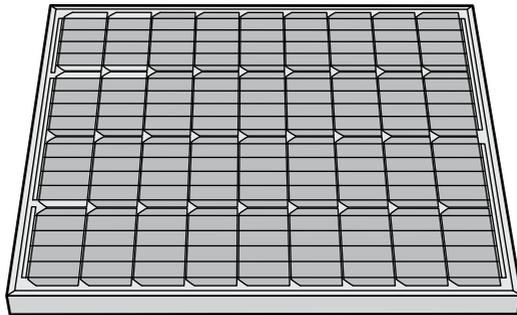




Monocrystalline Solar Panels

**SMSP1050, SMSP1080, SMSP1120,
SMSP1180 & SMSP1200**



THE MONOCRYSTALLINE SOLAR PANEL

REDARC Monocrystalline Solar Panels are highly efficient with a robust design. A tempered glass coating combined with an anodized aluminium frame ensure that our panels will withstand harsh road conditions and extreme weather conditions.

WARNING & SAFETY INSTRUCTIONS

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).

RISK OF DAMAGE AND INJURY FROM IMPROPERLY SECURED PANELS:

Solar panels mounted to all types of vehicles, including but not limited to, 4x4 Vehicles, RVs, Caravans, etc. are subject to high wind and vibration forces when driving. The instructions provided in this manual are just intended as a guide. Solar panels must be securely attached to the vehicle in accordance with all local and national safety standards. In addition, the solar mount manufactures' instructions must be adhered to or may be required to be exceeded to comply with local and national standards. It is recommended that a suitably qualified installer be used.

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 12 V 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 20 V 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.

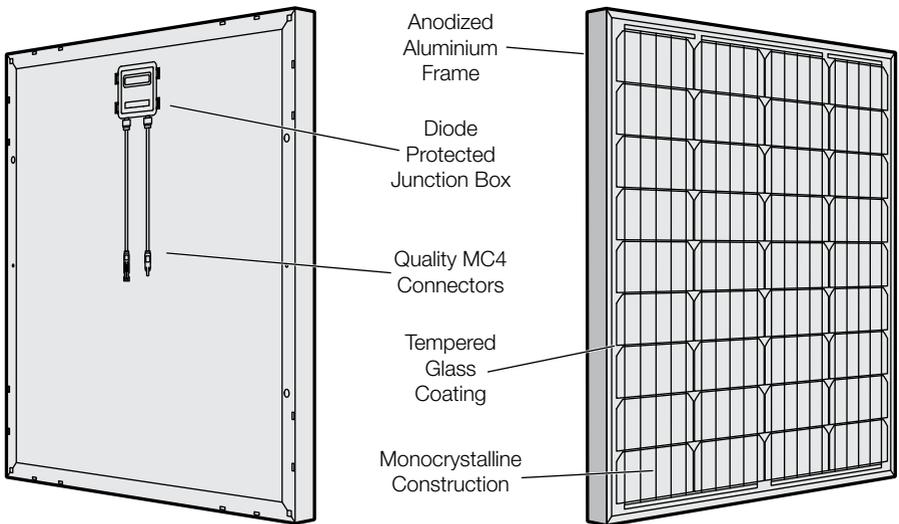
PERSONAL SAFETY PRECAUTIONS

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.

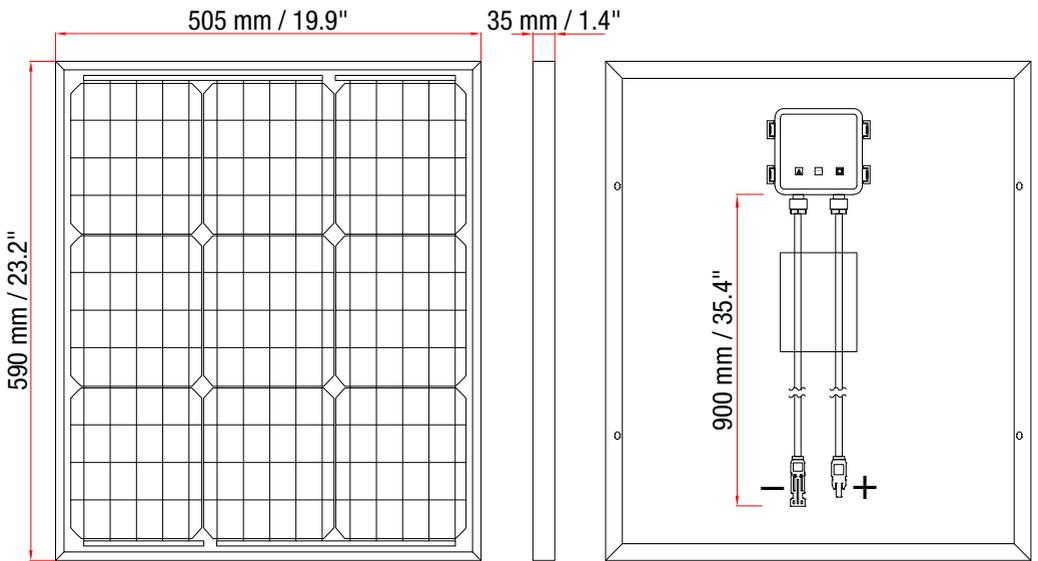
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PANEL FEATURES



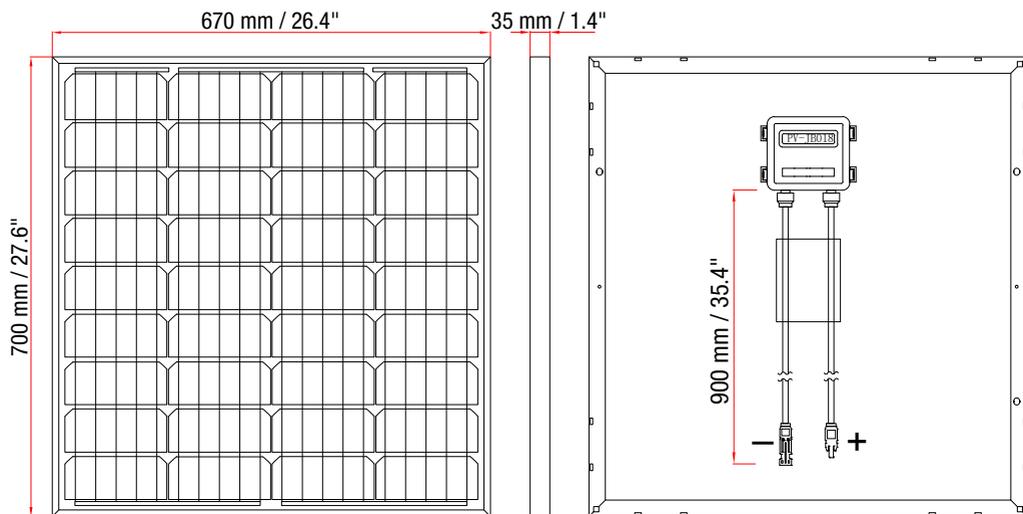
50 WATT MONOCRYSTALLINE SOLAR PANEL



SPECIFICATIONS

Model	SMSP1050	Operating temperature	-40°C to +85°C / -40°F to +185°F
Peak power	50 W	Max power voltage	20.0 V
Cell construction	Monocrystalline	Max power current	2.5 A
Cable length	900 mm / 3 ft	Open circuit voltage	22.3 V
Frame	Anodized aluminium	Short circuit current	2.7 A
Front material	Tempered glass	Power to temperature coefficient	-0.41%/°C / -0.23%/°F
Dimensions	590 × 505 × 35 mm / 23.2" × 19.9" × 1.4"	Power tolerance	±3%
Net weight	3.6 kg / 7.9 lb	Standard test conditions	AM1.5 1000 W/m ² 25°C / 77°F
Conversion efficiency	20.6%		

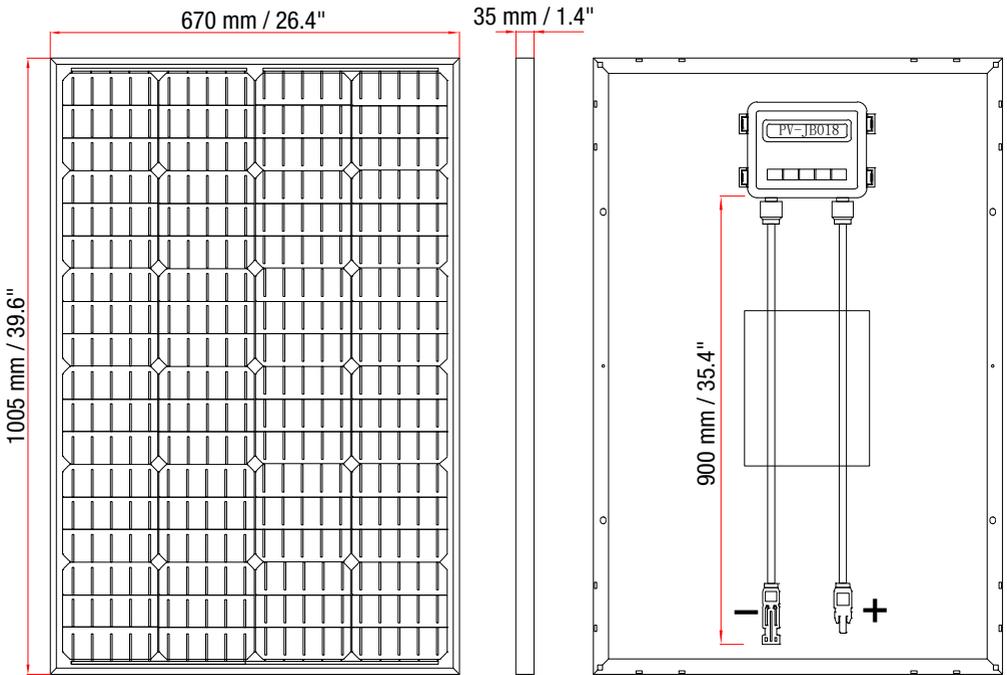
80 WATT MONOCRYSTALLINE SOLAR PANEL



SPECIFICATIONS

Model	SMSP1080	Operating temperature	−40°C to +85°C / −40°F to +185°F
Peak power	80 W	Max power voltage	20.0 V
Cell construction	Monocrystalline	Max power current	4.0 A
Cable length	900 mm / 3 ft	Open circuit voltage	22.3 V
Frame	Anodized aluminium	Short circuit current	4.32 A
Front material	Tempered glass	Power to temperature coefficient	−0.41%/°C / −0.23%/°F
Dimensions	700 × 670 × 35 mm / 27.6 × 26.4" × 1.4"	Power tolerance	±3%
Net weight	5.5 kg / 12.0 lb	Standard test conditions	AM1.5 1000 W/m ² 25°C / 77°F
Conversion efficiency	20.6%		

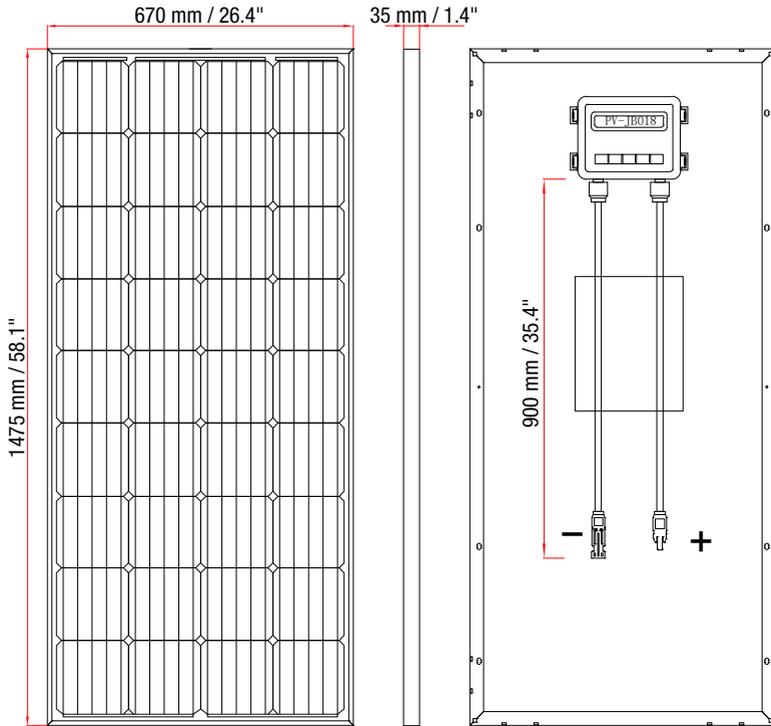
120 WATT MONOCRYSTALLINE SOLAR PANEL



SPECIFICATIONS

Model	SMSP1120	Operating temperature	-40°C to +85°C / -40°F to +185°F
Peak power	120 W	Max power voltage	20.0 V
Cell construction	Monocrystalline	Max power current	6.0 A
Cable length	900 mm / 3 ft	Open circuit voltage	22.3 V
Frame	Anodized aluminium	Short circuit current	6.48 A
Front material	Tempered glass	Power to temperature coefficient	-0.41%/°C / -0.23%/°F
Dimensions	1005 × 670 × 35 mm / 39.6" × 26.4" × 1.4"	Power tolerance	±3%
Net weight	7.5 kg / 16.5 lb	Standard test conditions	AM1.5 1000 W/m ² 25°C / 77°F
Conversion efficiency	20.6%		

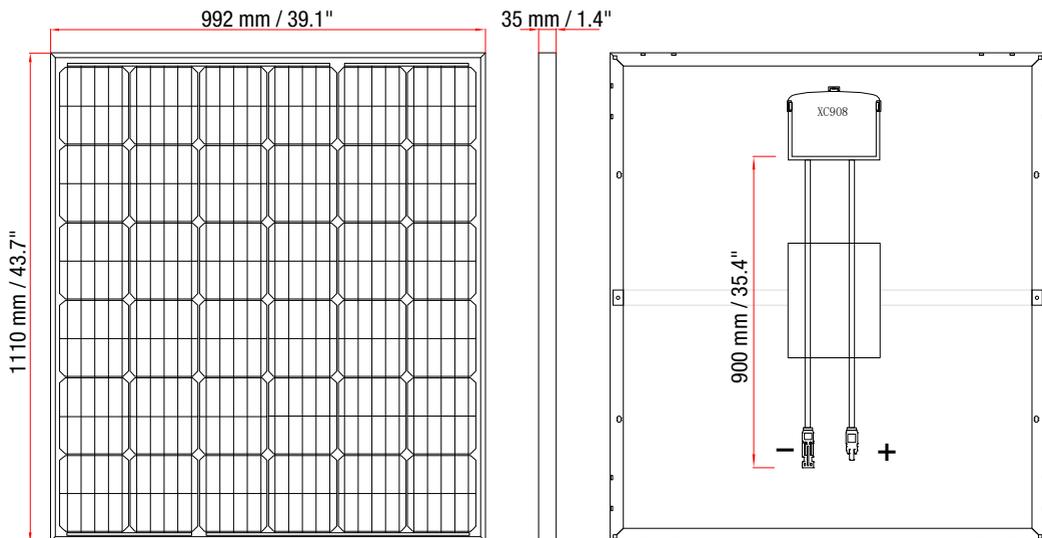
180 WATT MONOCRYSTALLINE SOLAR PANEL



SPECIFICATIONS

Model	SMSP1180	Operating temperature	-40°C to +85°C / -40°F to +185°F
Peak power	180 W	Max power voltage	20.0 V
Cell construction	Monocrystalline	Max power current	9.0 A
Cable length	900 mm / 3 ft	Open circuit voltage	22.3 V
Frame	Anodized aluminium	Short circuit current	9.72 A
Front material	Tempered glass	Power to temperature coefficient	-0.41%/°C / -0.23%/°F
Dimensions	1475 × 670 × 35 mm / 58.1" × 26.4" × 1.4"	Power tolerance	±3%
Net weight	10.7 kg / 23.6 lb	Standard test conditions	AM1.5 1000 W/m ² 25°C / 77°F
Conversion efficiency	20.6%		

200 WATT MONOCRYSTALLINE SOLAR PANEL



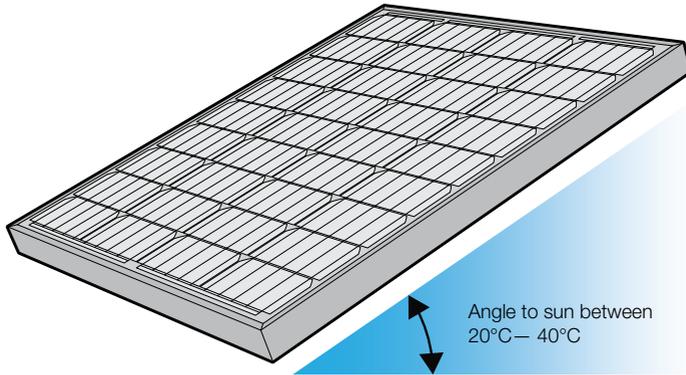
SPECIFICATIONS

Model	SMSP1200	Operating temperature	-40°C to +85°C / -40°F to +185°F
Peak power	200 W	Max power voltage	20.0 V
Cell construction	Monocrystalline	Max power current	10.0 A
Cable length	900 mm / 3 ft	Open circuit voltage	22.3 V
Frame	Anodized aluminium	Short circuit current	10.8 A
Front material	Tempered glass	Power to temperature coefficient	-0.41%/°C / -0.23%/°F
Dimensions	1110 × 992 × 35 mm / 43.7" × 39.1" × 1.4"	Power tolerance	±3%
Net weight	12.1 kg / 26.7 lb	Standard test conditions	AM1.5 1000 W/m ² 25°C / 77°F
Conversion efficiency	20.6%		

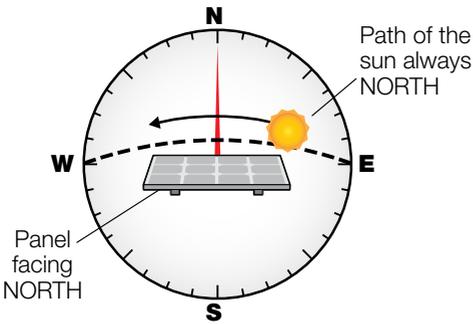
SOLAR OPTIMISATION

ANGLE TO THE SUN

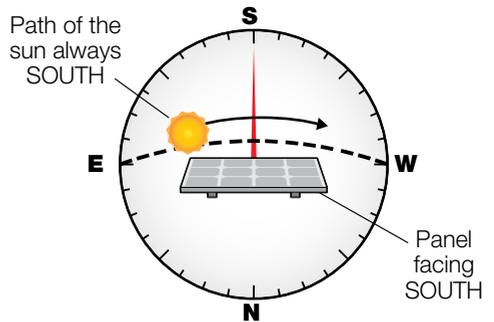
REDARC solar panels will perform at their peak with the panel face angled directly towards the sun. However, in practice this is not always achievable. REDARC recommends having your panels angled between 20° and 40° from the ground. This will ensure the best total output from your panel across the course of the day, no matter what season.



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



Southern Hemisphere



Northern Hemisphere

SYSTEM INSTALLATION

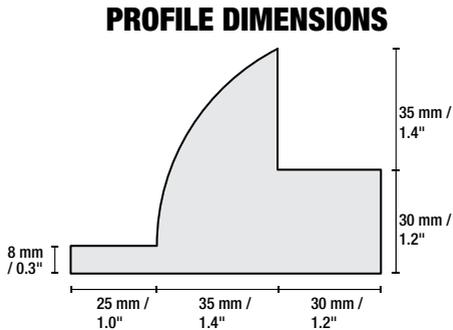
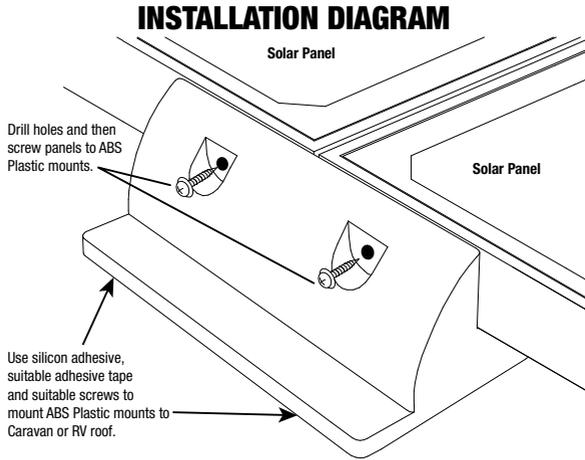
ABS PLASTIC MOUNTS

ABS Plastic Corner, Side and Spoiler mounts are designed to mount single or multiple panels to your RV or Caravan roof. The ABS plastic can be mounted using silicon adhesive, specifically designed adhesive tape or screws. The panels are then mounted to the ABS plastic mounts using standard metal screws.

ABS Plastic spoiler mounts are designed to keep the wind resistance and resulting noise of your solar installation to a minimum.

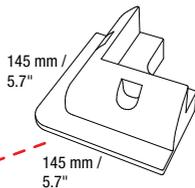
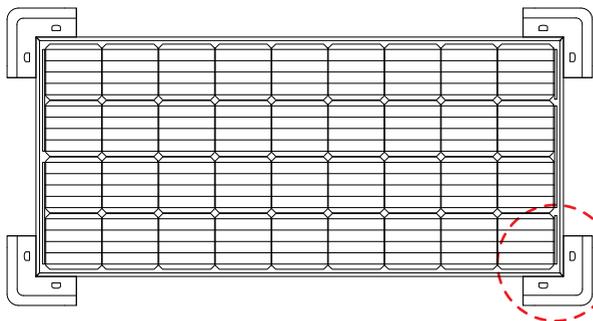
⚠ WARNING

RISK OF DAMAGE AND INJURY FROM IMPROPERLY SECURED PANELS: Solar panels mounted to all types of vehicles, including but not limited to, 4x4 Vehicles, RVs, Caravans, etc. are subject to high wind and vibration forces when driving. The instructions provided in this section are just intended as a guide. Solar panels must be securely attached to the vehicle in accordance with all local and national safety standards. In addition, the solar mount manufacturers' instructions must be adhered to or may be required to be exceeded to comply with local and national standards. It is recommended that a suitably qualified installer be used.

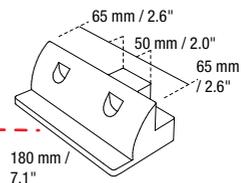
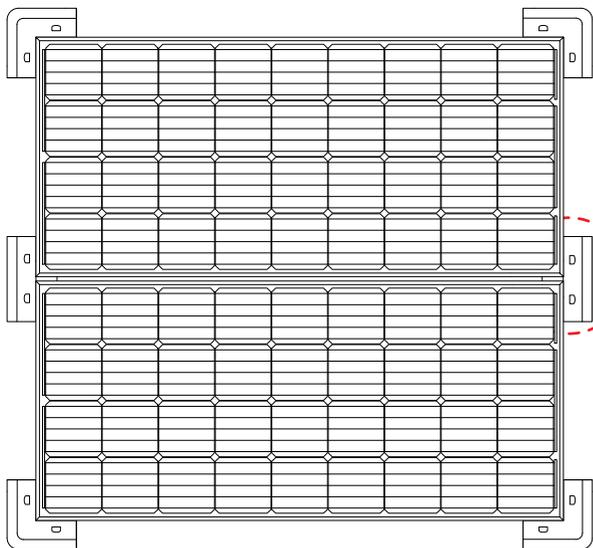


SYSTEM INSTALLATION

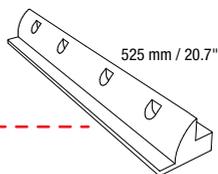
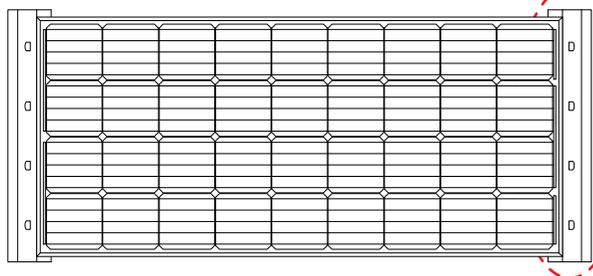
ABS PLASTIC MOUNTS



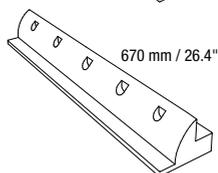
SMI9001
4 × ABS Plastic
Corner Mounts



SMI9002
2 × ABS Plastic
Side Mounts (for
mounting multiple
panels)



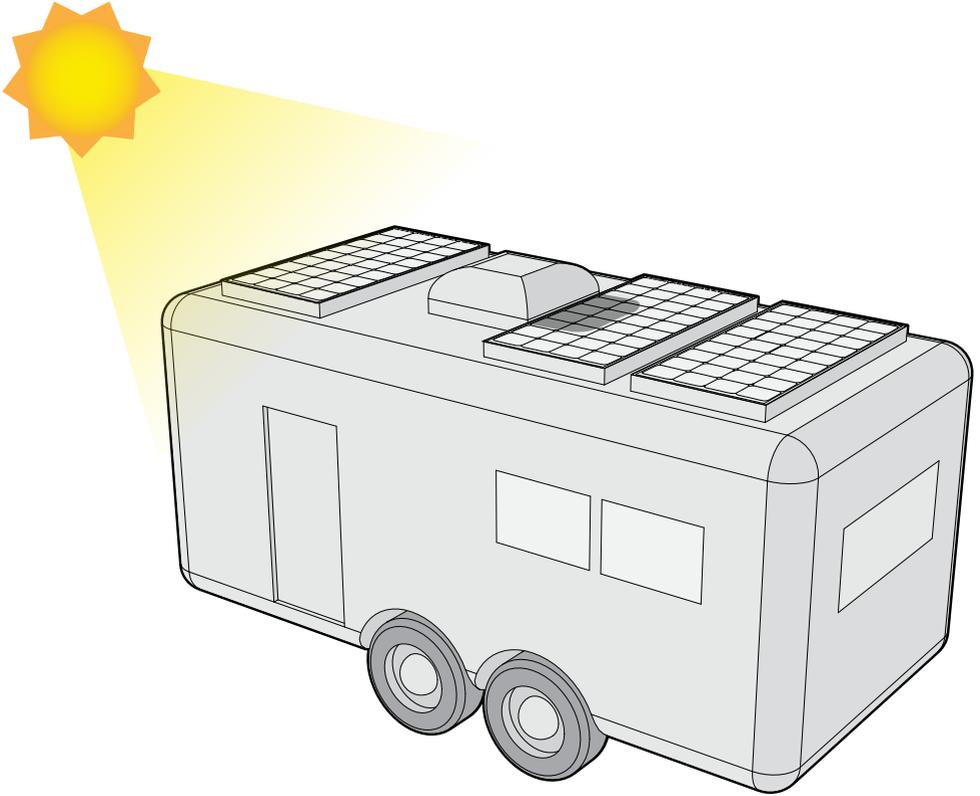
SMI9003
2 × ABS Plastic
Spoiler Mounts
(to suit
SMSP1050)



SMI9007
2 × ABS Plastic
Spoiler Mounts
(to suit
SMSP1080,
SMSP1120,
SMSP1180)

SYSTEM INSTALLATION

CAUTION



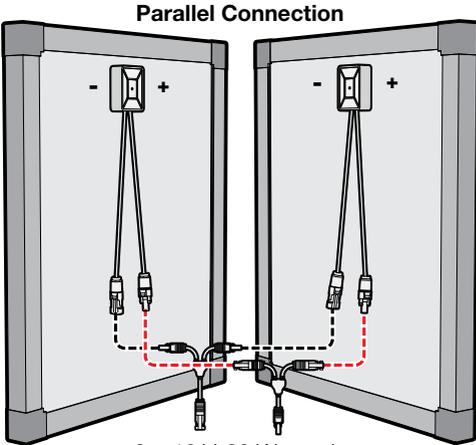
Be aware of shading that can occur as a result of roof mounted accessories on your caravan or motor home. Shading sections of your solar panels will significantly reduce your solar panels performance.

Care must be taken to avoid the possibility of shading in the final installation position. During the installation process, ensure that the panels are covered with an opaque material to prevent potentially dangerous voltages from inadvertently being generated.

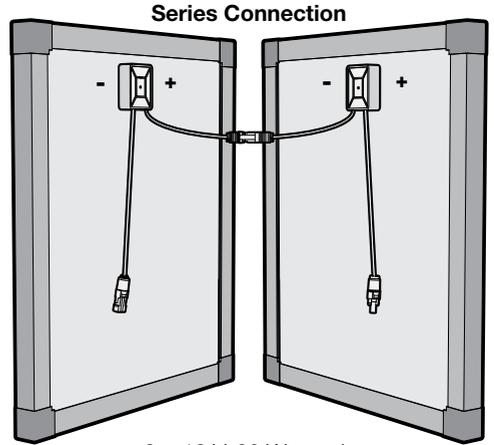
SYSTEM WIRING

PARALLEL AND SERIES CONNECTIONS

Solar arrays can be connected in Parallel or Series as per the diagrams below, or a combination of the two. Connecting two identical panels (of the same wattage) in parallel will multiply the total output current by 2 and keep the system voltage at the same level. Conversely, connecting two identical panels (of the same wattage) in series will multiply the system voltage by 2 and keep the output current at the same level. Parallel connections should be made using 'Y' connectors available through REDARC Solar suppliers. Series connections should be made by connecting the negative connector of one panel to the positive of the next.

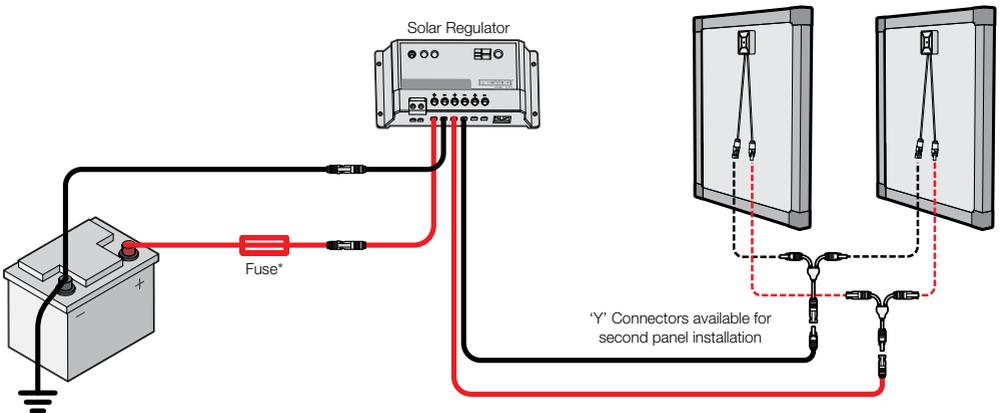


2 × 12 V, 80 W panels
= 1 × 12 V, 160 W array



2 × 12 V, 80 W panels
= 1 × 24 V, 80 W array

WIRING MULTIPLE IDENTICAL PANELS

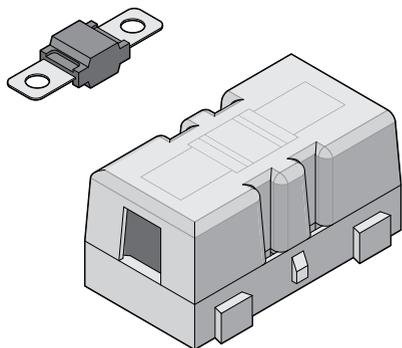


SYSTEM WIRING

STANDARD BMS INSTALLATION

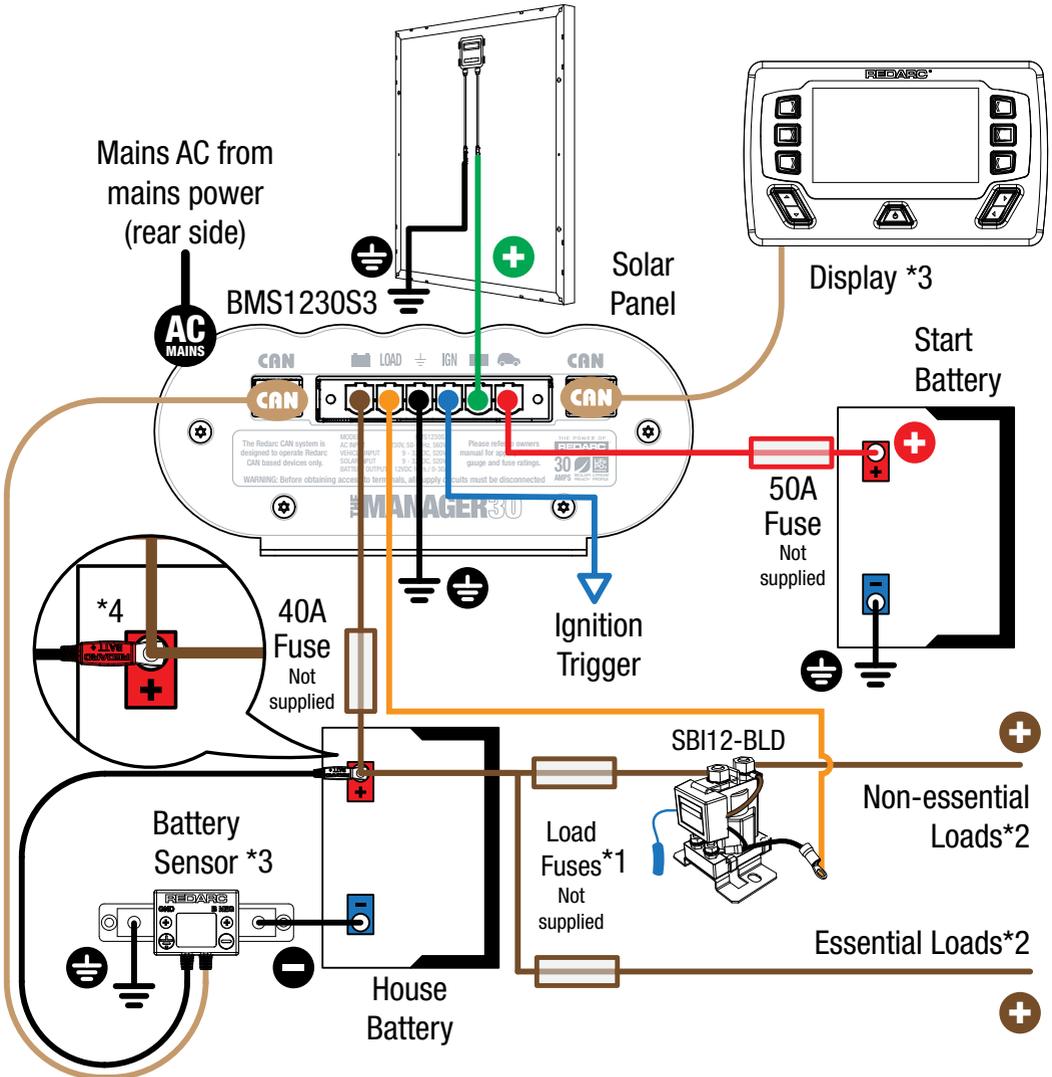
TYPICAL MANAGER SETUP

1. The size of this fuse relates to the total current draw of all the loads connected to the House Battery, and should be rated slightly higher than this. REDARC recommends the use of MIDI Style Fuses.
2. Essential loads are loads which must be left on at all times, until the battery is flat. Non-essential loads are those switched off when the battery reaches a particular low-charge level, which can be set in the 'Advanced Settings' menu.
3. Both CANBus connections can be used for either the Display or Battery Sensor.
4. Ensure the RED terminal on the Battery Sensor is connected to the Battery Positive Terminal.



A single fuse and holder setup from the Fuse Kits available from REDARC.
Part number FK40 (40A) or FK60 (60A).

BMS INSTALLATION DIAGRAM

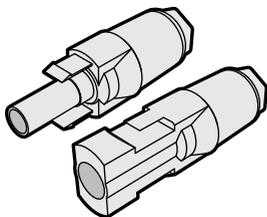


SYSTEM WIRING

WIRING PRECAUTIONS

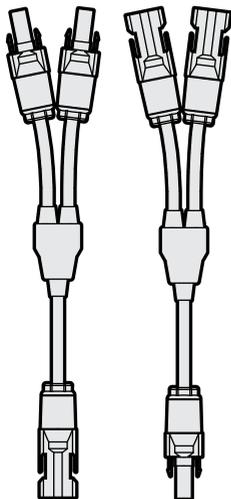
- Ensure that all connections are made using REDARC recommended connectors and cables or other suitably rated connectors and cables.
- Ensure that total system current does not exceed the maximum current rating for either the cables or any connectors that are subject to the total current of the system.
- Ensure that grounding and fusing is adequate for the system as per wiring diagrams on pages 12 and 14.
- Ensure that all MC4 connections are crimped with the correct MC4 crimping tool. Contact REDARC for more information on purchasing this tool.
- All cable entries into the vehicle must be suitably sealed, REDARC Single or Double Cable Glands are recommended.
- If your regulator has a dedicated solar input ground (negative) terminal ensure that the negative ground from your solar panels is connected here.

ACCESSORIES



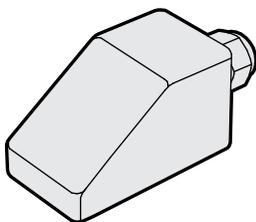
SRC0001-CK - MC4 CONNECTOR KIT

Comes with 1 × Male MC4 connector and crimp and 1 × Female MC4 connector and crimp.



SRC0006 - MC4 'Y' ADAPTOR KIT

- For connecting 2 positive and 2 negative MC4 connectors in parallel.
- Reduces the 2 outputs to 1 output.



SMC0001 - SINGLE CABLE GLAND

For routing a single cable into your Caravan or RV. Use a suitable adhesive to seal the gland to the Caravan or RV and route the cable through the cable entry.

REDARC SOLAR PRODUCT WARRANTY

Limited Warranty

For full warranty terms and conditions, visit the link below or refer to the contact details applicable to your region.

<https://redarc.com.au/warranty>

<https://redarcelectronics.com/warranty>

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