

# AA Solar & Sun Power Plus

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## **INSTRUCTIONS FOR INSTALLING SOLAR PANELS ON A MOTORHOME**

*We suggest reading through these instructions at least twice before beginning to install your solar panel/s and controller/regulator as to familiarise yourself with the installation procedure*

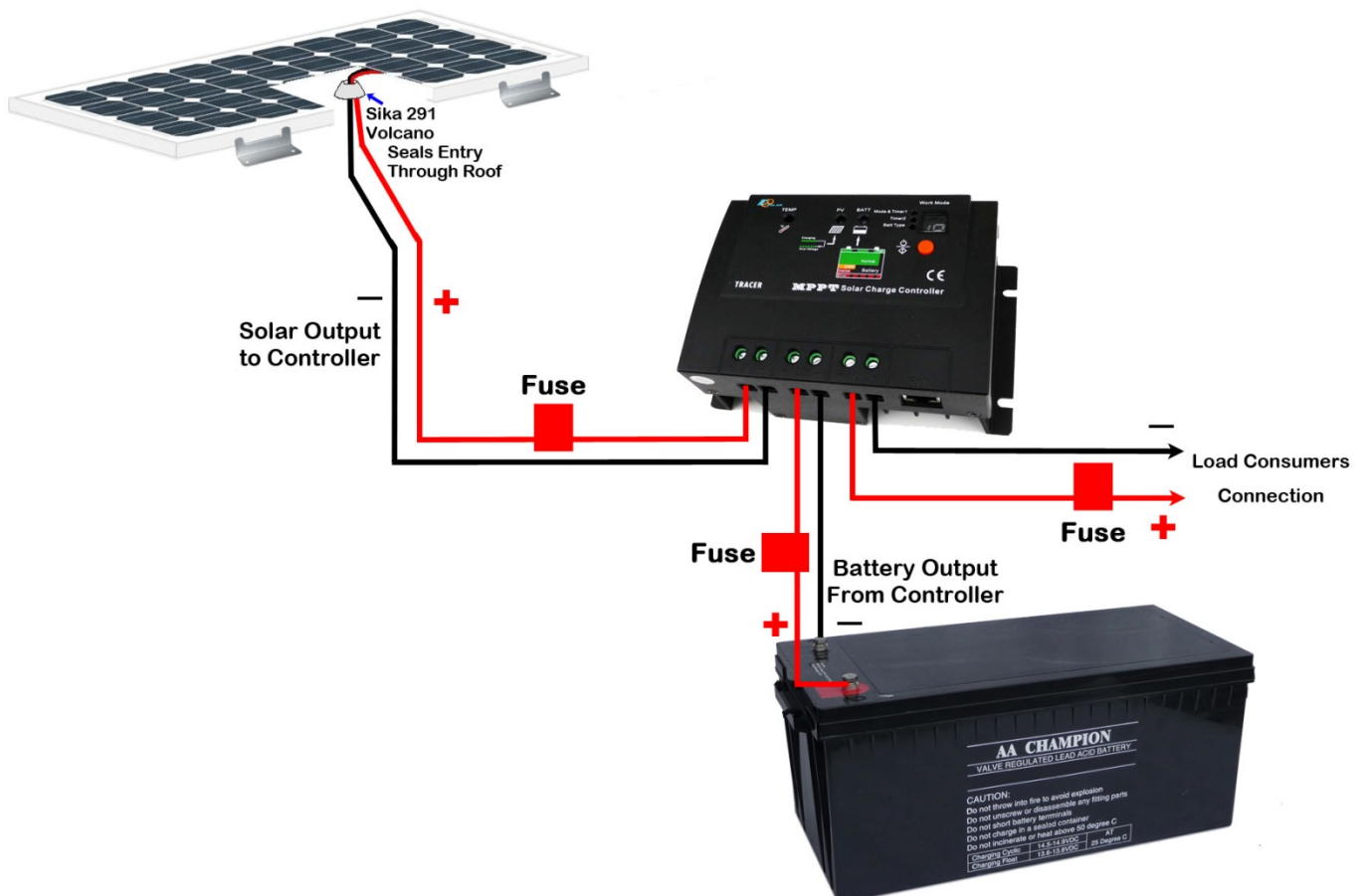
*This kit set uses tube crimps in place of the MC4 connectors that come with the solar panel. The MC4 plugs can be cut off the solar panel cables.*

1. Make up a pattern of your solar panel/s (in cardboard, paper, etc) with an extra 30mm all the way around. This is for deciding where to place your solar panel/s on your roof. While up on the roof, make sure that there are no rust spots, or other areas that might need some remedial work (i.e. Painting) before mounting your solar panel/s. Try to find a position where your solar panel/s will not be shaded by TV antennas, hatches, air conditioners, etc. At the same time, mark on the pattern where the feet will go, you don't have to use the pre drilled holes in the panel. If you have two panels, they can be mounted together or separately, depending on the space available.
2. Consider where the solar cables will go through the roof to your solar controller/regulator, and where the solar controller/regulator will be located. Also to consider is where the cables will lead from the solar controller/regulator to your house batteries. Generally the cables will enter through the roof into an inside cabinet or wardrobe.
3. After deciding the above positions, attach the aluminium Z Bracket feet as the picture shows to the sides of the solar panel/s where you have marked the feet position on the pattern, using stainless steel bolts, washers and lock nuts. If you aren't using the pre drilled holes in the panel frame, be sure to protect the rear surface of the solar panel from the drill with a block of wood wrapped in a rag. Make sure that all feet are positioned at least 75mm in from the corners of the panel/s, and in the middle of the panel if required for the larger panels 190 watt and above. After cleaning up swarf and dust next attach the supplied twin cable to the cables coming out of the solar panel, noting carefully the polarity, with the supplied inline connectors, making sure they are crimped correctly. Then using the supplied internal glue type heat shrink, seal the connection. Remember to slip the heat shrink on first before crimping.
4. Place the solar panel/s on the roof where you have decided they will go, and make sure that all the feet fit reasonably to the roof. Drill two pilot holes in the roof for each bracket, making sure the panel/s do not move during this process. Remove the panel and if necessary drill out the pilot holes (4.5mm) for the screws.
5. While the panel is off, you will need to drill a hole for the cable to go through the roof, making sure that it has good clearance. Clean off all shavings and dust from around the holes and the roof of your Motorhome. After cleaning up swarf and dust next attach the supplied twin cable to the cables coming out of the solar panel, noting carefully the polarity, with the supplied inline connectors, making sure they are crimped correctly, Then using the supplied internal glue type heat shrink seal the connection. Remember to slip the heat shrink on first before crimping. Next, feed all the cable through the hole to just before the connection to the solar panel wires. Tie a cable tie at the point to make sure that the cable does not go further into the Motorhome. You will also need to put a cable tie on the inside point of the hole to make sure that the cable will not pull out of your Motorhome either. Around this point (on the outside) put an ample amount of Sika 291 sealant to make a "Volcano" mountain with the cable coming out of the centre. Don't skimp with the sealant! Make sure that the cable tie is completely covered. Then put ample sealant in and around the holes on the roof in the locations of where the brackets will go. Place the solar panel in place carefully, and put a couple of screws in place and screw them in, but not all the way. Locate the rest of the screws in the holes and screw them in, not tightening them too much, and tighten the first two again not tightening them too much. The idea is not to squeeze all the sealant out, but leave some in between to set and make a good seal. Clean up with mineral turps.

6. Locate where the controller/regulator will be mounted in your Motorhome, and cut the cable from the solar panel/s leaving a little extra for bends, etc. Mount the controller/regulator, but do not connect any cables to the controller at this time. Then take the rest of the cable and run it through to your house batteries.
7. Connect the red lead to the Positive Post of the battery with the inline fuse holder (removing the fuse at this time) and inline connector supplied and ring terminal. Next put a ring terminal on the black or negative wire, and connect this to the negative terminal of your battery.
8. Read the instructions for your controller thoroughly to understand its operation and installation. Return to the controller/regulator and connect the battery cables (always BEFORE the cables from the solar panel/s) to the Battery Input of the controller/regulator, noting polarity carefully. Now go back to the battery and install the fuse.
9. Next, install the other inline fuse holder (removing the fuse at this time) into the positive cable from the solar panel/s. Next, connect the solar panel wires (always AFTER the batteries are connected) to the Solar Input, and then install the fuse.
10. If you are going to use the "Load" or "Consumer" connection on the controller/regulator, connect your loads at this time, noting polarity carefully. Note that this "Load" or "Consumer" connection is optional, and does not need to be used.
11. Read the controller/regulator instructions again, noting the lights on the controller/ regulator are working correctly. Note the solar light will not be on until there is sun on the panel/s and the voltage is higher at the solar panel/s than the battery. Other lights will be on or off, depending on your type of controller. Read your solar controller/regulator instructions to understand what they mean.

*You have now completed the basic installation of your solar panel/s, but you may want to make sure that all cables are tied up and held neatly as a good practice in your Motorhome. Your solar panel/s will need a good clean from time to time, as road tars and dust will accumulate and cause output degradation. Just use warm water with dishwashing detergent and a good soft brush to do the job, or if the road tar is very bad or you have particularly sticky resin from overhead trees, use a little mineral turps and then wash off thoroughly with detergent and warm water, and rinse off well.*

*If you have flooded batteries, remember to check their water level regularly especially in the summer. If you have more modern, sealed or maintenance-free batteries, nothing further needs to be done except letting the sun charge them!*



**Thank you for your custom, AA Solar & Sun Power Plus**