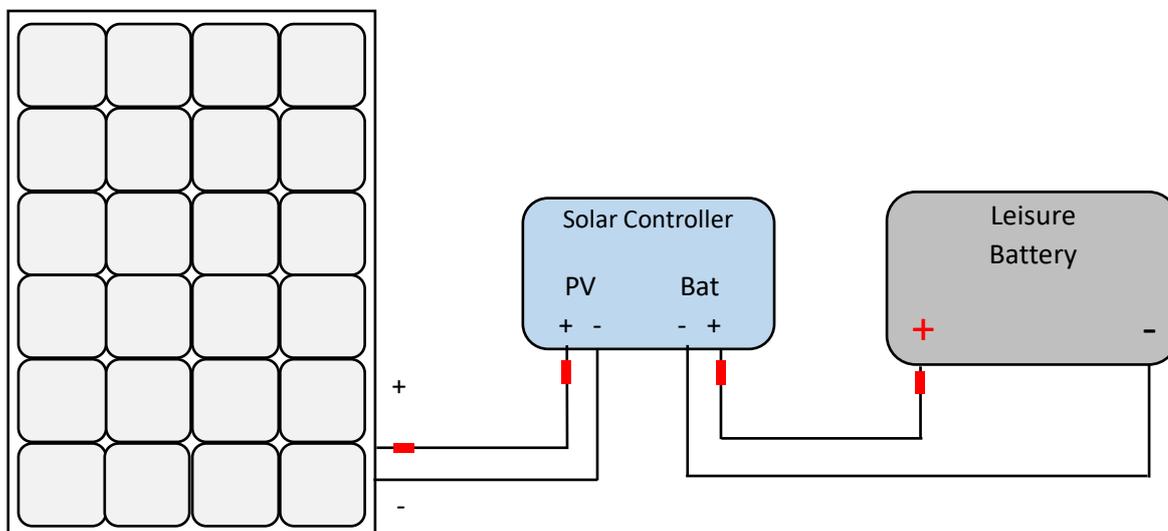


Rigid solar panel kit fitting instructions

Single solar panel and controller



Simple schematic showing the connection of a single solar panel through either an MPPT or PWM controller to charge a 12V leisure battery bank.

What do I need?

In order to correctly install your solar kit, you will need the following items;

Rigid solar panel	PVC mounting kit	Solar controller	Solar cabling
			
Cable entry gland	MC4 connectors	Bonding agent (not supplied)	Cable ties/bases (not supplied)
			

Things to consider before installing the panel

Rigid panels should be mounted with at least a 10mm clearance under the panel to allow air flow to cool the panel (solar arrays are more efficient if they don't get too hot). Using a proper mounting kit will ensure you have the adequate gap.



If working outside or in sunlight, the panel should be covered (with a blanket or similar) to prevent any sunlight reaching the panel whilst plugging it in.

In a 12V leisure battery set up, the “load” terminals fitted to some solar controllers aren’t commonly used, so you can disregard these.

Step by step instructions

1. Begin by checking you have all of the correct components for the installation in the list above.
2. Place your mounts around the edges of the panel, then fix them to the panel using either a self-tapping screw or a suitable bonding agent.
3. Route your cables from the leisure battery up to the roof and ensure you have sufficient cable to reach your desired panel mounting location. Once you have the locations confirmed, drill a suitable hole to bring the cable through the roof. Ensure you use a suitable grommet to protect the cable coming through the metalwork of the roof and rustproof the new bare metal edges of the hole.
4. Your controller should ideally be located as close to the leisure battery as possible (no more than 1.5M away), with this in mind, mount your solar controller in the desired location.
5. Now you can run the cables through the cable entry glands, one wire per screw gland, and leaving a little spare, route the cables back to the battery via the solar controller location.
6. With your wires routed in you can cut the cables at the solar controller, strip the insulation back 7mm on each cable. Screw the wires from the panel into the PV + & - terminals, and the wires to the leisure battery into the battery + & - terminals. The red tagged wires are the + and the plain black wire is the -.
7. Bolt the M8 eye terminals onto the positive terminal first and then the negative terminal of the leisure battery.
8. Now attach the MC4 connectors to the solar wiring on the roof. (see appendix below)
9. Ensuring the panel is not in daylight by covering it with a blanket or suitable cover. You can plug the MC4 connectors into the panel ensuring the red tagged wire into the panel positive and the all black wire into the panel negative.
10. Bond/fix your panel mounts to the roof of the vehicle. If you’re using a bonding agent, you will have short period of time to move the panel before the adhesive sets. Please also ensure you clean and prepare the surface as per the adhesive manufacturer’s instructions.
11. Finally remove the panel covering and next time the panel is in direct sunlight, check the panel is charging by either checking the lights/display on your solar controller against the controller’s instruction manual, or by watching the leisure battery voltage rise when the panel is in the sunlight.



Appendix.

MC4 connector wiring

The MC4 connectors are the weatherproof connectors which come with most solar panels. We usually leave these unconnected to allow you to thread the cables through the roof gland.

<p>Step 1 Strip the wire back 8mm, either carefully using a knife or a wire stripper.</p>	<p>Step 2 Crimp the larger of the two metal terminals, the female bullet connector, onto the negative wire, using either long nosed pliers or a crimping tool.</p>
<p>Step 3 Crimp the smaller of the two metal terminals, the male bullet connector, onto the positive wire with the red heat-shrink band. For this, use either long nosed pliers or a crimping tool.</p>	<p>Step 4 Unscrew the two halves both MC4 connectors, thread the plastic nut over the terminals.</p>
<p>Step 5 Click each bullet terminal into plastic housing.</p>	<p>Step 6 Once the terminals are clicked in place, tighten the plastic nuts. With this done, you shouldn't be able to see any of the thread and the rubber gland should be tight on the cable to ensure a watertight seal.</p>