



SPSS450



Product Description

The **SPSS450** 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 SPSS450 portable solar system is the perfect system for emergencies providing up to 532 Watt-hours of energy. The built-in solar charge controller allows the expansion of an additional 18 V solar panel (Max. 70 W).

Components



Figure 1. Properties of the 350w portable solar system

Using the accessories

Open the 1/0 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**.

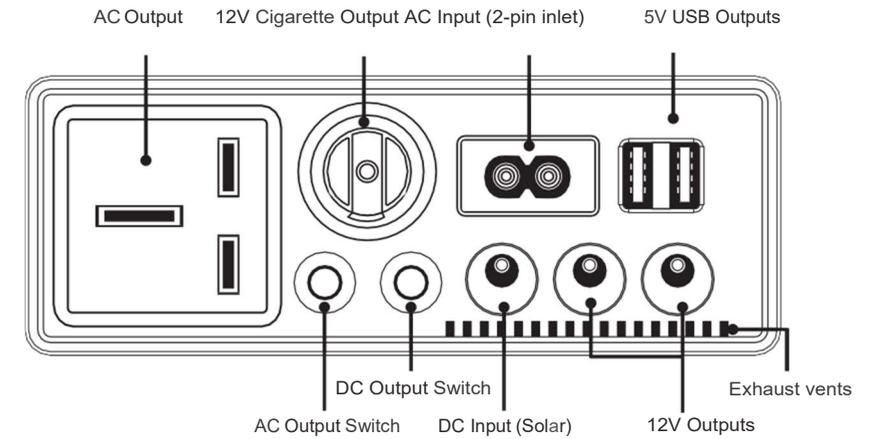
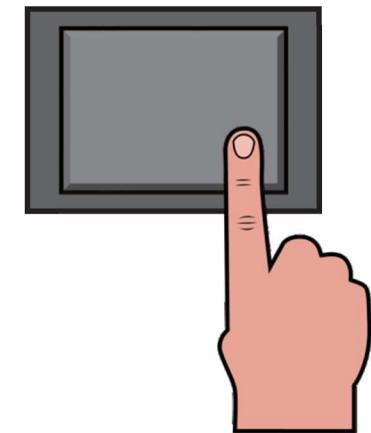


Figure 2. Accessories

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



AC output

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

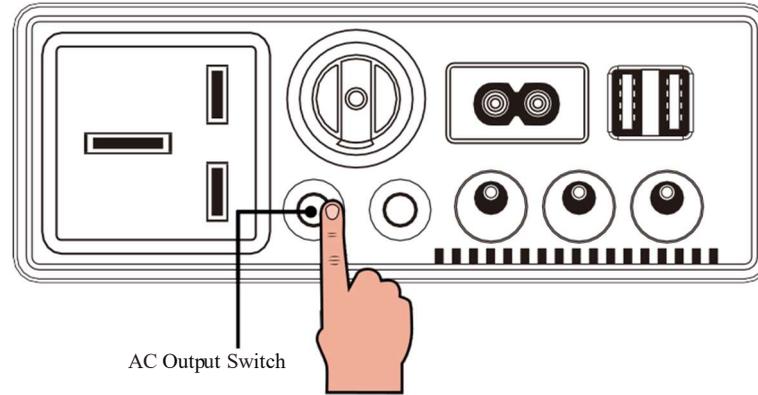


Figure 3. Turning ON the AC output

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 **350 Watts**. Please do not overload the output as 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.

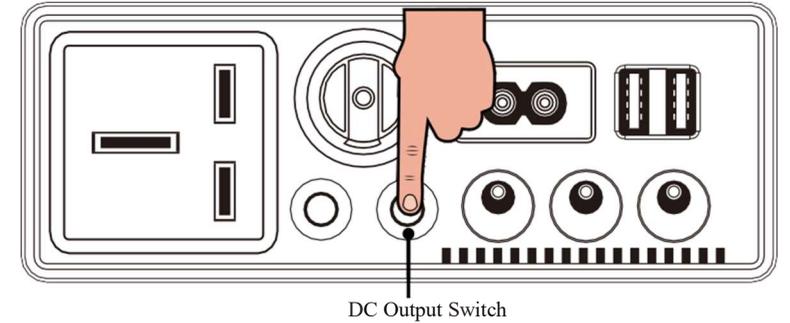


Figure 5. Turning ON the DC output

When the DC output is turned ON, the LCD display will light up 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 as 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.

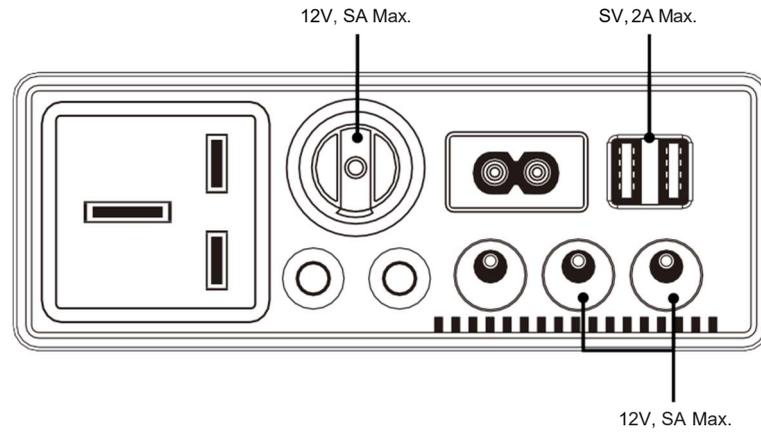


Figure 7. Maximum current ratings for DC outputs

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 blue, and "DC OUT" and "AC OUT" along with the light bulb icon will be shown.

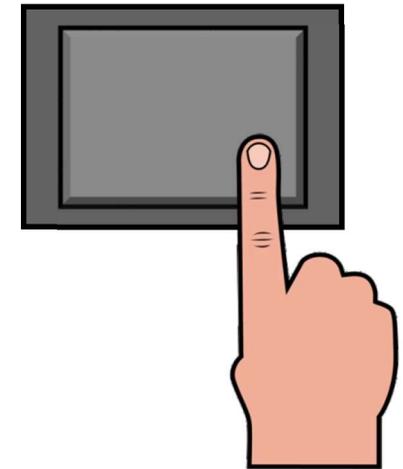


Figure 8. Digital Display when both outputs are ON

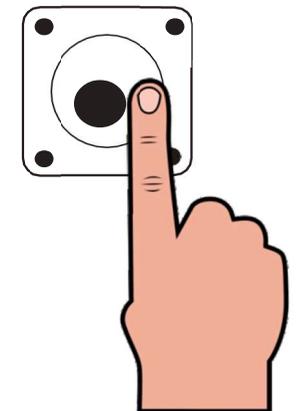
Please turn **OFF the AC and DC outputs** when not in use.

Flashlight

The 350 W 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.

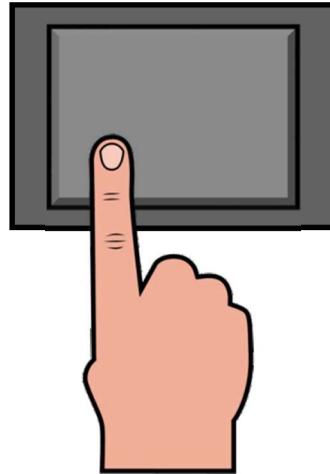


The first press of the switch activates **Lighting Mode**. A second press activates **SOS Mode** (for emergency situations). Finally, a third press turns **OFF** the flashlight.

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 sunny, dry 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 SOW solar modules, it will take about **17 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**.

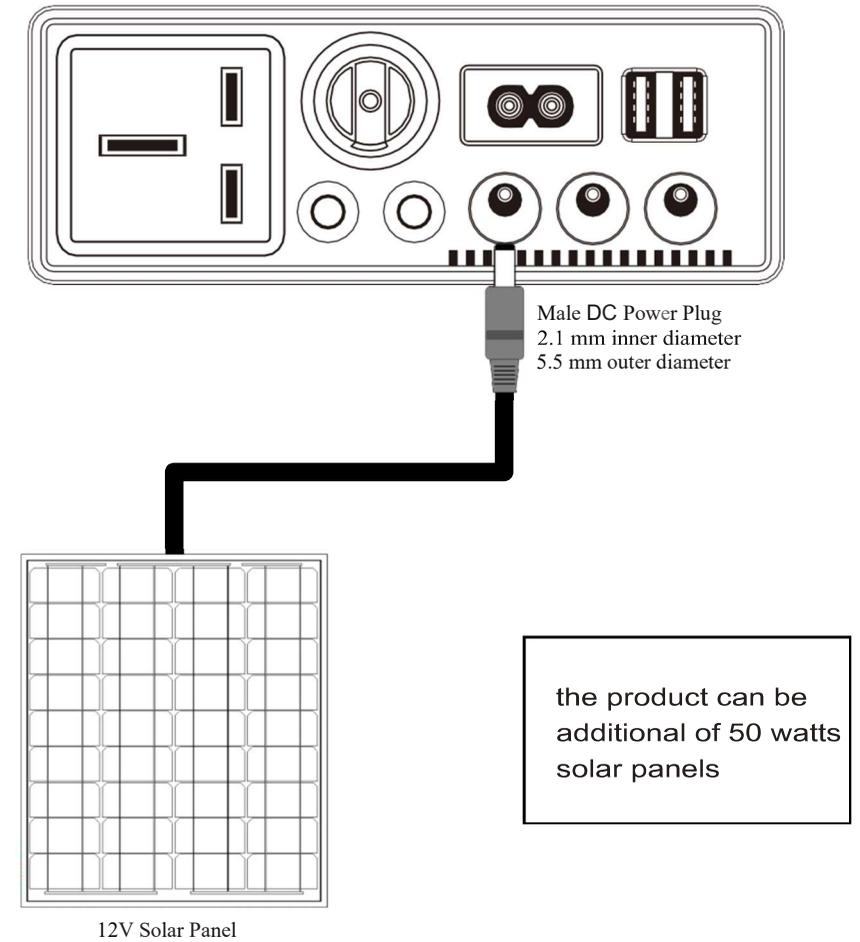
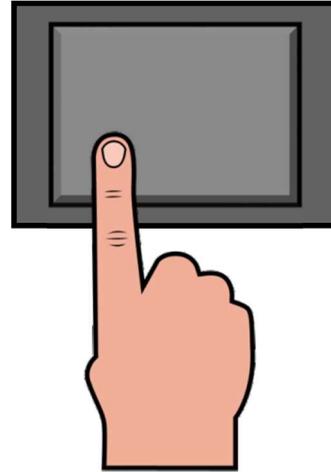


Figure 10. Adding external solar panel

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.



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.



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%.

Troubleshooting

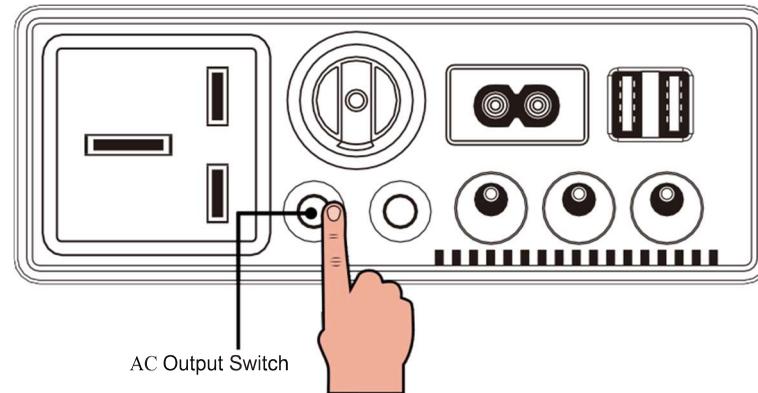
AC output load exceeded the maximum rating of the inverter:

If the AC output load exceed the maximum power rating of **350 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.



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.

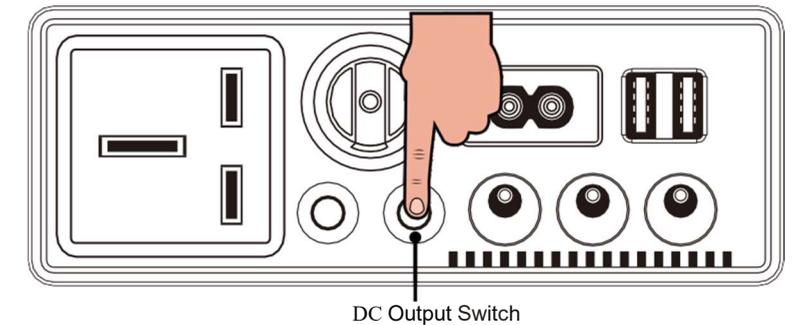
DC output load exceeded the maximum current rating:

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 to flip 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 call Dosun Electronics Co., Ltd Support to find a possible resolution.

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 will not charge via solar please call Dosun Electronics Co., Ltd Technical 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 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 Dosun Electronics Co., Ltd Technical 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 Dosun Electronics Co., Ltd Technical Support to find a possible resolution.

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 damage to the unit and or onto yourself. Any modifications that will alter the device will void the warranty.
- In case of a hazard or emergency, turn OFF the unit immediately.

Specifications

Solar Panels

Description	Parameter
Maximum Power	10W(x5)
Battery	Lithium Polymer 12V 48Ah
LED Flashlight	3W, lighting mode, SOS mode
Weight	23.5 lbs.

Accessories

Accessory	Parameter
AC 10ov ~24ov output	350W Max
DC 12~23v input	100W Max
AC 220V input	100W Max
12V DC power plug outputs	96W Max
12V DC cigarette socket	96W Max
5V DC USB output	10W Max