



# WARRANTY

**12**  
MONTH

**MOBI OUTDOOR warrants that each DC DC charger that is purchased while this Warranty is in effect will be free from defective workmanship and materials for a period of 1 year.**

**Conditions:**

If the Purchaser acquired a Product for the purpose of resupply, then this Warranty shall not apply to that Product. In particular, the sale of a Product via an online auction, online store or other Internet website by a party that is not an authorised distributor or reseller of the Product will be deemed to be a resupply within the meaning of the Australian Consumer Law and will render this Warranty void, as MOBI OUTDOOR has no control over the storage, handling, quality or safety of Product sold by such persons.

While MOBI OUTDOOR warrants that the Product will be free from defects in materials and workmanship in the circumstances set out in this Warranty, to the maximum extent permitted by law MOBI OUTDOOR does not warrant that the operation of the Product will be uninterrupted or error-free.

**Exclusions and limitations:**

This Warranty will not apply to, or include any defect, damage, fault, failure or malfunction of a Product, which MOBI OUTDOOR determines, in exercise of its sole discretion, to be due to:

- normal wear and tear or exposure to weather conditions over time;
- accident, misuse, abuse, negligence, vandalism, alteration or modification;
- non-observance of any of the instructions supplied by MOBI OUTDOOR, including instructions concerning installation, wiring, use or maintenance of the Product, including without limitation choice of location;
- failure to ensure proper maintenance of the Product strictly in accordance with MOBI OUTDOOR's instructions or failure to ensure proper maintenance of any associated equipment or machinery;
- installation, repairs or maintenance of the 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;
- faulty power supply, power failure, electrical spikes or surges, lightning, flood, storm, hail, extreme heat, fire or other occurrence outside the control of MOBI OUTDOOR;
- use other than for any reasonable purpose for which the Product was manufactured;
- any indirect or incidental damage of whatever nature outside the control of MOBI OUTDOOR.

**Claims:**

Contact the original point of purchase for instructions.

Request return authorization. No returns will be credited without an authorization.

In the case of returned products, the DC DC charger must be packed with enough padding and in the appropriate cartons to eliminate the risk of damage in transit.

MOBI OUTDOOR has the option to credit or replace products deemed defective and under warranty.

MOBI OUTDOOR shall not be liable for indirect, accidental or consequential damages arising out of the sale or relating to the use of this product. The end user assumes all responsibility for any and all personal injury and property damage resulting from the use, maintenance, transportation or installation of the product. The liability to us for any and all claims shall not exceed the purchase price of the DC DC charger.

This limited warranty is in lieu of, and manufacturer disclaims and excludes, all other express warranties.

Manufacturer further limits the duration of all, whether statutory, express or implied warranties, including, without limitation, any warranty of merchantability or fitness for a particular purpose, to the warranty period.

Manufacturer's exclusive liability for breach of any warranty on the DC DC charger shall be to replace the DC DC charger within the warranty period in accordance with the terms of this limited warranty. In no event shall Manufacturer be liable for any loss or damages of any other kind whether direct, incidental, consequential including lost profits, exemplary, special or otherwise, including any lost profits or removal, shipping, or installation expenses.



## DC DC CHARGER USER MANUAL

VABG004A / VABG006A / VABG013A



PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION AND MAINTENANCE.  
FOLLOW ALL PROVIDED WARNING & CAUTION, AND KEEP IT FOR FUTURE REFERENCE.



## **WARNING & SAFETY INSTRUCTIONS**

SAVE THESE INSTRUCTIONS - THIS MANUAL CONTAINS IMPORTANT SAFETY INSTRUCTIONS FOR THE DC BATTERY CHARGER.  
DO NOT OPERATE THE BATTERY CHARGER UNLESS YOU HAVE READ AND UNDERSTOOD THIS MANUAL AND THE CHARGER IS INSTALLED AS PER THESE INSTALLATION INSTRUCTIONS. MOBI OUTDOOR RECOMMENDS THAT THE CHARGER 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. Do not charge batteries in an enclosure due to possible explosion of entrapped explosive gas.

### **▲ CAUTION**

- The Battery Charger should not be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge. Children should be supervised to ensure that they do not play with the Battery Charger.
- Do NOT alter or disassemble the Battery Charger under any circumstances. Otherwise, it may result in a risk of electric shock or fire and will void the warranty.
- The charger is designed for in-door use. Protect the charger from ingress of water.
- Only use the Battery Charger for charging 12V standard lead acid, AGM, gel, calcium and LiFePO4 batteries.
- Do NOT charge non-rechargeable batteries.
- Never place the charger on top of a battery.
- Inadequate ventilation may lead to overheating and inefficient charging.
- When using the Battery Charger to charge a Lithium Iron Phosphate battery, only batteries that feature an inbuilt battery management system featuring inbuilt under and over voltage protection and cell balancing are suitable.
- Selecting wrong cable sizes could result in harm to the installer or user and/or damage to the battery charger or other equipment installed in the system. The installer is responsible for ensuring that the correct cable sizes are used when installing this Battery Charger.
- NEVER smoke or allow a spark or flame in vicinity of battery or engine. This may cause the battery to explode.
- Wear complete eye protection and clothing protection. 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 15 minutes and seek medical assistance immediately.
- This charger should be firmly fastened to prevent fall down or tip over.
- Examine the battery charger regularly. Do NOT use the charger if it has been dropped or damaged.
- Please disconnect the charger before maintenance or cleaning.



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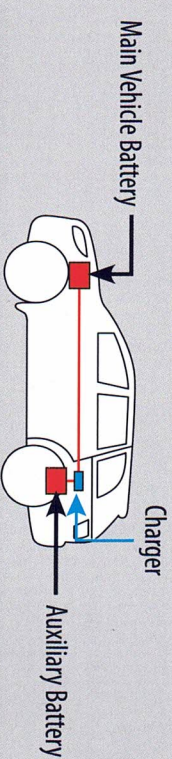
- 1PC(s) MOBI OUTDOOR DC DC Charger
- 1PC(s) User Manual

## INSTALLATION INSTRUCTIONS

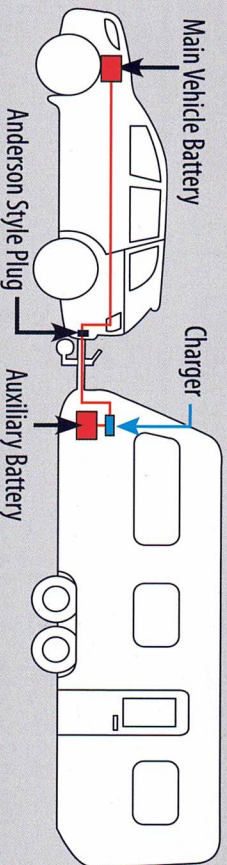
### Location Considerations

- The battery charger can be installed horizontally as well as vertically.
- The device must be installed on a level and sufficiently sturdy surface.
- The battery charger must be installed in a place that is protected from moisture.
- The battery charger must not be installed in the presence of flammable materials.
- The battery charger must not be installed in a dusty environment.
- The place of installation must be well ventilated. A ventilation system must be available for installations in small, enclosed spaces. The clearance around the battery charger must be at least 5cm.
- The battery charger should be installed as close as possible to the battery you will be charging (auxiliary battery).
- 50A Anderson plug is recommended when this charger is installed on a caravan or a camper (see picture below).

### Suggested fitment to vehicle only



### Suggested fitment to vehicle with caravan



This charger can also be connected to the solar panel, see detailed wiring diagram on the next page.

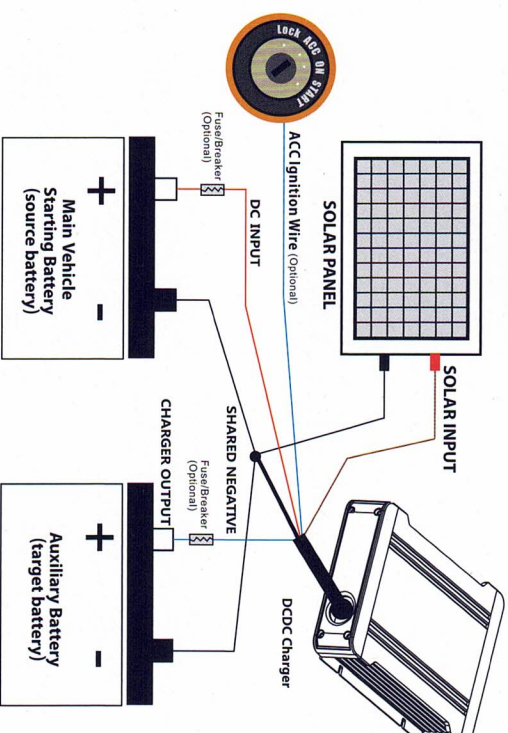


## MOUNTING

- Trace the mounting slots with a pencil/pen when placing the DC DC charger against the desired area.
- Use screws to secure the DC DC charger onto the surface.

## BATTERY WIRING

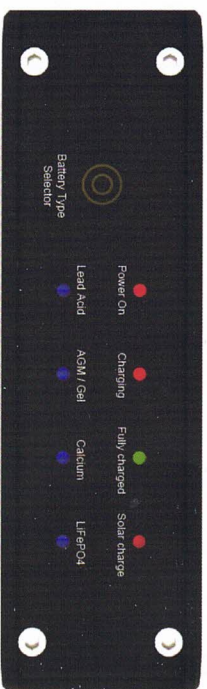
This diagram is for reference only. Please follow local rules and regulations when installing the charger.



1. Before wiring, check on the type of your alternator.  
If it is a traditional alternator, you don't have to use the ACC line.  
If it is a smart alternator, it is recommended to use the ACC line. Connect the line to the ignition of your vehicle and turn your key to the ACC position when engine starts. The DC-DC charger will detect it and begin to charge your auxiliary battery.
2. When wiring 20A DC DC charger, 40A fuse / breaker is recommended for the main battery and 30A fuse / breaker for the auxiliary.  
When wiring 30A DC DC charger, 50A fuse / breaker is recommended for the main battery and 40A fuse / breaker for the auxiliary.  
When wiring 40A DC DC charger, 60A fuse / breaker is recommended for the main battery and 50A fuse / breaker for the auxiliary.



# GET TO KNOW YOUR CHARGER



INDICATOR	COLOR	STATUS	INDICATION
Power On	Red	Constantly On	Alternator / Solar panel is connected and supplying power.
Charging	Red	Flashing with the Buzzer Beeping	Auxiliary battery malfunction.
		Constantly On	Auxiliary battery is being charged with alternator / solar panel.
		Flashing	Insufficient sunlight for solar panel.
Fully Charged	Green	Constantly On	Auxiliary battery is fully charged.
Solar Charge	Red	Constantly On	Solar panel is connected.
Lead Acid	Blue	Constantly On	Lead acid battery type is selected and battery is being charged.
AGM/Gel	Blue	Constantly On	AGM/Gel battery type is selected and battery is being charged.
Calcium	Blue	Constantly On	Calcium battery type is selected and battery is being charged.
LiFePO4	Blue	Constantly On	LiFePO4 battery type is selected and battery is being charged.

There are 2 methods to re-select battery type.

**Method 1:** Disconnect the auxiliary battery, press "Battery Type Selector" to select battery type and reconnect the battery.

**Method 2:** With the auxiliary battery connected, long press "Battery Type Selector" to re-select battery type.



## OPERATION

- Start your vehicle and let it idle.
- The charger will recognize that there is a charge being applied to the main battery.
- If the ACC line is not connected, the charger will begin to charge the auxiliary battery once the main battery has reached 13V.
- If the ACC ignition signal is detected, the charger will begin to charge the auxiliary battery once the main battery has reached 11.5V.
- The default setting is for lead acid batteries. If you are charging another type of battery, press "Battery Type Selector" to re-select batteries. And the setting will be saved until it is changed.
- The charger will continue to operate even after the vehicle has been switched off.
- If the ACC line is not connected, the charger will automatically shut off once the main battery falls below 12.5V. If the ACC ignition signal is detected, the charger will automatically shut off once the main battery falls below 10.8V.

## WAKE-UP OF LITHIUM-ION BATTERIES IN SLEEP MODE

- A lithium-ion battery in sleep mode must be waken up before charging.
- First, correctly connect the DC DC charger to the battery.
- Then, select the "LiFePO4" mode and long press "Battery Type Selector" for 5s. The "charging" (red) indicator will flash for 10s.
- If the battery is successfully waken up, the "charging" (red) indicator will be constantly on and the DC DC charger begins to charge the battery.
- Otherwise, the DC DC charger will enter the standby state and the "Power On" indicator will be on.

## DEEP CYCLE BATTERY MAINTENANCE

The deeper you discharge the battery the more it will reduce the battery's total cycle life. We recommend discharging a battery to no lower than 50% DOD.

Assuming that your fridge uses about 24Ah per day and your 100Ah battery is only used to power your fridge while receiving no charge, you will need to charge the battery after 2 days. In this case, at least 1.25 hours of driving/solar charging is required with a 40A DC DC charger, at least 1.67 hours with a 30A DC DC charger, or at least 2.5 hours with a 20A DC DC charger.

## CHARGING VOLTAGE

	AGM/GEL	LEAD ACID	CALCIUM	LiFePO4
<b>BOOST</b>	14.3 V	14.0 V	15.0 V	14.0 V
<b>CHARGING</b>	14.7V	14.4 V	15.4 V	14.6 V
<b>MAINTENANCE</b>	13.5 V	13.5 V	13.5 V	

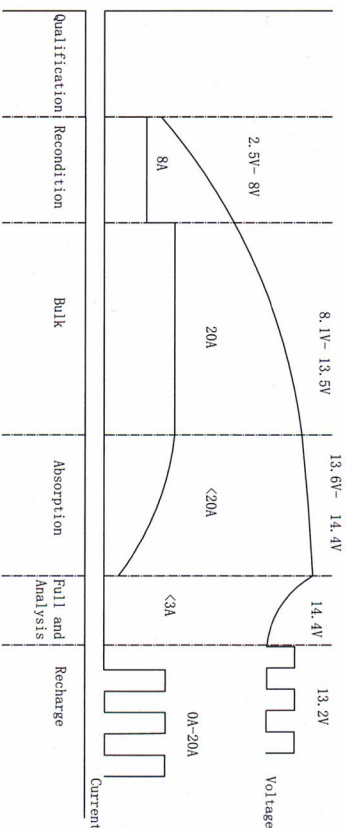


# SPECIFICATIONS

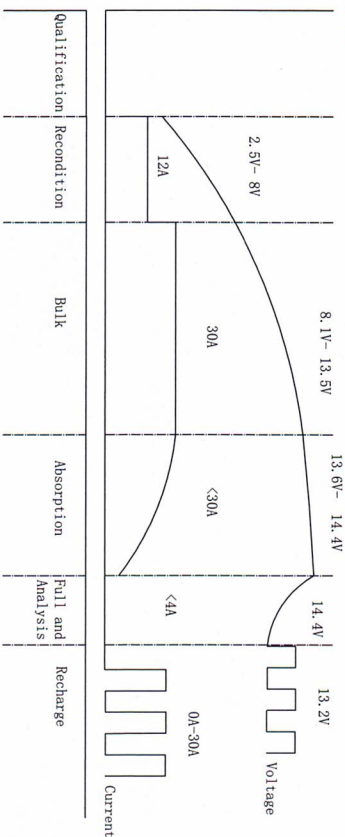
<b>SKU</b>	VABG004A	VABG013A	VABG006A
<b>Product Dimension:</b>	8.19"L (208mm) x 5.16"W (131mm) x 1.38"H (35mm)		
<b>Product Weight:</b>	2.09lbs (0.95kg)	2.65lbs (1.2kg)	
<b>Case Material:</b>	Aluminum		
<b>Input Voltage:</b>	DC Battery: 13.0 - 16.0V Solar Input: 16.0 - 26.0V		
<b>Minimum Solar Charging Current:</b>	1.5A	2A	2.5A
<b>Output / Charging Voltage:</b>	2.5-15.4V		
<b>Output Current:</b>	20A	30A	40A
<b>Minimum Start Voltage:</b>	2.5V - For battery being charged		
<b>Operating Temperature:</b>	-20°C (-4°F) ~ +45°C (113°F)		
<b>Max Alternator Input Power:</b>	300W	450W	600W
<b>Max Solar Input Power:</b>	300W	450W	600W
<b>CHARGE CONTROL</b>			
<b>Soft Start:</b>	Yes		
<b>Soft Charge Current:</b>	8A	12A	16A
<b>Bulk Charge Voltage:</b>	14.7V (AGM/Gel) 14.4V (Lead Acid)		15.4V (Calcium) 14.6V (LiFePO4)
<b>Absorption:</b>	Constant voltage with automatic amperage control		
<b>Float Charge Voltage:</b>	13.5V (AGM/Gel) 13.5V (Lead Acid) 13.5V (Calcium)		
<b>Float Charge Current:</b>	0-20A	0-30A	0-40A
<b>Battery Range:</b>	60-600Ah	90-900Ah	120-1200Ah
<b>Cable Length / Twin Core:</b>	0 - 1Mtr: 11AWG 1 - 5Mtr: 9AWG 5Mtr +: 7AWG		0 - 1Mtr: 8AWG 1 - 5Mtr: 6AWG 5Mtr +: 4AWG

# CHARGING ALGORITHM

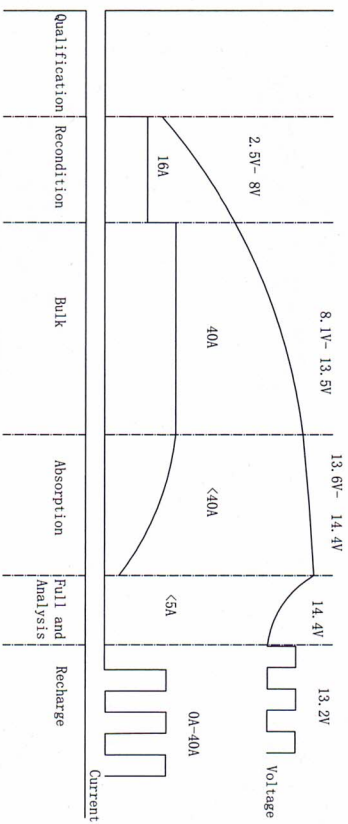
VABG004A



VABG013A



VABG006A



Charging algorithm will change according to battery type.

**NOTE:** Charging voltage is specified by your battery manufacturer. Non observance of instructions will void the warranty of your battery.





## TROUBLESHOOTING

### **There are no LEDs ON at all.**

This indicates that there is no battery connected to the output (BLUE wire) or that battery is not at a suitable voltage level to be charged AND the input (BROWN/RED wire) of the charger is not connected.

1. Check the auxiliary battery is above 2.5V.
  2. Check all wiring to the charger and battery, particularly the Ground (BLACK wire).
  3. Check fuses are intact and properly connected.
- If the problem is still evident please contact us.

### **I have solar connected but the 'Solar Charge' LED is OFF.**

This indicates that the required turn ON conditions for this source have not been met. Either the open circuit voltage of the solar panel at the BROWN wire on the charger is below 16V or there is not sufficient power available from the solar panel (due to poor light conditions or a faulty panel).

1. Is the sun out? No or low sunlight levels mean low power to your solar panels.
2. Check that the solar panel is not being shaded (by a tree etc.)
3. Check the voltage at the BROWN wire, as close as possible to the charger, is above 16V.
4. Check all wiring to the solar panel, particularly the Ground (BLACK wire).
5. Ensure you have an unregulated solar panel.

Allow up to 2 minutes after any change for the unit to recognise the input, if the problem is still evident please contact us.

### **The charger is connected to the 'Vehicle' but the 'Charging' LED is OFF.**

This indicates that the required turn ON conditions for this source have not been met. With the ACC line left unconnected, the voltage at the RED wire must be above 13V.

With the ACC line connected to ignition, ignition must be on and the voltage at the RED wire must be above 11.5V.

1. Check that the vehicle is running.
  2. Check the voltage on the RED wire is above the required turn ON threshold for your installation.
  3. Check all wiring to the vehicle battery, particularly the Ground (BLACK wire).
- If the problem is still evident please contact us.

### **Reverse connection protection.**

1. The input and output are connected reversely. The main battery becomes the auxiliary battery, and the auxiliary battery becomes the main battery. If the starting voltage is reached, charging will start. If the starting voltage is not reached, the charger has no display and does not charge. Please ensure that the input and output are connected correctly.
2. If the positive and negative cables of the output are connected reversely, the charger will be beeping.
3. If the positive and negative poles of the solar energy are connected reversely, the charger has reverse connection protection and cannot charge normally and has no output.