

doubt we suggest you get this checked by your local garage.

I can see the positive battery terminal but not the negative battery terminal.

As the battery negative terminal is connected to the vehicle chassis, engine and gearbox, this makes all of the vehicle chassis, engine and gearbox a suitable negative connection, provided the part is non-painted, not rubber mounted and not close to rotating components. Your local servicing dealer will be only too pleased to advise you if you are not sure).

What does the flashing blue LED light mean?

The flashing blue LED light indicates the AA Car Battery Solar Charger is creating electricity therefore working correctly.

Do I have to disconnect the AA Car Battery Solar Charger at night?

No, the AA Car Battery Solar Charger is fitted with a diode to allow electricity to flow to the battery only.

Can I use the AA Car Battery Solar Charger on a motorbike?

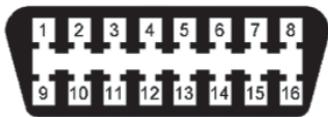
Yes, only if the AA Car Battery Solar Charger can be kept dry and the bike is stored out the way from any potential hazards.

My battery is not accessible.

If using the EOBD plug this is not a problem, if using the battery and it is in an awkward location i.e. under the rear seat, in the boot, under the floor etc. then the vehicle is likely to have remote jump start points fitted in the engine bay. The positive terminal will be under a cover with '+' on it. The negative point is likely to be a bolt located very close to it. Remember that the negative connection can be made to any good non-moving, non-painted, non-rubber mounted metal bolt or bracket.

What does the EOBD plug look like?

The plug has 16 pins and is shaped (as shown) in such a way that it is not possible to connect incorrectly.



How do I find my EOBD plug?

Locating the vehicle's 16 pin EOBD plug should be easy to find, as EU legislation states it should be accessible with no special tools. The plug however can be concealed behind panels or body trim. In theory it should always be reachable by someone sitting in the driver's seat, but this EU ruling is not strictly observed by some vehicle manufacturers due to the UK market being right hand drive.

1. When connecting the 16 pin EOBD plug please ensure you have the plug the correct way up.

It is shaped in such a way that it will only fit when correctly aligned.

2. For further advice on locating the EOBD plug contact your local garage who does your servicing and repairs.

The blue LED light goes out when I connect to my vehicle

This indicates the cable has been connected to the vehicle incorrectly.

TROUBLE SHOOTING Q&As

The AA Car Battery Solar Charger is showing a blue flashing light but the vehicle battery is still going flat.

Several checks need to be carried out i.e:

- (a) Has the AA Car Battery Solar Charger been correctly connected?
- (b) Is the vehicle's battery in a serviceable condition?
- (c) Is there something draining the battery such as a boot or glovebox light, or is there a fault with the vehicle's charging system?
- (d) Is there sufficient daylight where the vehicle is being parked?
- (e) It is possible that the vehicle's EOBD plug may not be configured correctly to comply with the standard EOBD protocol. To confirm the AA Car Battery Solar Charger is working correctly we would recommend you try using the auxiliary 'battery clamp cable' and connecting direct to the battery.

Will the AA Car Battery Solar Charger work with tinted windows?

Yes, the tint allowed on a front windscreen will only block a portion of the light. This means the solar rays that strike the surface of the AA Car Battery Solar Charger will still provide an adequate charge to maintain the battery.

ADDITIONAL INFORMATION

For additional information or help when using your AA Car Battery Solar Charger call our experienced Technical Team on **0370 142 00 02** and select option 2.



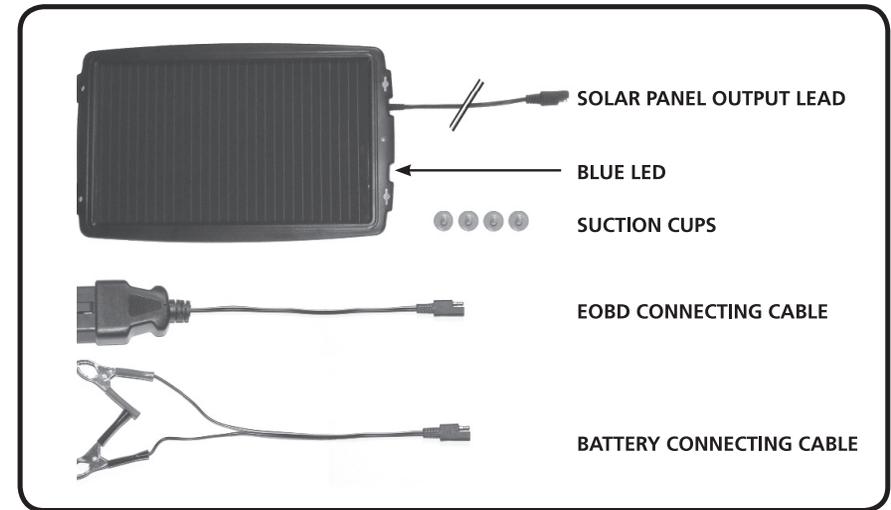
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AA CAR BATTERY SOLAR CHARGER USER GUIDE



Description	Quantity	Description	Quantity
2.4W solar panel with LED indicator and connecting lead with two pin plug	1	Battery connecting cable with two pin plug	1
EOBD connecting cable with two pin plug	1	Suction cup	4
User guide	1	Quick start guide	1

SPECIFICATION			
Peak power output	2.4 watt	Optimum working current	0.13 - 0.2 amps
Peak volts output	12.7 volts		

Thank you for purchasing the AA Car Battery Solar Charger. Please read the instructions carefully before using this product and retain this leaflet for future use.

AA CAR BATTERY SOLAR CHARGER USER GUIDE

INTRODUCTION

The AA Car Battery Solar Charger is designed to maintain the vehicle battery by converting light energy from the sun into electricity.

The AA Car Battery Solar Charger can also be used to maintain batteries stored in caravans, boats, 12V power packs and vehicles in long-term storage.

- This unit is maintenance free and will provide many years of reliable service.
- During daylight hours the unit will protect the battery against the natural discharge process that occurs within a lead acid battery.
- It is ideal for vehicles that have occasional use, or are used for short journeys.
- It extends battery life by keeping the battery in a good state of charge (batteries need to be kept maintained above 12.4V to ensure sulphation does not occur, the number one cause of battery failure).
- Modern vehicles use a number of electronic control units and body modules to monitor and maintain various system functions such as; perimeter locking, alarms, engine management systems, user memory parameters etc. Monitoring and maintaining these systems consume a small, but constant amount of electricity from the battery. The AA Car Battery Solar Charger will maintain the battery state of charge to offset this electrical drain.
- The AA Car Battery Solar Charger is not designed to recharge a discharged battery.

There are four main reasons for using a solar panel:

1. **Batteries naturally discharge** - automotive batteries naturally discharge when not in use.
2. **Modern vehicles have a small but constant battery drain** - modern vehicles can now have upwards of 30 body control modules (computers) plus alarm systems, immobilisers and lock monitoring. These units will all consume valuable electricity from the battery (up to 0.02 of an amp per hour). This means over the course of a week or two with no or little vehicle use the battery can become discharged.
3. **Battery life is shortened if it is not kept charged** - a 12V battery that is not

correctly maintained above 12.4V can suffer from sulphation.

Sulphation is the number one cause of battery failure, something not covered under the warranty as it is not a manufacturing defect.

4. **Peace of mind that the vehicle will start** - vehicles that are used infrequently or only do short trips are prime candidates for discharged batteries.

SOLAR CHARGER FEATURES

1. Easy to install.
2. Will not overcharge the battery.
3. Fitted with a blue flashing LED to indicate the AA Car Battery Solar Charger is operating correctly.
4. Built in discharge protection.
5. Reverse polarity protection.
6. The 'Thin Film' technology this panel uses allows a wider spectrum of the natural light to be absorbed, meaning the unit can still generate electricity under cloudy winter conditions. This technology also enables the solar panel to handle the intense heat of the summer sun with little power loss due to the rising temperature.

SAFETY REMINDERS

1. Please follow the vehicle manufacturer's safety instructions with regard to battery handling.
2. Please follow any relevant Health and Safety instructions shown on the battery label.
3. The AA Car Battery Solar Charger panel must only be used when the engine is switched off and the vehicle is parked. It must never be used when the vehicle is in use.
4. The AA Car Battery Solar Charger uses glass substrate. Please handle with care.
5. Always keep the glass surface clean with a soft cloth in order to ensure its maximum output.
6. Avoid contact with acid and alkali.
7. Keep this unit and all of its contents away from small children and store in the box when not in use.

8. The black surround of the AA Car Battery Solar Charger is likely to become hot, therefore please handle with care.
9. Please ensure the AA Car Battery Solar Charger is securely attached to the mounting surface.
10. Ensure that the AA Car Battery Solar Charger is kept dry and out of the rain.

IMPORTANT POINTS TO FOLLOW

- Disconnect the AA Car Battery Solar Charger before starting the engine.
- Ensure the cabling to the AA Car Battery Solar Charger does not become a trip hazard once connected.
- Store the AA Car Battery Solar Charger in a safe place when not in use to ensure it will not get damaged or can become a hazard to vehicle occupants in the event of an emergency stop.
- The AA Car Battery Solar Charger is not designed to charge a battery that has been discharged due to something being left on. If this has happened the battery should be 'bench charged' on the correct type of battery charger.

INSTALLING THE AA CAR BATTERY SOLAR CHARGER

1. Place the AA Car Battery Solar Charger on the vehicle dashboard (**see note 1**).
2. Position the AA Car Battery Solar Charger to ensure it will receive the maximum amount of light available from dawn until dusk (**see note 2**).
3. Connect either the EOBD cable or battery connecting cable to the AA Car Battery Solar Charger. (**see notes 3 and 4 below**).
4. Connect the other end of the connecting cable to either the EOBD socket or the 12V car battery. (**see note 4**).
5. Check the blue LED light is illuminated and flashing.

NOTES

Note 1: The vehicle dashboard makes the ideal sun trap when the vehicle is parked correctly. Ensure the AA Car Battery Solar Charger's electrical elements face the sun.

Note 2: For optimum performance position the long side of the AA Car Battery Solar

Charger across the width of the dash and angle it to capture maximum sunlight (tip - the use of a rolled up duster or similar makes a perfect prop for this operation). When positioning the AA Car Battery Solar Charger please take into account potential shading caused by trees and buildings as the sun sets. The unit also comes complete with 4 suction cups to enable the unit to be attached to the inside of the windscreen or onto the dash if required.

Note 3: We recommend the AA Car Battery Solar Charger is connected via the vehicle's EOBD plug. Using the EOBD plug is the preferred method as it is quicker, more convenient and saves the need to open the bonnet to locate the battery or the remote jump start points.

If your vehicle is not equipped with an EOBD plug then don't worry, the kit comes with two auxiliary connecting cables; one for the EOBD plug and one for connecting direct to the vehicle's battery.

Note 4: The AA Car Battery Solar Charger requires two connections to be made in the correct order. First connect the EOBD or battery cable to the AA Car Battery Solar Charger output lead. Then connect to either the vehicle's EOBD socket or battery terminals depending on which connecting cable you have chosen to use.

INSTALLATION Q&A

When did car manufacturers start fitting EOBD plugs and what are they?

The EOBD plug is used to communicate with the vehicle's engine management system. An EU directive in the 1990s stated all new petrol engine vehicles should have an EOBD plug from 2001, diesel vehicles from 2004 and motorbikes from 2005. NB: There will be the odd exception where a vehicle manufacturer did not need to comply on their older models that were introduced before the legislation dates.

What if my vehicle does not have an EOBD plug?

Connection can still be made direct to the battery or the remote battery jump start points using the connecting cable with the two battery clamps.

The connecting battery clamp has a red and black lead, which goes where?

Connect the red clip to the battery positive (+) and the black clip to the battery earth (-) cable fixing bolt (follow the cable from the battery negative terminal). If this is not accessible, use a good non-painted, non-moving metal fixing bolt or bracket. If in