** will turn on. After 3 seconds, the **Digital Display** will turn on and the **Solar Charging Indicator** will glow **READY**. You can now start using the Solar Suitcase.

Usage and Charging

During daytime hours when it is sunny, the Solar Suitcase can charge cell phones and other appliances using the **Appliance Connectors**. Flip the **Appliance Switch** ON to charge appliances. The **Appliance Connectors** are similar to 12V DC car cigarette lighter sockets. Appliances that work with these kinds of sockets will also work with the Solar Suitcase.


Charging Cell Phones



The Solar Suitcase can charge most cell phones by placing the USB adapter into the **Appliance Connector** and attaching the universal phone charger. You can also charge phones that have a 12V DC car charger. Simply plug the phone car charger into the **Appliance Connector**. Make sure the appliance plug is inserted fully

into the appliance socket. Some plugs have indicator lights to show when the plug is fully inserted. Sometimes plugs need a ¼ turn to be inserted and removed.

Charging Computers

The Solar Suitcase can charge a small laptop computer that has a 12V DC car charger. Only charge computers during the day when the **Status Light** is  **FULL**.

Charging AA/AAA Batteries

You may charge rechargeable AA and AAA batteries for the appliances included in your suitcase. Plug the AA/AAA battery charger into one of the **Appliance Connectors** and then place the rechargeable batteries into the charger. The charger has a display that will indicate when the batteries are being charged and when charging has completed.



Only use rechargeable batteries with the battery charger provided. Do not place disposable batteries in the battery charger.

The Dual Binding Posts

In special circumstances you may wish to use the **Dual Binding Posts** to directly power a 12V DC appliance. When attaching wires, the **+ RED** is positive and the **- BLACK** is negative. Consult an electrician before doing this.



THIS SOLAR SUITCASE IS 12 VOLT DC ONLY.

The LED lamps can only be used with the Solar Suitcase.

Helpful Hints

1 Only Use Lamps When You Need Them

When you are not using the LED lamps, turn off the **Lamp Switches**. Don't use the LED lamps during the daytime if you already have enough light in the room. This will lengthen the life of the lamps and increase the life of the battery.

2 Keep the Suitcase On

This **Main Power Switch** should remain ON at all times. Only turn the **Main Power Switch** OFF when you are replacing solar panels or batteries. However, during a lightning storm the **Main Power Switch** should be turned OFF unless it is absolutely critical.


3 Clean Your Panels

Keep the solar panels clean for best results. Dirt and dust will reduce the amount of electricity they will produce.

4 Watch Your Battery's Charge

With proper care the battery should last for two years. If the battery does not seem to be holding charge it should be replaced with another 12V AGM or GEL battery.

5 Make Sure the Power is On.

If the LED lamps do not seem to function and the **Solar Charging Indicator** is not  **READY**, make sure the **Main Power Switch** is turned ON.

Please contact us if you have any questions.

www.wecaresolar.org
+1-800-592-8916

We Care Solar
info@wecaresolar.org

