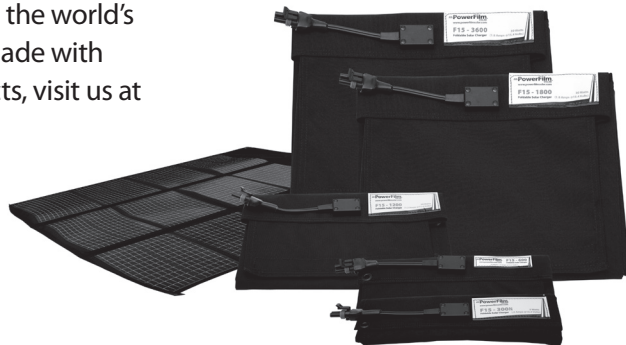


! Please read the following information and instructions **PRIOR TO** using your PowerFilm® Foldable Solar Charger.

Foldable SOLAR Charger Operating Instructions

PowerFilm® Foldable SOLAR Chargers are made with PowerFilm®, the world's most lightweight and durable solar technology. This product is made with rugged, UV-stabilized materials. To see our full line of solar products, visit us at www.powerfilmsolar.com.



! **IMPORTANT NOTES**

DO NOT CREASE SOLAR PANELS.

IT IS BEST TO DISCONNECT THE SOLAR CHARGER IN LOW LIGHT CONDITIONS. This keeps the electronic device from turning on automatically and draining the battery.

CHECK POLARITY! All connections must be positive (+, red) to positive and negative (-, black) to negative. Test to confirm, if necessary. Reversing the polarity can be a risk for electric shock, a fire hazard, and cause damage to the solar panel.

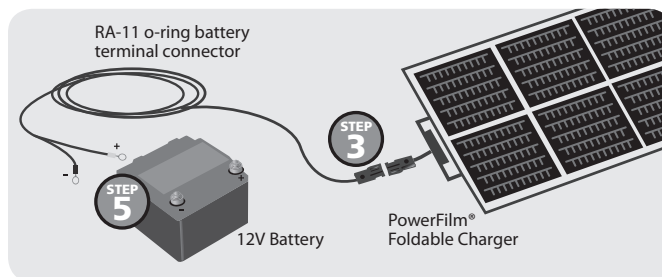
Consult your battery manufacturer if you have questions about the specifications of your battery.

USE 3 EASY WAYS

- ▶ **CHARGE WIRELESS ELECTRONICS**
(Laptops, GPS, Cellphones, PDAs, etc.) Use the **RA-2** 12 volt Female Cigarette Lighter Adapter (CLA) with your wireless electronics product.
- ▶ **CHARGE 12 Volt SYSTEMS**
(Battery Maintenance, Marine, Field Communication Radios, Heavy Equipment Vehicles, Lighting, Security Systems) To direct power or charge 12 volt batteries, use an **RA-11** extension cord with o-ring battery terminal connectors, or an **RA-8** extension cord with alligator clips, or an **RA-1** 12 volt Male CLA to charge via 12 volt outlet.
- ▶ **CHARGE LITHIUM, NiCad, OR NiMH BATTERIES**
Use with a 12 volt Battery Charger Pack (**RA-3b**, **RA-4**, or **RA-5** depending on specific power needs). The **RA-2** 12 volt CLA is required and included with purchase of panel.

HOW TO USE AS A 12 VOLT BATTERY CHARGER

1. Unfold so solar panel (cloth side down) is face up with orientation to sun.
2. With the grommets on each of the corners, use a tie cord to hold the panel in place. This is important to reduce loss or damage from high winds.
3. Ensure the solar panel cord out of the black junction box is well connected to the extension cord with o-ring terminal connectors (**RA-11**)
4. Identify the correct polarity! (red +, black -)
5. Attach the **RA-11** terminal connectors at the end of the extension cord to your 12 volt battery or the 12 volt device you are directly powering.
6. You may leave the panel permanently connected to your battery since the built-in blocking diode in the junction box blocks the draining of your battery. As with any permanent connection to a battery, safely clean the connection as needed.
7. To store the product, simply disconnect the cords. Ensure the product is clean and dry (use a damp cloth and a mild soap solution), and then fold. Use the attached Velcro® strip to hold in place when folded.



FOLDABLE SOLAR CHARGERS AVAILABLE FROM POWERFILM®

Specifications*	PowerFilm® F15 - 300N	PowerFilm® F15 - 600	PowerFilm® F15 - 1200	PowerFilm® F15 - 1800	PowerFilm® F15 - 3600
Operating Voltage (V)	15.4	15.4	15.4	15.4	15.4
Operating Current (amps)	.3	.6	1.2	1.8	3.6
Weight (lbs./kg)	0.45 / 0.20	0.73 / 0.33	1.27 / 0.58	1.76 / 0.80	3.19 / 1.45
Unfolded Dimensions (inch/mm)	21 x 14 533 x 356	23.7 x 21 602 x 533	30 x 31.7 762 x 805	41.3 x 31.7 1049 x 805	59 x 43 1499 x 1092
Folded Dimensions (inch/mm)	10.5 x 3.5 x 1 267 x 89 x 26	10.5 x 3.5 x 1.3 267 x 89 x 33	11 x 6.5 x 1 279 x 165 x 26	11 x 9.5 x 1 279 x 241 x 26	11 x 9.5 x 2 279 x 241 x 51

*Operating Voltage and Operating Current at AM1.5. Power performance may vary +/- 10% due to temperature variation, spectral variation and related effects.

FAQs

If I have a problem with this product, who do I contact?

First, contact the company that sold you the product. Additional PowerFilm® information is available at www.powerfilmsolar.com.

How do I know if it is working?

You can check the PowerFilm® Foldable Solar Charger with a voltmeter.

Will this product drain my battery at night?

No. When correctly installed the built-in blocking diode will protect against draining the battery.

Can I leave it outside permanently?

This product is not recommended for permanent outdoor use. For permanent outdoor use, we recommend a PowerFilm® Rollable Solar Charger. In the event this product is used in a permanent outdoor application, it must be properly secured to avoid damage from high winds, and terminals should be kept clean and firmly connected.

What if the product gets wet?

The PowerFilm® Foldable Solar Charger can get wet. Simply wipe off excess water with a cloth and allow it to dry.

What if the product goes under water?

Simply wipe the product with a dry cloth and allow the product to dry before use. Avoid having the product completely submerged for an extended period of time.

Can I leave it outside in freezing temperatures?

Yes.

If I need more power, can I connect several of these together? How?

Yes, it is acceptable to connect several PowerFilm® Foldable Solar Chargers in parallel. Connect using the PowerFilm® RA-6 Electrical Extension (Daisy Chain). Connect chargers up to a combined output of 20 amps.

Can I use an extension cord?

You can use the RA-7 15-ft. Extension Cord Accessory complete with matching marine connectors. Total cord length greater than 30 feet will likely result in reduced power output.

Do I need to disconnect this charger when I start my vehicle or when I recharge the battery with an auxiliary power source?

You do not need to disconnect the foldable solar panel. However, disconnect any battery charger pack accessory that is connected to the solar panel.

Do I need a charge controller?

A charge controller is used to prevent overcharging. As a general recommendation, a charge controller should be used if the current output of the solar panel, in amps, is more than 1% of the battery capacity, in amp-hours. For example, a charge controller would be recommended if the F15-1200 (with 1.2 amps) were connected to a battery that is less than 120 amp-hours. Consult the battery manufacturer for complete battery information and recommendations.

How do I clean the product?

Use a damp cloth with a mild soap solution and allow to dry thoroughly.

Where can I get more product information?

First, please contact the company that sold you the product. Additional information can be found online at www.powerfilmsolar.com.

Made in the USA

PowerFilm® Inc.
2337 230th Street
Ames, Iowa 50014 USA

www.powerfilmsolar.com

AUTHORIZED ACCESSORIES

PowerFilm® Accessories can be purchased from one of the Authorized Resellers listed at www.powerfilmsolar.com.

- | | |
|---|--|
|  | RA - 1 12 Volt CLA: Charge a vehicle's battery directly through the 12 volt outlet. |
|  | RA - 3b 12 Volt Battery Charger Pack for AA and AAA: Charge 1-4 NiCad or NiMH AA or AAA batteries. Two independent charging indicators charge batteries in pairs. Can charge one battery at a time or in pairs. Includes 12 volt Male CLA. (Weight: 5.5 oz / .16 kg; Dimensions: 3.75 x 2.86 x 1.5" / 95 x 74 x 35mm) |
|  | RA - 4 12 Volt Standard Battery Charger Pack (For 10W and larger): Charge NiCad or NiMH batteries: 2-4 AA, AAA, C, D, or 9 volt (1-2 batteries). Fast charger with 800 mA charging current. Includes discharge function. Includes 12 volt Male CLA. (Weight: 18 oz / .51kg; Dimensions: 8 x 5.75 x 2.75" / 203 x 146 x 70mm) |
|  | RA - 5 12 Volt Deluxe Universal Battery Charger/Analyzer/Conditioner (For 10W and larger): Charge Lithium Ion, Lithium Polymer, NiCad or NiMH batteries of any shape. Includes 12 volt Male CLA along with AA, AAA, C & D battery holders. (Weight: 20 oz / .57kg; Dimensions: 5.5 x 5.3 x 2.5" / 141 x 161 x 63mm) |
|  | RA - 6 Electrical Extension (1 ft. Daisy Chain): Use to connect several PowerFilm® chargers in parallel for increased current output (amps). Connect multiple panels for a combined output of up to 20 amps. |
|  | RA - 7 15 ft. Extension Cord: Includes professional marine-grade components ready to attach to your PowerFilm® Solar Panel. |
|  | RA - 8 15 ft. Extension Cord with Alligator Clips: Includes professional marine-grade components ready to attach to your PowerFilm® Solar Panel. |
|  | RA - 9 Charge Controller: 100% SOLID STATE. All power switching is done with MOFSET's. No mechanical relays are used. Rated 4.5 amps @ 12 volts. Battery charge regulation. |
|  | RA - 11 15 ft. Extension Cord with O-ring Battery Terminal Connectors: Includes professional marine-grade components ready to attach to your PowerFilm® Solar Panel. |

TROUBLE SHOOTING

- 1. Connection:** Inspect your wiring for any sign of loose wires or corrosion. Check Polarity!
- 2. Voltage:** Using a voltmeter, test the open circuit voltage between the positive (+, red) and negative (-, black) o-ring terminals.
- 3. Battery:** Ensure your battery continues to be able to be recharged. Contact your battery manufacturer.
- 4. Size:** Make sure you are using a properly sized system. Consult the application chart (available on the PowerFilm, Inc. website) for guidelines, or contact the company where your purchase was made.

POWERFILM FOLDABLE SOLAR CHARGER LIMITED WARRANTY

PowerFilm warrants to the original purchaser that under standard PowerFilm test conditions the PowerFilm® Solar product will produce 80% of the minimum rated output for the term of three (3) years. If PowerFilm determines that the PowerFilm® Solar product is not providing the warranted percentage of its specified minimum power output during the term of the warranty, PowerFilm will, at its sole option, repair the product, replace the product with a new or remanufactured equivalent, or provide a pro-rated discount on the purchase of replacement product. (Please see full warranty at www.powerfilmsolar.com.)