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## Foldable Solar Panel Operating Instructions

Foldable Solar Panels are lightweight, durable, and extremely portable. The solar modules are mounted to weather-resistant fabric that quickly folds for storage and unfolds for use.

To see our full line of solar products, accessories, and FAQs visit us at: [www.powerfilmsolar.com](http://www.powerfilmsolar.com)

### Important Notes

Foldable Solar Panels are designed for regular outdoor use, but not for permanent outdoor installations. The panels are not weatherproof and should not be left wet, if at all possible. If rained on, wipe panels dry and allow the fabric to air dry before folding.

If the panel is wet, allow it to thoroughly dry before folding and storing it to avoid damage. Always store the Foldable Solar Panel in a cool, dry environment (temperature range -30 to 60° C).

All connections must be solar positive (red) to battery positive and solar negative (black or blue) to battery negative. Reversing can damage the solar panel. Consult your battery manufacturer if you have questions about the specifications of your battery.

A charge controller is not required if the battery capacity is 100x greater (or more) than the panel output. For example, a 100Ah battery would not need a charge controller as long as the panel output is 1A or less. If a charge controller is required, please size it appropriately to the panel output.

### How To Charge

1. Unfold the panel with the solar side facing up and pointed towards the sun.
2. Use the grommets on each of the corners and a tie cord to hold the panel in place and reduce loss or damage from high winds.
3. Connect the appropriate accessory and cable for the type of device you will be charging.

### Charging Electronics

1. Connect the 12V Female Car Charger Adapter (RA-2) (included with 5-120W panels) to the panel.  
*\*RA-2 is not included with 220 Watt Solar Panels / 220W 15.4V and 30V come with a 15 ft. bare wire lead to make electrical connection.*
2. Use your own USB car charger adapter to connect your device to the RA-2 or use a 2.4A Dual USB 12V Adapter (RA-14B) (not included) to charge USB electronics. *\*These charging methods are for 15.4V panels only*

### Charging 12V Batteries

1. Connect panel output to the input of appropriate charge controller, if required (4.5A, 6A, and 10A charge controllers available) (not included) (see Important Notes section for more information).
2. Connect the desired cable to the output of the charge controller or panel. Use the 15 ft. Extension Cord with O-ring Connectors (RA-11) or 15 ft. Extension Cord with Alligator Clips (RA-8) (not included) when connecting directly to the battery. Use the 12V Male Car Charger Adapter (RA-1) (not included) when connecting through a vehicle's cigarette lighter or accessory outlet.
3. If using an RA-8 or RA-11, connect the red connector to the + battery connection and the blue or black connector to the - battery connection. If using the RA-1, plug into your vehicle's cigarette lighter or accessory outlet. Note: in some vehicles, these outlets are not connected to the battery when the ignition is off, so the solar panel will not charge the battery. Consult your vehicle's owner's manual for more information.

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### How To Clean Your Solar Panel

Use a damp cloth and a mild soap solution wiping each of the panel's modules. Wait a few minutes for the panel to dry before folding and storing it.

### Specifications

	5W	20W	30W	60W	100W	120W	120W(30V)	220W	220W(30V)
<b>Operating Voltage</b>	15.4V	15.4V	15.4V	15.4V	15.4V	15.4V	30.8V	15.4V	30.8V
<b>Operating Current</b>	0.3A	1.2A	1.8A	3.6A	6.0A	7.2A	3.6A	14.4A	7.2A
<b>Weight</b>	0.5 lb / 0.2 kg	1.0 lb / 0.5 kg	1.4 lb / 0.6 kg	2.6 lb / 1.2 kg	4.6 lb / 2.1 kg	6.3 lb / 2.9 kg	6.3 lb / 2.9 kg	14.0 lb / 6.4 kg	14.0 lb / 6.4 kg
<b>Folded Dimensions (in/mm)</b>	10.3 x 3.3 x 0.6 261.6 x 83.8 x 15.2	12.7 x 7.5 x 1.5 322.6 x 190.5 x 38.1	13.0 x 7.5 x 1.7 330.2 x 190.5 x 43.2	13.0 x 7.5 x 2.7 330.2 x 190.5 x 68.6	14.0 x 13.5 x 2.7 355.6 x 342.9 x 68.6	14.5 x 14.0 x 3.0 368.3 x 355.6 x 76.2	14.5 x 14.0 x 3.0 368.3 x 355.6 x 76.2	31.5 x 17.7 x 2.5 800.1 x 449.6 x 63.5	31.5 x 17.7 x 2.5 800.1 x 449.6 x 63.5
<b>Deployed Dimensions (in/mm)</b>	24.0 x 10.3 609.6 x 261.6	33.7 x 25.3 856.0 x 642.6	47.0 x 25.5 1,193.8 x 647.7	47.0 x 51.5 1,193.8 x 1,308.1	74.0 x 54.3 1,879.6 x 1,379.2	86.5 x 55.0 2,197.1 x 1,397.0	86.5 x 55.0 2,197.1 x 1,397.0	172.0 x 57.7 4,368.8 x 1,465.6	172.0 x 57.7 4,368.8 x 1,465.6

\* Tests performed at Standard Test Conditions (STC) (Spectrum: AM1.5, Intensity: 1000W/m<sup>2</sup>, Temperature: 25C). Power performance may vary due to temperature, spectral, and intensity variation.

### Certifications

- CE (Directives 2014/30/EU and 2014/35/EU)
- MIL-STD-810G
- RoHS
- REACH
- Berry Amendment Compliance

Full compliance statements available at:  
[www.powerfilmsolar.com](http://www.powerfilmsolar.com)