



## SPSS150

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# Product Description

The SPSS150 combines highly efficient Solar panels, a solar charger, a power inverter and a Lithium Polymer battery in to a robust, waterproof case creating an easy-to-use, 'plug and play' back-up system.

This system is specifically designed for mobile off-grid applications, where space and weight limitations are abundant. The SPSS150 portable solar system is the perfect system for emergencies providing up to 175 Watt-hours of energy. The built-in solar charge controller allows the expansion of an additional 18v solar panel (Max. 70w).

# Components

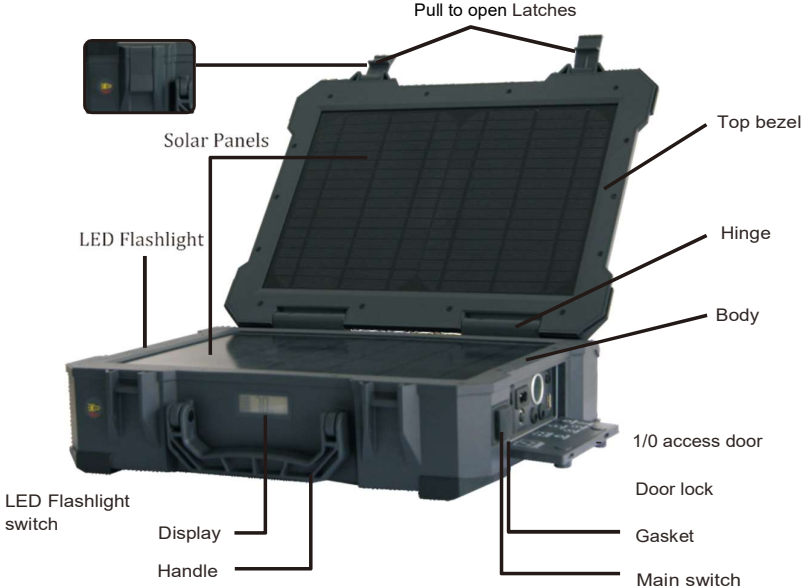
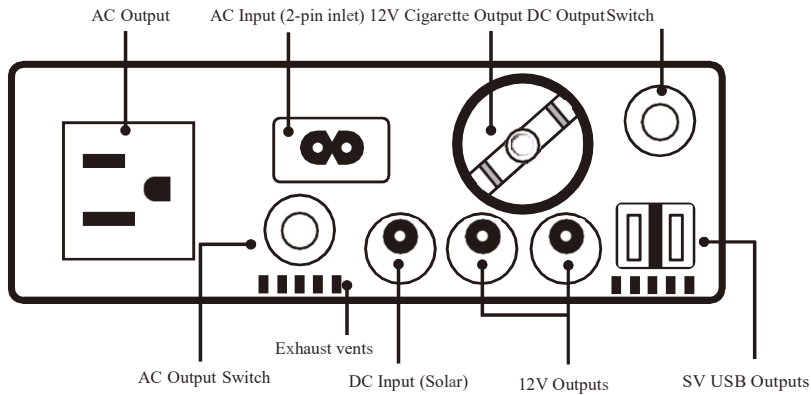


Figure 1. Properties of the 150W portable solar system

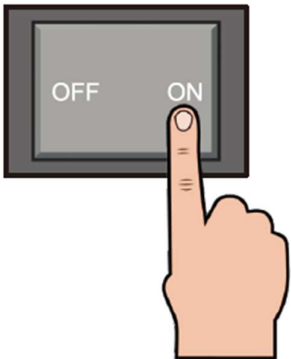
## Using the accessories

Open the access door by setting the door locks to the "OPEN" position. It is recommended that the unit be placed horizontally as shown in **Figure 1**.



**Figure 2.** Accessories

Flip the Main switch to the ON position. This will turn on the digital display.



## Specifications

### Solar Panels

Description	Parameter
Maximum Power	10W(x2)
Cell Type	Monocrystalline
Operating Temperature	-40°F to +18.5°F

**Table 2** Solar panels specifications

### Built-in Electrical Components

Component	Parameter
Power inverter	150w, AC 110V, 60 Hz
Battery	Lithium Polymer 11.1V, 16 Ah
Charge Controller	12V, 8 A (rated current)
LED Flashlight	3W, lighting mode, SOS mode

**Table 3** Built-in electrical components

### Accessories

Accessory	Parameter
110VAC output	150W Max.
110VAC input	110VAC
12VDC power plug outputs	5A Max.
12VDC cigarette socket	8A Max.
Solar input	23VDC Max. 70w Max.
SVDC USB output	2A Max.

**Table 4** Accessories parameters

### Physical Properties

Value	Parameter
Weight	12.1 lbs

**Table 5** Physical properties

## Do's and Don'ts

### Do's:

- Clean the built-in solar panels when dirty with window cleaner or with a wet cloth.
- Store the unit in a dry place free from moisture, heat, and water.
- Ensure the solar panels are exposed to sufficient light – ideally, position them to face the sun directly.

### Don'ts:

- Store or place the unit near fire or places that can achieve higher temperatures. Doing so may cause damage to the unit internals, and or battery explosion.
- Submerge the unit under water. Although the unit is not waterproof, it is water resistant as long as the accessory door is closed.
- Leave the unit outside when raining.
- Overload the AC or DC outputs. Follow the power and current ratings mentioned earlier in this manual.

## Warnings

- Keep the unit away from small children. Allow only adults to use the unit.
- Do not dismantle or modify the system. Doing so can result in damaging the unit and/or injuring yourself. Any modifications that alter the device will void the warranty.
- In case of a hazard or emergency, turn OFF the unit immediately.

### AC output

Once the Main switch is ON, press the AC output switch to turn the internal inverter on.

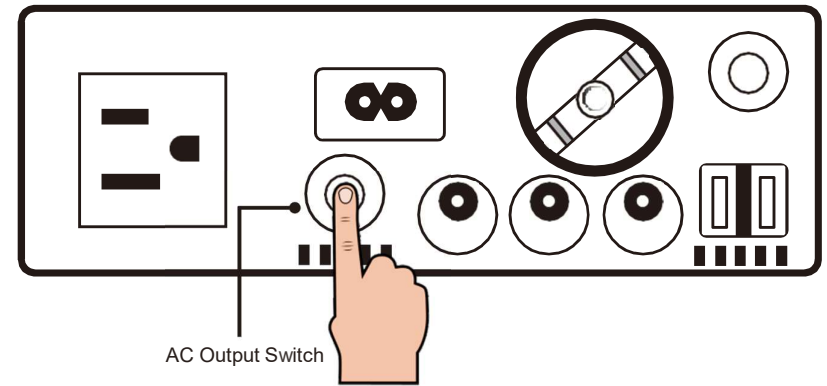


Figure 3. Turning ON the AC output

When the AC output is turned ON, the LCD display will light blue, and "AC OUT" along with the light bulb icon will be shown.



Figure 4. Digital Display when AC output is ON

The AC output can now be used. The maximum load it can handle is **150 Watts**. Please do not overload the output. Doing so may damage the unit. Please turn **OFF the AC output** when not in use. Inverters have small idle power consumption, leaving the switch ON will drain the battery over time.

### DC output

With Main switch is ON, press the DC output switch to turn the internal inverter on.

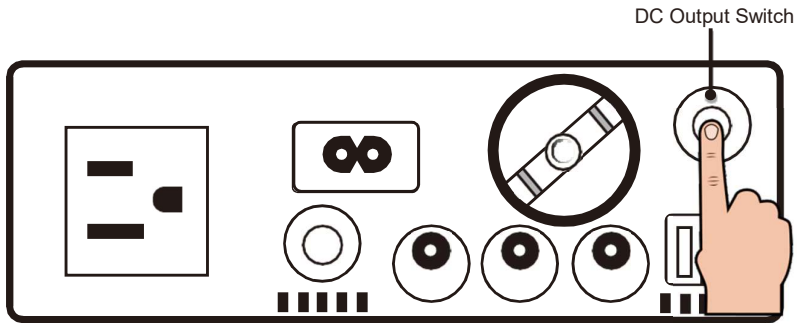


Figure 5. Turning ON the DC output

When the DC output is turned ON, the LCD display will light blue, and "DC out" along with the light bulb icon will be shown.



Figure 6. Digital Display when DC output is ON

The DC output can now be used. Please limit the current load for each DC output. Please do not overload the output, doing so may damage the unit. Please turn **OFF the DC output** when not in use. Figure 7 shows the maximum current per DC output.

### Unit not charging with the built-in solar panels:

If the unit is not detecting the solar panels, make sure that the unit is not shaded or that the unit is not being blocked from sunlight. If the unit is exposed to full sunlight and still does not charge via solar please call SolarPath Support to find a possible resolution

### Unit not charging with external solar panel:

Please make sure that the DC power plug is in the right socket, and that is making a proper connection. Make sure that the solar panel is not shaded or that is not being blocked from sunlight. If none of the above fixes the problem, please call SolarPath Support to find a possible resolution.

### Unit not charging via AC power cord

Please make sure that the AC power plug is making proper connection. Make sure that both end plugs are all the way in. If none of above fixes the problem, please call SolarPath Support to find a possible resolution.

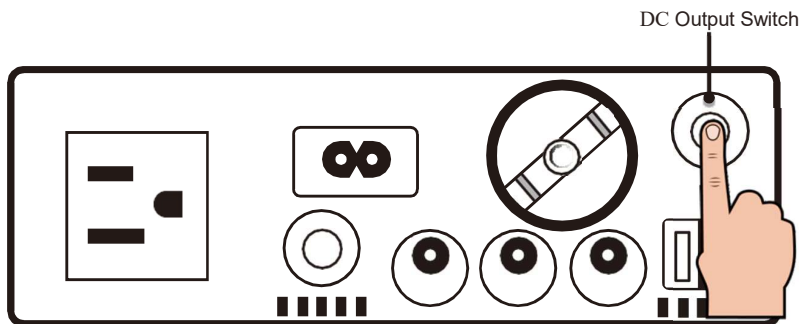
**DC output load exceeded the maximum current rating:**

If the DC outputs exceed the maximum current rating shown in Table 4, the DC output will shut off to avoid damaging the unit. When this happens, the digital display will show a flashing "ERROR" message with a sad face light bulb icon as shown in Figure 14. The "DC OUT" text will flash as well.



Figure 14. AC output error message

To clear the message, disconnect all of the load(s) and press the AC output switch to turn the inverter on to restore power.



Once the DC output button is pressed, the message should be gone and the system should be back to normal.

**AC output load exceeded the maximum rating while DC output is on (or vice versa):**

If one of the outputs overloads while the other is in operation, the digital display will only flash the "ERROR" message and flash the output that has encountered the issue. Please correct the issue as described above.

**Unit will not power on:**

If the unit will not power on, try flipping the Main switch ON and OFF a couple times to check if there is a connection issue. If the unit still will not power on please SolarPath Support to find a possible resolution

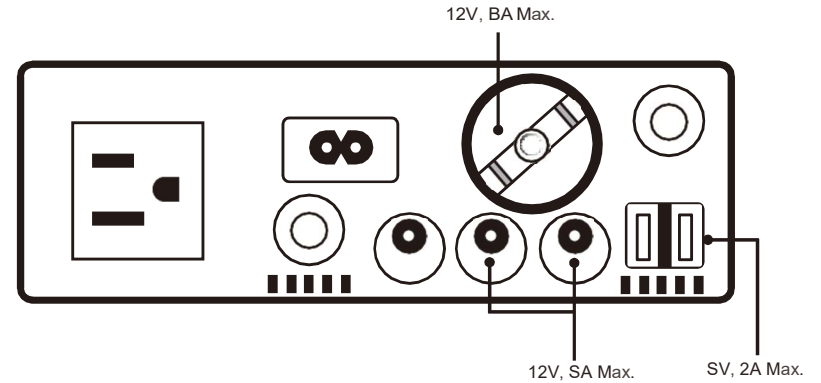


Figure 7. Maximum current ratings for DC outputs

**AC and DC outputs**

The AC and DC outputs can be ON at the same time. When the Main switch is ON, press the AC output switch and then the DC output switch (or vice versa) to turn both outputs on.

When both outputs are turned ON, the LCD display will light up blue, and "DC OUT" and "AC OUT" along with the light bulb icon will be shown.

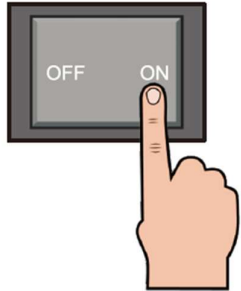


Figure 8. Digital Display when both outputs are ON

Please turn OFF the AC and DC outputs when not in use.

## Flashlight

The 150W portable solar system has a built-in flashlight. To use the flashlight, flip the Main switch to the ON position, this will turn on the digital display.



Then press the flashlight switch located next to the left latch.



The first press on the switch is going to activate **Lighting Mode**. A second press will activate **SOS Mode** (for emergency situations). Finally, a third press will turn **OFF** the flashlight.

## Troubleshooting

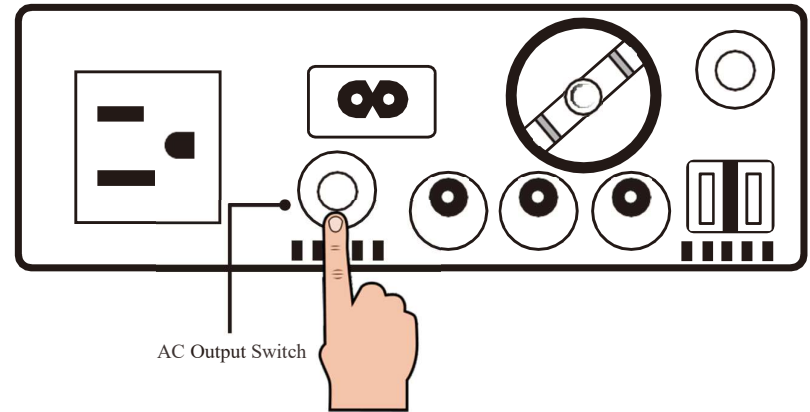
### AC output load exceeded the maximum rating of the inverter:

If the AC output load exceeded the maximum power rating of **150 Watts**, the internal inverter will shut off to avoid damaging the unit. When this happens, the digital display will show a flashing "**ERROR**" message with a sad face light bulb icon as shown in Figure 13. The "**AC OUT**" text will flash as well.

ERROR

Figure 13. AC output error message

To clear the message, disconnect all of the load(s) and press the AC output switch to turn the inverter on to restore power.



Once the AC output button is pressed, the message should be gone and the system should be back to normal.



Figure 11. Charging via AC power cable

It will take about **3 hours** to fully recharge the internal battery. Do not cover or block the exhaust vents when charging with the AC cable. The unit can be **left plugged in** once the battery is fully charged. This will maintain the battery when the unit is not in operation.

#### State of Charge

When charging with the solar panel(s) or with AC power, the display will turn on, and after a few seconds the backlight will turn off.



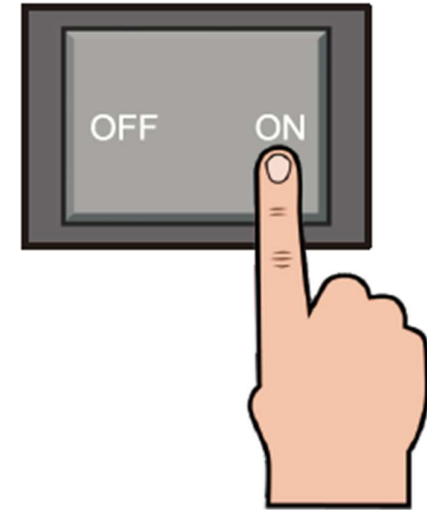
Figure 12. Digital display charging motion

The display will show a **"charging motion"** when charging via solar panel(s) or AC power. The state of charge is shown by percentage, and by the battery icon. Each bar in the battery icon represents about 20% of charge. Once the battery is fully charged, the **"charging motion"** will stop, and the state of charge will remain at 100%.

## Charging

### Charging via Solar

If not planning on using the unit while charging with solar, make sure that the Main switch is in the OFF position



Find a dry and sunny location that is free from overhanging tree branches, obstructions or shading. Unclip the two latches on the side of the unit and open the top cover completely as shown in Figure 9.



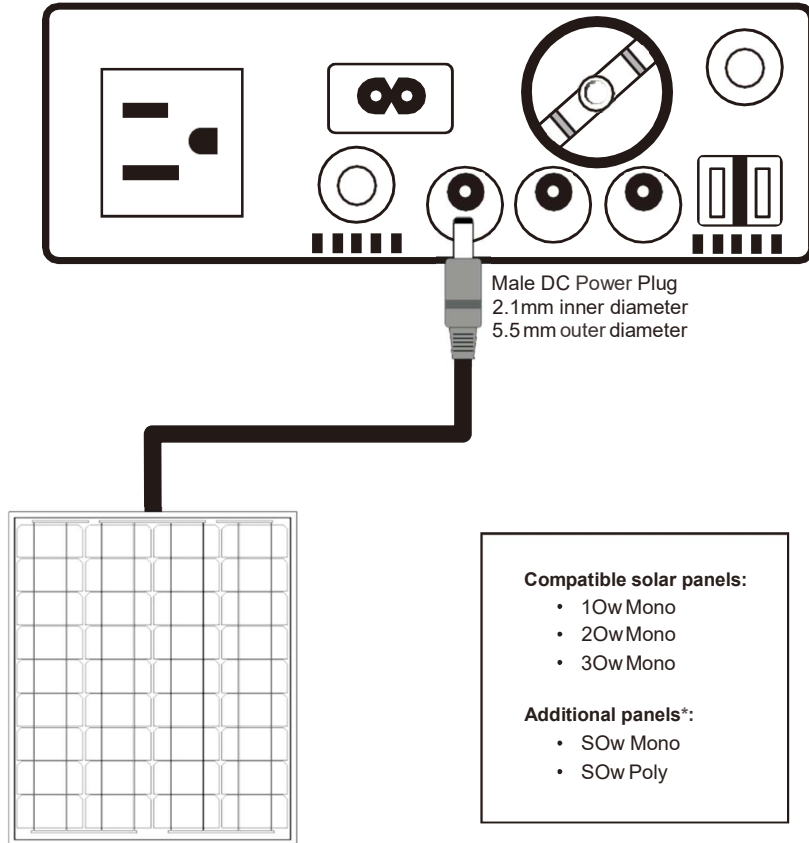
Figure 9. Charging via solar panels

When charging with the built-in 2x10w solar modules, it will take about **18 hours** to fully recharge the internal battery.



### Charging with additional solar panels

To speed up the charging time, an 18V solar panel can be used at the DC input terminal with a maximum of input of **70 Watts**.



12V SolarPanel

Figure 10. Adding external solar panel

### Additional Solar panel Charge Time

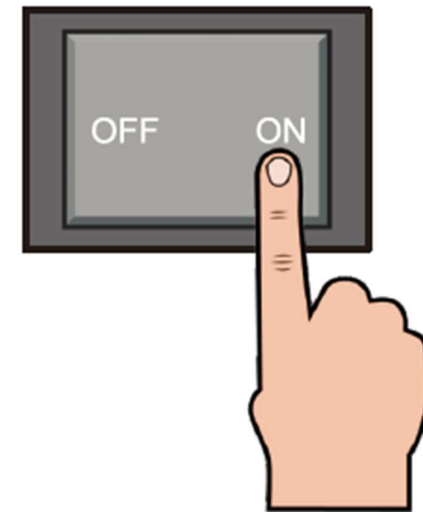
10w	10 hours
20w	7.5 hours
30w	6 hours
50w	4.5 hours

Table 1 Charging times with additional solar panel

If planning on using the unit while charging with solar, make sure that the Main switch is in the ON position. Then turn ON the desired output. **AC and DC outputs** can also be used while the unit is being charged by solar however, limit the current output to the values mentioned earlier.

### Charging via AC

When charging via AC 2-pin inlet, make sure that the Main Switch is in the **OFF** position. It is recommended that when charging via AC input do not use the AC and DC output terminals.



Connect the 2-pin inlet AC cable that is included with the unit. The unit can be charged in vertical or horizontal position. Figure 11 shows the unit being charged **horizontally** with the AC cable.