**PowerFilm® Rollable Solar Powered Battery Chargers**

**Use 3 Easy Ways**
  - Direct power or charge batteries.
  - Use included 15 ft. extension cord with 5-wire terminal block and connectors, or purchase 12 Volt Charge Controller (RA-1) to charge via cigarette lighter adapter.

- **Charging Wireless Electronics (Laptops, GPS, Cell Phones, PDAs)**
  - Use with your 12 volt charger adapter with your wireless electronic product. Purchase 12 Volt Charge Controller (RA-1) to charge via cigarette lighter adapter.

- **Charging Almost All Lithium, NiCd, or NiMH Batteries**
  - Use with a 12 volt battery charger adapter (RA-3, RA-4, or RA-5) depending on specific power needs.

**PowerFilm® Rollable Accessories**
- **PowerFilm® Accessories** can be purchased from one of the Authorized Resellers listed at www.iowathinfilm.com.
  - RA-1 12 Volt Cigarette Lighter Adapter
  - RA-2 12 Volt Female Cigarette Lighter Adapter
  - RA-3 12 Volt Battery Charger Pack for AA and AAA batteries. Charge 1-4 Nicad or NiMH AA or AAA batteries. Includes 12 V cigarette lighter adapter.
  - RA-4 12 Volt Standard Battery Charger Pack
  - RA-5 12 Volt Deluxe Universal Battery Charger/Analyzer/Conditioner
  - RA-6 Daisy Chain Accessory
  - RA-7 15 Ft. Extension Cord
  - RA-8 15 Ft. Extension Cord with Alligator Clips

**Important Notes**
- **Always Roll this Product with the Solar Panel (Dark Side) Facing Out! Do Not Fold or Crease.**
  - Check Polarity! All connections must be positive (+, red) to negative (-, black) to negative. Reversing the polarity can be a risk for electric shock, a fire hazard, and cause damage to the solar module.

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

**Instructions for Use**
1. Unroll and place so solar panel (dark side) 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 junction box is well connected to the included 15 ft. extension cord.
4. Attach the solar panel to a vehicle or other power source with matching marine-grade connectors. Total cord length greater than 30 feet likely will result in reduced power output.
5. Do not disconnect the battery charger pack until the battery is fully charged.
6. Notice the sun on the panel to efficiently connect the battery charger pack to the battery. Place the battery charger pack on the panel to efficiently charge the battery.
7. To store the product, simply disconnect the cords and roll with the SOLAR PANEL FACING OUT. Use the attached Velcro® strip to hold the roll in place.

**Specifications**
- **PowerFilm® R15-300**
  - Operating Voltage: 15.4
  - Operating Current: 3
  - Weight (lbs/kg): 6.29
  - Dimensions (in/mm): 11.5 x 21 / 29.2 x 531
  - Voltage (V): 12
  - Power (Watts): 70
- **PowerFilm® R15-600**
  - Operating Voltage: 15.4
  - Operating Current: 6
  - Weight (lbs/kg): 11.5 x 48 / 292 x 972
  - Dimensions (in/mm): 12.3 x 73 / 320 x 183
  - Voltage (V): 12
  - Power (Watts): 140
- **PowerFilm® R15-1200**
  - Operating Voltage: 15.4
  - Operating Current: 12
  - Weight (lbs/kg): 18.7
  - Dimensions (in/mm): 12.3 x 73 / 320 x 183
  - Voltage (V): 12
  - Power (Watts): 280

**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.iowathinfilm.com.
- **How do I know which size I need?**
  - Use the Application Charging Example Chart and consult the battery manufacturer for complete battery information and recommendations.
- **How do I leave it outside in freezing temperatures?**
  - Yes, it is acceptable to leave connected several PowerFilm® Rollable Battery Chargers in parallel. Connect using the PowerFilm® Rollable Daisy Chain Accessory (RA-6). Connect chargers up to a combined output of 28 Amps.
- **Can I use an extension cord?**
  - You can use the 15 ft. Extension Cord accessory (RA-7) complete with matching marine-grade connectors. Total cord length greater than 30 feet likely will result in reduced power output.
  - Do I need to disconnect the battery charger pack before I start my vehicle or when I recharge the battery with an auxiliary power source?
  - No problem! The PowerFilm® Rollable Battery Charger can be left outside permanently if maintained properly. It must be properly secured to avoid damage from high winds. Terminals should be kept clean and firmly connected.
- **What if the product gets wet?**
  - No problem. The product is waterproof.
- **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, it is acceptable to leave it connected to several PowerFilm® Rollable Battery Chargers in parallel. Connect using the PowerFilm® Rollable Daisy Chain Accessory (RA-6). Connect chargers up to a combined output of 28 Amps.
- **If I need more power can I connect several of these together?**
  - Yes, it is acceptable to connect several PowerFilm® Rollable Battery Chargers in parallel. Connect using the PowerFilm® Rollable Daisy Chain Accessory (RA-6). Connect chargers up to a combined output of 28 Amps.

**Troubleshooting**
1. **Connection** - Inspect your wiring for any sign of loose wires or corrosion. Check Polarity.
2. **Voltage** - Use a voltmeter, test the open circuit voltage between the positive (+, red) and negative (-, black) to negative. Reversing the polarity can be a risk for electric shock, a fire hazard, and cause damage to the solar module.
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 for guidelines, or contact the company that sold you this product.

**PowerFilm® Rollable Limited Series Warranty**
- **For a warranty claim, contact the company that sold you the product.**
- **warranties are for a period of 1 year. The duration of the Limited Warranty is from the date of initial purchase from Iowa Thin Film Technologies for a period of 1 year. For a warranty claim, contact the company that sold you the product.**
- **defects in materials and workmanship and to provide at least 80% of the rated capacity, in Amp-hours. For example, a charge controller should be used if the current output of the solar panel, in Amps, is greater than 3% of the battery capacity.**

**PowerFilm® Rollable Battery Charger**
- **Directly charge any wireless electronics device with its 12 V cigarette lighter adapter.**
- **Charger for almost all Lithium, NiCad, or NiMH batteries. 12 V cigarette lighter adapter included along with AA, AAA, C, & D battery holders.**
- **Daisy Chain Accessory** - to connect several PowerFilm® chargers in parallel for increased current output (Amps).
- **15 Ft. Extension Cord**
- **15 Ft. Extension Cord with Alligator Clips**
- **Charger Controller**
- **12 Volt Standard Battery Charger Pack**
- **12 Volt Female Cigarette Lighter Adapter**

**PowerFilm® Rollable Daisy Chain Accessory**
- **Use with your 12 volt battery charger adapter (RA-3, RA-4, or RA-5) depending on specific power needs.**

**R15-300**
- **12 Volt Battery or other device**

**Application Charging Example Chart**
- **Every Hour Used**
  - **12 Volt Fish Finder (.83 Amps)**
  - **12 Volt Bilge pump (3 Amps)**
  - **12 Volt GPS (.42 Amps)**
  - **Laptop (2.5 Amps)**
- **Typical Power Consumed**
  - **12 Volt Cigarette Lighter Adapter (RA-1)**
  - **RA-2 Female Cigarette Lighter Adapter**

**Specifications**
- **R15-300**
  - **Dimensions**
    - **RA-1 12 Volt Battery Charger Pack for AA and AAA batteries. Charge 1-4 Nicad or NiMH AA or AAA batteries. Includes 12 V cigarette lighter adapter.**
  - **RA-4 12 Volt Standard Battery Charger Pack**
  - **RA-5 12 Volt Deluxe Universal Battery Charger/Analyzer/Conditioner**
  - **RA-6 Daisy Chain Accessory**
  - **RA-7 15 Ft. Extension Cord**
  - **RA-8 15 Ft. Extension Cord with Alligator Clips**
  - **RA-9 Charger Controller**

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