

PEI **PowerFilm**<sup>®</sup>  
SOLAR

## AA Foldable Solar Charger

### INSTRUCTION MANUAL

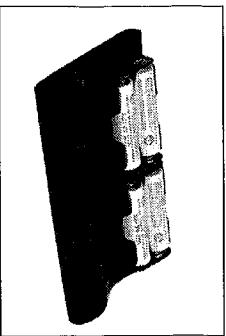
**TECHNICAL SPECIFICATIONS**  
Battery Charging Current: 600mA @ 3.6V  
Weight (without batteries): 4.18 ounces  
Recommended Batteries: NiMH AA batteries,  
1800-2500mAh

**DISCLAIMER** PowerFilm, Inc. is not responsible for any damage caused to third party products when charging from the AA Foldable Solar Charger.

### POWERFILM AA FOLDABLE SOLAR CHARGER LIMITED WARRANTY

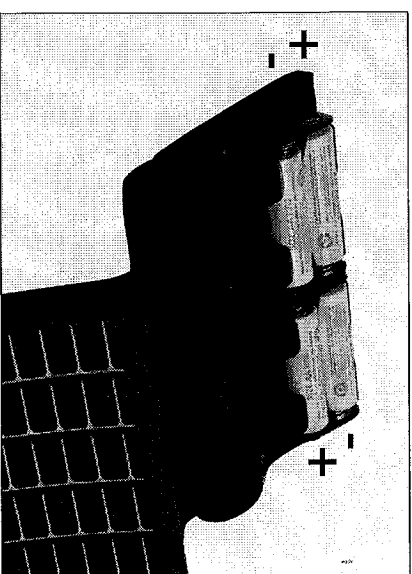
PowerFilm, Inc., the parent company of PowerFilm<sup>®</sup> Solar, warrants that PowerFilm<sup>®</sup> AA Foldable Solar Chargers are free from defects in materials and workmanship that impact performance for a period of 1 year. The duration of the Limited Warranty is from the date of initial purchase from PowerFilm, Inc. The foregoing warranty does not apply to any products which have been subject to misuse, unauthorized modifications, neglect, improper testing, attempt to repair, or have been damaged by accident, fire, abuse or other hazard. PowerFilm's sole obligation and liability for products failing to comply with this warranty shall be, at PowerFilm's choice, either to repair the products, supply replacement products, or to credit the amount due for such nonconforming products, provided that the warranty procedures have been followed.

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**CHARGING FROM THE SUN**  
Locate the battery compartment found on the back of the solar charger. Lift the clear plastic cover using the tab provided. Place two (2) or four (4) rechargeable (NiMH or NiCd) AA batteries into the battery holder, spinning batteries and pushing pointed battery end (+) forward to ensure good contact for charging.



**CAUTION:** Never charge Alkaline batteries, as they could leak and become dangerous. Do not submerge the charger in water.

Unfold the charger and place the unit with the solar modules facing the sun. Orient the modules to directly face the sun to maximize performance. Check charge light on the side of the battery compartment to determine status of charge.

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## CHARGING LIGHT

**SOLID LIGHT** [————] Batteries are fully charged.

**BLINKING LIGHT** [ - - - - ] Batteries are charging.

**RAPID PULSE** [ . . . . . ] Battery fault (no battery, low battery, battery is backward, or other battery problem).

**NO LIGHT** Wait 5 minutes. Replace batteries if no lights appear.

## STORAGE

Fold the solar panel using a z-fold pattern and fasten hook and loop fastener for storage. Batteries may be stored overnight in battery compartment. For extended storage, remove the AA batteries from the compartment.

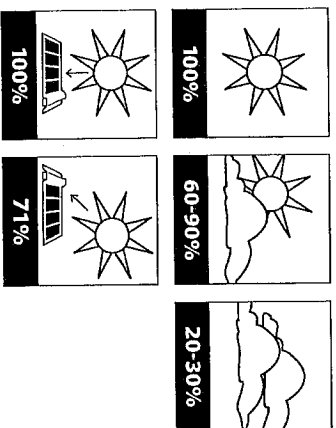
## PERFORMANCE

The charging time to fully charge the AA batteries depends on the capacity and state of charge of the batteries as well as the light intensity. See the following table for time estimates.

Battery Capacity	State of Discharge	Time Required for Full Charge
2000 mAh	50% Charge	2 AA - 1.6 hours 4 AA - 3.3 hours
2000 mAh	Fully Discharged	2 AA - 3.3 hours 4 AA - 6.6 hours

*Solar intensity affects the time needed to charge a set of batteries. The brighter the sun is, the faster the batteries will charge.*

## ENERGY AVAILABLE AT VARIOUS LIGHT CONDITIONS:



## FAQS

**Why does the charger indicate that the holder is empty even though there are batteries in the holder?**

Try to roll and wiggle the batteries to make sure you have good contact. Check the polarity of the batteries. Wait five seconds – it takes the unit up to five seconds to recognize a pair of batteries. Try a different pair of batteries – one of the batteries may be bad.

**Why does the charger say the batteries are fully charged when they don't have a charge?**

The batteries were deep discharged. The charger is attempting to recover the batteries by trickle charging. This process may take as long as one hour. Once the batteries have recovered, the charger will automatically switch to regular charging.

**The batteries have been charging, but it is dark now. Can I use them?**

Yes, you can remove batteries from the charger before they are fully charged and use them. Once you put them back into the charger it will resume charging them as soon as the light is bright enough. Just remember that partially charged batteries will discharge sooner, and plan accordingly.

**Can I leave batteries in the charger overnight?**

Yes. The charger will not discharge your batteries. Once it gets bright enough in the morning, the charger will start to charge the batteries.

**Can I use the charger to "top off" batteries?**

Yes.

**The batteries are hot! What should I do?**

A slight increase in battery temperature during charging is normal. If the batteries feel uncomfortable to touch, remove the charger from the sun! Once you feel comfortable touching the batteries, remove them from the charger. If only one battery in a pair is hot, then it is full. The other battery in the pair is not fully charged yet.

**Can I use a mirror to get more sunlight onto the charger?**

No. Exceeding the natural sunlight intensity by a significant amount may cause the charger and batteries to fall due to overheating, or may degrade the solar cells. The easiest way to shorten charging time is to set the charger perpendicular to the sun.

**My charger got wet. Is it ruined?**

No, most likely not. If the charger got damp with morning dew, wipe off the excess moisture and simply allow it to dry. If the charger was submerged, remove all batteries, clean off any salt or mud, then wipe excess moisture off and allow the charger to dry. Additionally, clean any corrosion of the contacts in the battery holder. If the charger was submerged for a long time (hours) with batteries in it, circuit components and battery holder contacts may be heavily corroded due to electric currents. This may make the charger unusable.

**Can I charge Alkaline batteries?**

No. While they will seem to charge ok, pressure buildup inside the batteries may damage them and cause them to leak during use.

**What happens if I accidentally put the batteries in backwards?**

If both batteries are backwards, the charger will ignore the batteries and treat them as an empty holder. If only one battery is backwards, there is a chance that the charger will attempt to trickle charge the pair. If the batteries are left like this for a long period of time (10 minutes), the backwards battery may be damaged.

**What happens if I leave fully charged batteries in the charger?**

If the solar panels are exposed to the sun, the charger will keep the batteries topped off. Some battery manufacturers recommend against trickle charging batteries over several days, so always check with your battery manufacturer for their recommendations.

**How long can I store fully charged batteries and still expect them to be ready for use?**

Some NiMH batteries lose as much as half their charge in one month. Recharge the batteries if they have been sitting for awhile to receive full capacity.

**What is memory effect, and how do I avoid it?**

Memory effect is a dip in the output voltage of a battery, making partially discharged batteries seem empty. Batteries will display this behavior if they have been repeatedly recharged after being only partially discharged. If you suspect that your batteries have memory effect, try discharging them completely, one cell at a time, then recharging them. Flashlights work well for discharging batteries. You can avoid memory effect by occasionally discharging your batteries completely. NiMH batteries are less prone to memory effect than NiCad batteries.