

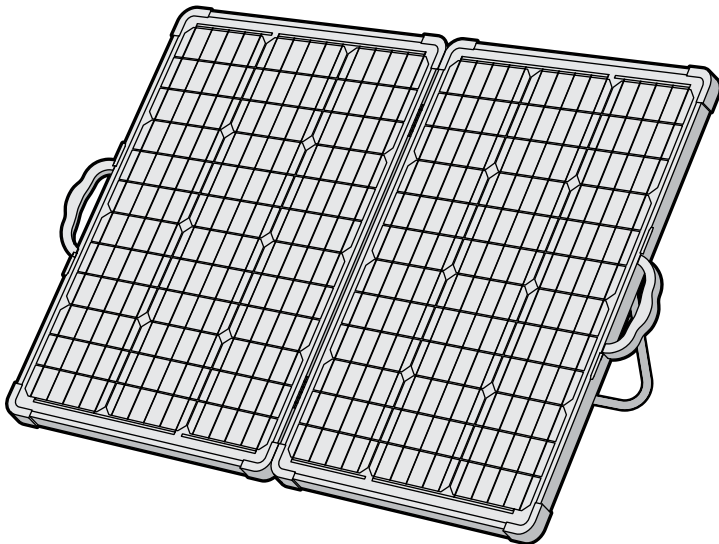
THE POWER OF

**REDARC**®

**SOLAR**

# Monocrystalline Folding Solar Panels

**SPFP1120, SPFP1120-K,  
SPFP1200 & SPFP1200-K**



# MONOCRYSTALLINE FOLDING SOLAR PANELS

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REDARC folding solar panels are designed to provide a solar charging solution for your auxiliary battery. They feature the folding panel with 50 Amp Anderson Plug connection and a strong nylon carry bag.

## WARNING & SAFETY INSTRUCTIONS

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**SAVE THESE INSTRUCTIONS** — This manual contains IMPORTANT SAFETY INSTRUCTIONS for REDARC Monocrystalline Solar Panels.

DO NOT operate Monocrystalline Solar Panels UNLESS YOU HAVE READ AND UNDERSTOOD THIS MANUAL and the Panel is installed as per these installation instructions. REDARC recommends that the Panel be installed by a suitably qualified person.

### WARNING

#### RISK OF EXPLOSIVE GASES:

Working in vicinity of a Lead-Acid battery is dangerous. Batteries generate explosive gases during normal operation. For this reason, it is of utmost importance that you follow the instructions when installing and using the Solar Panel.

**WARNING:** Check the manufacturers data for your battery and ensure that the 'Absorption' voltage of the regulator you select does not exceed the manufacturers recommended maximum charging voltage. If the 'Absorption' voltage for your battery type is too high, please select another charging profile or regulator (regulator not included).

### CAUTION

1. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are supervised or have been instructed on how to use the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
2. Do NOT connect the Solar Panel directly to a Battery. A Solar Regulator must be used between the Solar Panel and the Battery.
3. Only use the Solar Panel for charging Lead Acid, Gel, Calcium content, AGM or Lithium Iron Phosphate 12V batteries using a Solar Regulator suitable for the Battery's chemistry.

Check the manufacturer's data for your battery and ensure that the 'Maximum' voltage of the profile you select does not exceed the manufacturer's recommended maximum charging voltage. If the 'Maximum' voltage is too high for your battery type, please select another charging profile.

4. The Battery should be mounted in a well ventilated area, as far as possible from any ignition sources. NEVER smoke or allow a spark or flame in the vicinity of battery or engine. This may cause the battery to explode.
5. An unconnected panel exposed to light may generate voltages greater than 20V on their leads. Completely cover all panels with an opaque material during installation, and when connecting or disconnecting conductors to reduce the chance of an electrical spark.
6. The Solar Panel will achieve best results when proper battery maintenance is regularly performed. This includes but is not limited to checking water and specific gravity levels of the battery.
7. Do not use mirrors or other devices to artificially concentrate sunlight on the panel.
8. All panels used in series, parallel, or series-parallel should be positioned to receive identical amounts of light to reduce risk of panel damage.
9. Partially shaded or partially obscured solar panels will have reduced output, and can potentially damage the solar panel.

#### PERSONAL SAFETY PRECAUTIONS

10. To assist with the safe operation and use of the Solar Panel when connected (via a Regulator) to the battery:
  - a) Wear complete eye protection and clothing protection. Avoid touching eyes while working near a battery.
  - b) If battery acid contacts your skin or clothing, remove the affected clothing and wash the affected area of your skin immediately with soap and water. If battery acid enters your eye, immediately flood the eye with running cold water for at least 10 minutes and seek medical assistance immediately.

### WARNING

Check the manufacturers data for your battery and ensure that the 'Absorption' voltage of the regulator you select does not exceed the manufacturers recommended maximum charging voltage. If the 'Absorption' voltage for your battery type is too high, please select another charging profile or regulator (regulator not included).

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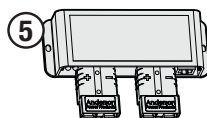
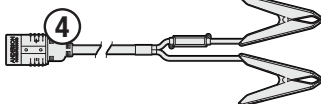
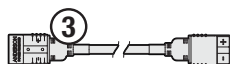
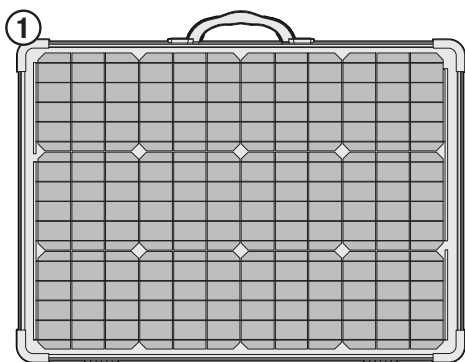
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## SUPPLIED PARTS

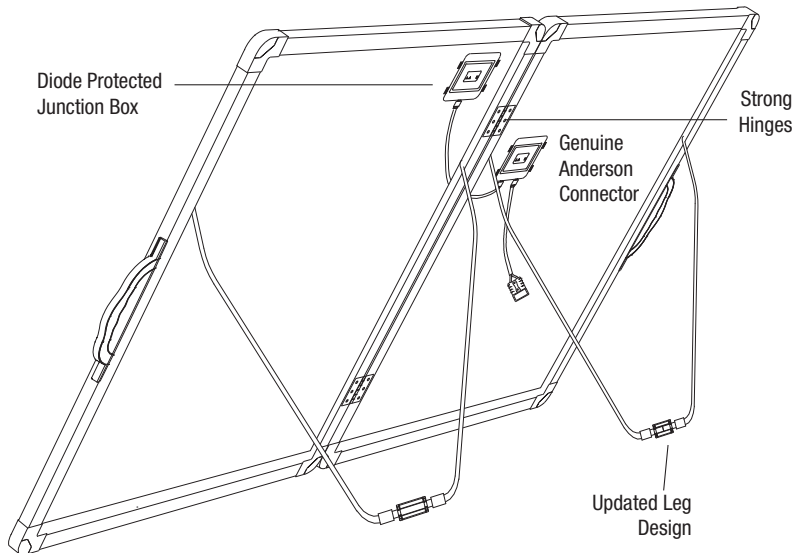
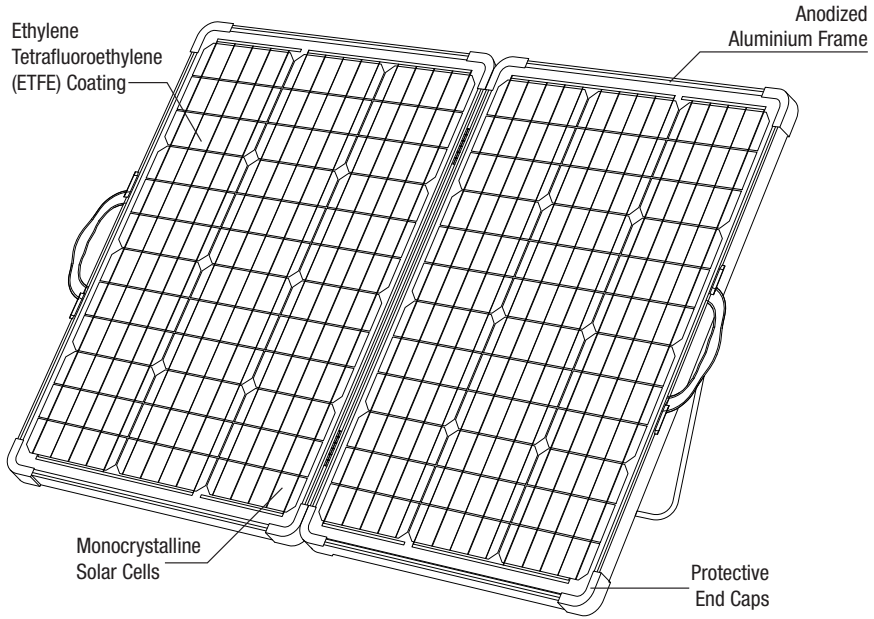
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1. Monocrystalline folding solar panel
2. Padded carry bag
3. 5 m Anderson-to-Anderson extension cable SRC0018 (kit only)
4. 1.5 m Anderson-to-battery clip cable SRC0009 (kit only)
5. Solar regulator (kit only)

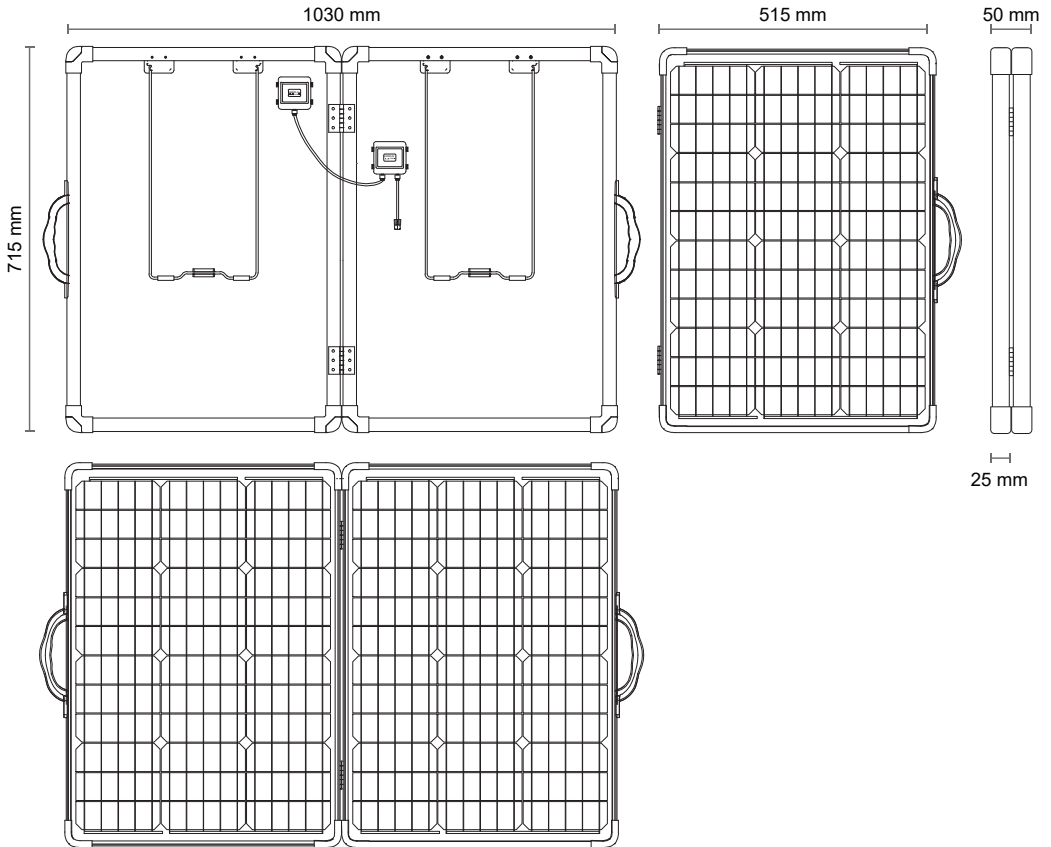


# THE FOLDING SOLAR MODULE

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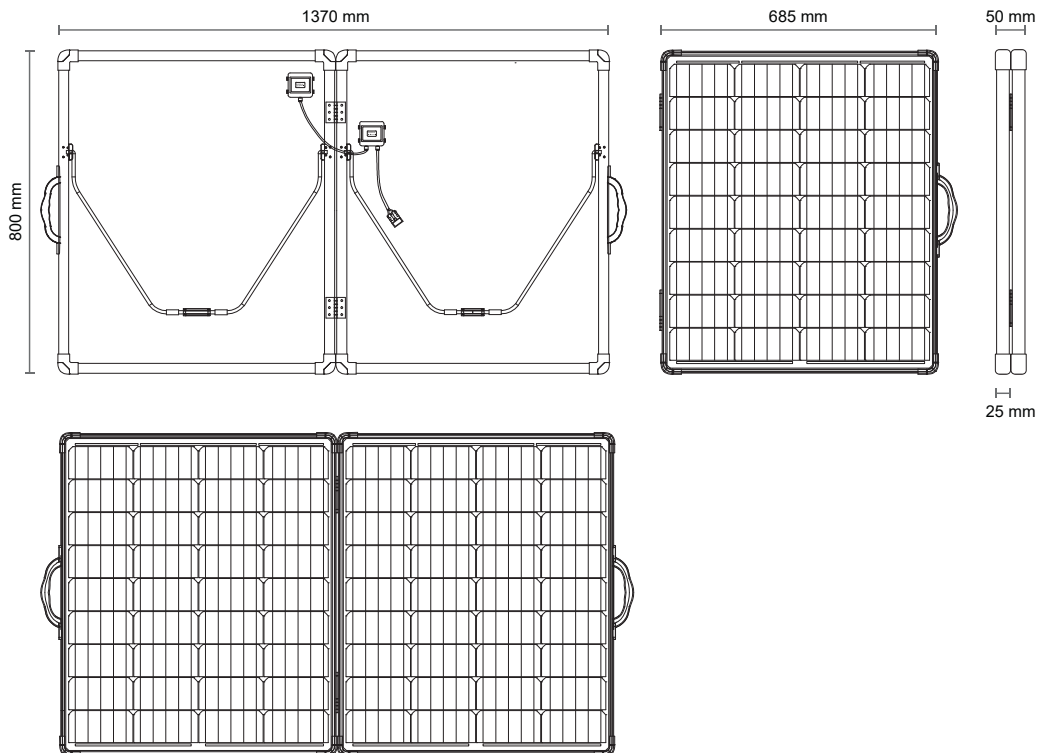
# 120 WATT MONOCRYSTALLINE FOLDING PANEL



## SPECIFICATIONS

<b>Model</b>	SPFP1120	<b>Conversion efficiency</b>	20.6%
<b>Peak power</b>	120 W (2 × 60 W)	<b>Operating temperature</b>	-40°C to +85°C
<b>Max system voltage</b>	600 V DC	<b>Max power voltage</b>	20.0 V
<b>Cell construction</b>	Monocrystalline	<b>Max power current</b>	6.0 A
<b>Frame</b>	Anodized aluminium	<b>Open circuit voltage</b>	24.0 V
<b>Cable length</b>	300 mm	<b>Short circuit current</b>	6.48 A
<b>Connection type</b>	50 A Anderson	<b>Power tolerance</b>	±3%
<b>Dimensions (closed)</b>	515 × 715 × 50 mm	<b>Standard test conditions</b>	AM1.5 1000 W/m <sup>2</sup> 25°C
<b>Dimensions (open)</b>	1030 × 715 × 25 mm	<b>Net weight</b>	6.3 kg

# 200 WATT MONOCRYSTALLINE FOLDING PANEL



## SPECIFICATIONS

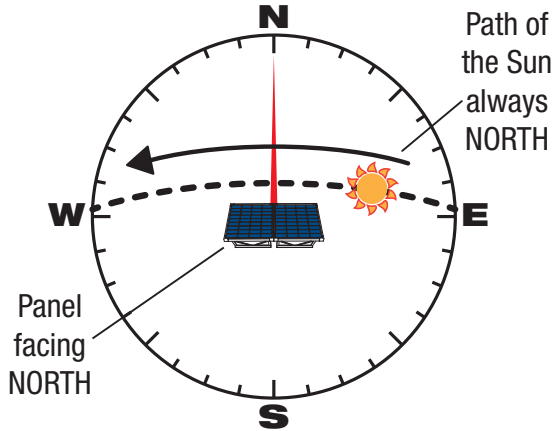
<b>Model</b>	SPFP1200	<b>Conversion efficiency</b>	23.0%
<b>Peak power</b>	200 W (2 × 100 W)	<b>Operating temperature</b>	−40°C to +85°C
<b>Max system voltage</b>	600 V DC	<b>Max power voltage</b>	20.0 V
<b>Cell construction</b>	Monocrystalline	<b>Max power current</b>	10.0 A
<b>Frame</b>	Anodized aluminium	<b>Open circuit voltage</b>	24.0 V
<b>Cable length</b>	300 mm	<b>Short circuit current</b>	10.8 A
<b>Connection type</b>	50 A Anderson	<b>Power tolerance</b>	±3%
<b>Dimensions (closed)</b>	685 × 800 × 50 mm	<b>Standard test conditions</b>	AM1.5 1000 W/m <sup>2</sup> 25°C
<b>Dimensions (open)</b>	1370 × 800 × 25 mm	<b>Net weight</b>	9.5 kg

# SOLAR OPTIMISATION

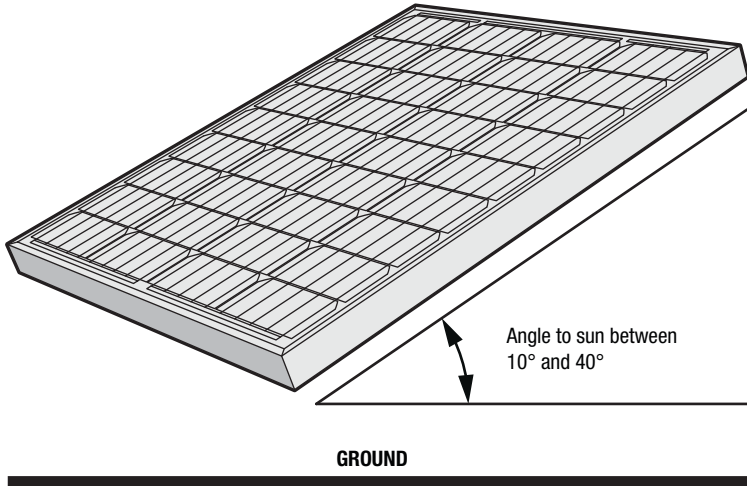
## ANGLE TO THE SUN

REDARC solar panels will perform at their peak with the panel face angled directly towards the sun. In practice this is not always achievable, so REDARC recommends having your panels face NORTH at an angle of between  $20^\circ$  and  $40^\circ$  from the ground. This will ensure the best total output from your panel across the course of the day, no matter what season.

In the southern hemisphere, the sun is always in the NORTH half of our sky. As such facing your panel NORTH ensures the best angle to the sun for a fixed panel across the course of the day.



The optimal angle from ground of the panel is around  $30^\circ$ . Anywhere between  $10^\circ$  and  $40^\circ$  ensures good power generation across the course of the day.



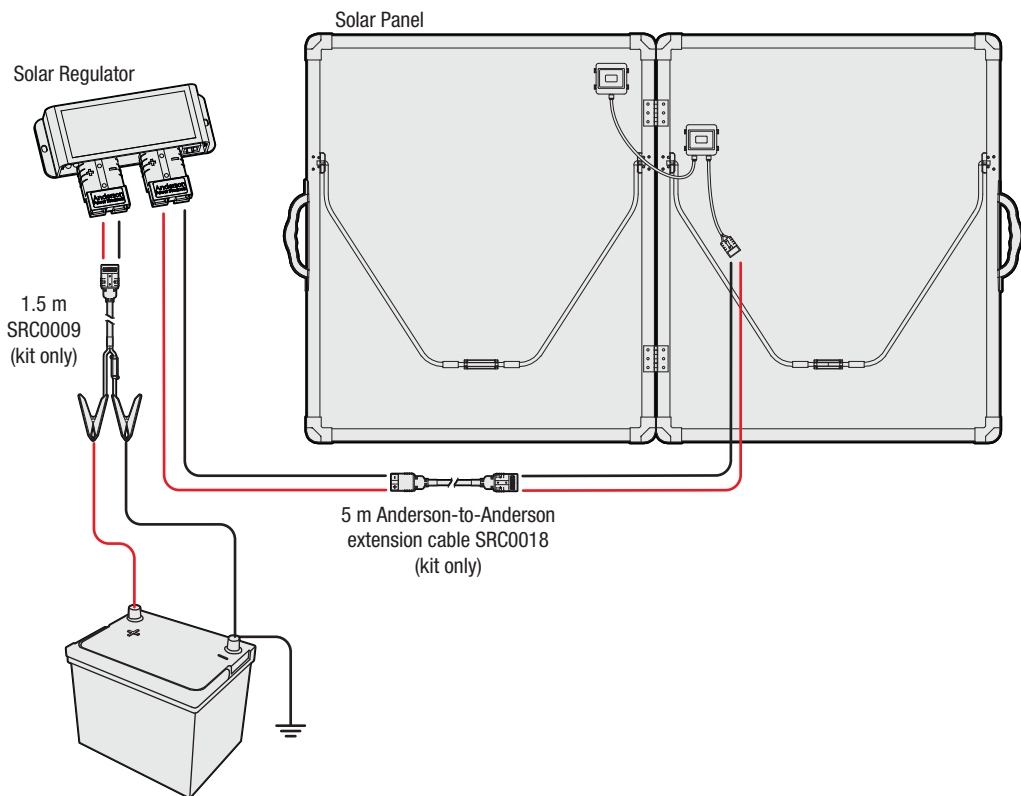
### INSTALLATION NOTES

- Before connecting your solar panel confirm the battery is properly connected.
- Always ensure the connection at Anderson plug is clean, sound and is wired with the correct polarity.
- REDARC recommends the regulator be installed as close as possible to the battery(s). If you need to use different cables ensure their length does not exceed 10 m from the panel to the regulator.
- The supplied Anderson connectors are suitably rated for up to 50 A, if multiple panels are used to the point of exceeding this rating, alternative connectors should be sourced.
- When connecting panels from an existing setup, or non-REDARC brand panels, please ensure that the panels are diode protected, as they may be damaged if they are not.
- Please refer to Solar Regulator manual and Battery Manufacturer's specifications for specific installation instructions.
- Do NOT use the folding panel in windy/gusty conditions. Damage to the panel and or other property may result.
- No NOT use a high pressure hose to clean the folding panel. Use a damp cloth to clean panel surfaces.
- Beware of pinch points when operating the legs on the folding panel.



# SYSTEM INSTALLATION

## STANDARD SETUP 120 W OR 200 W



# REDARC SOLAR PRODUCT WARRANTY

Over the last four decades our company has established a reputation as the power conversion specialist.

A 100% Australian-owned company, we have met the needs of customers in transport and other industries through exciting, innovative thinking.

We believe in total customer satisfaction and practice this by offering our customers:

- Technical advice free of jargon and free of charge
- Prompt turnaround of orders throughout Australia and globally
- Friendly, personalised, professional service and product support

In the unlikely event that a technical issue arises with a REDARC product, customers are encouraged to initially contact the REDARC Technical Support Team on (08) 8322 4848 or [power@redarc.com.au](mailto:power@redarc.com.au) for prompt and efficient diagnosis and product support.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

The benefits of this Warranty are in addition to other rights and remedies available at law in respect of the Solar Products and shall not derogate from any applicable mandatory statutory provisions or rights under the Australian Consumer Law.

REDARC Electronics Pty Ltd atf the REDARC Trust trading as REDARC Solar ("REDARC") offers a warranty in respect of its Solar Products where the Solar Products are purchased from an authorised REDARC Solar distributor or reseller by a person ("Purchaser"), on the terms and conditions, and for the duration, outlined below in this document ("Warranty").

1. In this Warranty, the term Solar Products means:
  - 1.1 REDARC Monocrystalline Solar Panels;
  - 1.2 REDARC Monocrystalline Portable Folding Solar Panels;
  - 1.3 REDARC Blankets SunPower® Cells;
  - 1.4 REDARC Blankets Amorphous Cells;(collectively the "Modules");
  - 1.5 REDARC Solar Regulators and Displays;
  - 1.6 all other solar products manufactured or supplied by REDARC that are designed for use in recreational vehicles and boats, not otherwise specifically referred to in this clause 1; and
  - 1.7 any component of or accessory for any product in clause 1.1 to 1.6 (inclusive) manufactured or supplied by REDARC.

## Offer and duration of product warranties

2. Subject to this clause 2, REDARC warrants that its Solar Products will be free, under normal application, installation, use and service conditions, from defects in materials and workmanship affecting normal use, for 2 years from the date of purchase.
3. Where a Solar Product malfunctions (excluding as a result of a reduction in power output levels, which is the subject of clause 4) or becomes inoperative during the relevant warranty period applicable to that Solar Product pursuant to clause 2, due to a defect in materials or workmanship, as determined by REDARC, then subject to further rights conferred by the Australian Consumer Law on the Purchaser, REDARC will, in exercise of its sole discretion, either:
  - 3.1 repair the defective Solar Product;
  - 3.2 replace the defective Solar Product; or
  - 3.3 provide a refund to the Purchaser for the purchase price paid for the defective Solar Product, without charge to the Purchaser.

4. REDARC warrants that:
  - 4.1.1 If the Monocrystalline solar cells in either the REDARC Monocrystalline Solar Panels or REDARC Monocrystalline Portable Folding Solar Panels exhibits a power output of less than 80% of Peak Power under standard test conditions, within 25 years of the date of purchase; or
  - 4.1.2 If the Amorphous and SunPower® solar cells in the REDARC Blankets Amorphous Cells or REDARC Blankets SunPower® Cells exhibits a power output of less than 80% of Peak Power under standard test conditions, within 5 years of the date of purchase;
- 4.2 make up the loss in power by supplying the Purchaser with relevant additional Modules; or
- 4.3 repair or replace the defective Modules, without charge to the Purchaser.
5. For the purposes of clause 4:
  - 5.1 Peak Power means the minimum peak power level in Watts that a Module generates in its maximum power point (as stated on the label affixed to the Module or on the product information sheet accompanying the Module); and
- 5.2 Standard Test Conditions means:
  - (a) light spectrum of AM 1.5;
  - (b) an irradiation of 1,000 Watts per square metre; and
  - (c) a cell temperature of 25 degrees centigrade at right angle irradiation, the measurements being carried out in accordance with IEC61215 as tested at the connectors or junction box terminals (as applicable) per the calibration and testing standards of REDARC in effect on the date of manufacture of the Module.
6. The warranties given by REDARC in clauses 2 to 4 cover the reasonable costs of delivery and installation of any repaired or replaced Solar Products or components of Solar Products to the Purchaser's usual residential address notified to REDARC, together with the reasonable costs of removal and return of any Solar Products determined by REDARC to be defective.
7. If the Purchaser incurs expenses of the nature referred to in clause 6 in the context of making a claim pursuant to this Warranty that is accepted by REDARC, the Purchaser will be entitled to claim for reimbursement of those expenses which REDARC determines, in exercise of its sole discretion, to be reasonably incurred, provided that the claim is notified to REDARC in writing at the postal address or email address specified in clause 23 and includes:
  - 7.1 details of the relevant expenses incurred by the Purchaser; and
  - 7.2 proof of the relevant expenses having been incurred by the Purchaser.

## Exclusions and limitations

8. This Warranty will not apply to, or include any defect, damage, fault, failure or malfunction of a Solar Product, which REDARC determines to be due to:
  - 8.1 normal wear and tear or exposure to weather conditions overtime;
  - 8.2 accident, misuse, abuse, negligence, vandalism, alteration or modification;
  - 8.3 non-observance of any of the instructions supplied by REDARC, including instructions concerning installation, configuring, connecting, commissioning, use or application of the Solar Product, including without limitation choice of location;
  - 8.4 failure to ensure proper maintenance of the Solar Product

strictly in accordance with REDARC's instructions or failure to ensure proper maintenance of any associated equipment or machinery;

- 8.5 repairs to the Solar Product that are not strictly in accordance with REDARC's instructions;
  - 8.6 installation, repairs or maintenance of the Solar Product by, or under the supervision of, a person who is not a qualified auto electrician or technician, or if non-genuine or non-approved parts have been fitted;
  - 8.7 faulty power supply, power failure, electrical spikes or surges, lightning, flood, storm, hail, extreme heat, fire or other occurrence outside the control of REDARC;
  - 8.8 use other than for any reasonable purpose for which the Solar Product was manufactured;
  - 8.9 any indirect or incidental damage of whatever nature outside the control of REDARC.
9. Warranty claims in respect of a Solar Product must be made in writing to REDARC at the postal address or email address specified in clause 23 within the relevant warranty period applicable to that Solar Product pursuant to clause 2 or clause 4. Such claims must include the following:
- 9.1 details of the alleged defect or fault and the circumstances surrounding the defect or fault;
  - 9.2 evidence of the claim, including photographs of the Solar Product (where the subject of the claim is capable of being photographed);
  - 9.3 the serial number of the Solar Product, specified on the label affixed to the Solar Product; and
  - 9.4 proof of purchase documentation for the Solar Product from an authorised distributor or reseller of REDARC, which clearly shows the date and place of purchase.

The return of any Solar Products without the prior written instructions of

REDARC will not be accepted by REDARC.

10. Without limiting any other clause in this Warranty, REDARC has the right to reject any warranty claim made by a Purchaser pursuant to this Warranty where:
  - 10.1 the Purchaser does not notify REDARC in writing of a warranty claim within relevant warranty period applicable to that Solar Product;
  - 10.2 the Purchaser does not notify REDARC in writing of a warranty claim within 1 month of becoming aware of the relevant circumstances giving rise to the claim, so that any further problems with the Solar Product are minimised;
  - 10.3 the serial number of the Solar Product has been altered, removed or made illegible without the written authority of REDARC;
  - 10.4 the Purchaser is unable to provide proof of purchase documentation in accordance with clause 9.4 or evidence that the Solar Product was properly installed, and that proper maintenance has been performed on the Solar Product, by, or under the supervision of, a qualified auto electrician or technician, in accordance with the instructions of REDARC.
11. If the Solar Product is found to be working satisfactorily on return to REDARC or upon investigation by REDARC, the Purchaser must pay REDARC's reasonable costs of testing and investigating the Solar Product in addition to shipping and transportation charges. Where REDARC is in possession of the Solar Product, the Solar Product will be returned to the Purchaser on receipt of the amount charged.
12. Any replaced Solar Products or components of Solar Products shall become the property of REDARC.
13. REDARC may, in exercise of its sole discretion, deliver another type of Solar Product or component of a Solar Product (different in size, colour, shape, weight, brand and/or other specifications) in fulfilling

its obligations under this Warranty, in the event that REDARC has discontinued manufacturing or supplying the relevant Solar Product or component at the time of the warranty claim, or where such Solar Product or component is superior to that originally purchased by the Purchaser.

#### **Other conditions of Warranty**

14. If the Purchaser acquired a Solar Product for the purpose of resupply, then this Warranty shall not apply to that Solar Product.
15. In particular, the sale of a Solar Product via an online auction, online store or other internet website by a party that is not an authorised distributor or reseller of the Solar Product will be deemed to be a resupply within the meaning of the Australian Consumer Law and will render this Warranty void, as REDARC has no control over the storage, handling, quality or safety of Solar Products sold by such persons.
16. A Purchaser shall only be entitled to the benefit of this Warranty after all amounts owing in respect of the Solar Product have been paid.
17. While REDARC warrants that the Solar Products will be free from defects in materials and workmanship in the circumstances set out in this Warranty, to the maximum extent permitted by law REDARC does not warrant that the operation of the Solar Products will be uninterrupted or error-free.
18. To the maximum extent permitted by law, REDARC's determination of the existence of any defect and the cause of any defect will be conclusive.
19. Spare parts or materials for the Solar Products are guaranteed to be available for a period of at least 2 years after purchase of the Solar Products.
20. The agents, officers and employees of any distributor or reseller of the Solar Products and of REDARC are not authorised to vary or extend the terms of this Warranty.
21. REDARC shall not be responsible or liable to the Customer or any third party in connection with any non-performance or delay in performance of any terms and conditions of this Warranty, due to acts of God, war, riots, strikes, warlike conditions, plague or other epidemic, fire, flood, blizzard, hurricane, changes of public policies, terrorism and other events which are beyond the control of REDARC. In such circumstances, REDARC may suspend performance of this Warranty without liability for the period of the delay reasonably attributable to such causes.
22. If a clause or part of a clause in this Warranty can be read in a way that makes it illegal, unenforceable or invalid, but can also be read in a way that makes it legal, enforceable and valid, it must be read in the latter way. If any clause or part of a clause in this Warranty is illegal, unenforceable or invalid, that clause or part is to be treated as removed from this Warranty, but the rest of this Warranty is not affected.

#### **REDARC's contact details**

23. REDARC's contact details for the sending of warranty claims under the Warranty are:

#### **REDARC Electronics Pty Ltd**

23 Brodie Road (North), Lonsdale SA 5160

Email: [power@redarc.com.au](mailto:power@redarc.com.au)

Telephone: +61 8 8322 4848

THE POWER OF  
**REDARC**<sup>®</sup>  
**SOLAR**



For free technical assistance please contact:

**REDARC Electronics**

23 Brodie Road North, Lonsdale SA  
(08) 8322 4848  
power@redarc.com.au  
[www.redarc.com.au/solar](http://www.redarc.com.au/solar)

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