

WARNINGS & SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS — This manual contains important safety instructions. Do not operate the system unless you have read and understood this manual. REDARC recommends that the products referenced in this manual be installed by a suitably qualified person.

Disclaimer: REDARC accepts no liability for any injury, loss or property damage which may occur from the improper or unsafe installation or use of its products.

⚠ 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 Main Unit and Battery Monitor.

⚠ CAUTION

- 1. This appliance is not intended for use by persons (including children under 8 years old) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance in a safe way by a person responsible for their safety and they understand the hazards involved. Children should be supervised to ensure that they do not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- 2. DO NOT alter or disassemble the Main Unit or Battery Monitor under any circumstances. All faulty units must be returned to REDARC for repair. Incorrect handling or reassembly may result in a risk of electric shock or fire and may void the unit warranty.
- 3. Only use the Main Unit and Battery Monitor with standard automotive lead acid, calcium content, gel, AGM, SLI, deep cycle, heated or standard lithium iron phosphate (LiFePO₄) type 12V batteries.
- 4. When using the Main Unit to charge a lithium iron phosphate (LiFePO₄) battery, only batteries that have an inbuilt battery management system featuring under and over voltage protection and cell balancing are suitable.
- 5. The heated lithium (H) charging profile should only be used with lithium batteries that have a functioning heating element. If unsure, the standard lithium (Li) charging profile must be used. Using the wrong charging profile may damage your heated lithium battery.
- 6. 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, select another charging profile.
- 7. Check the manufacturer's data for your battery and ensure that the continuous current rating of the Main Unit does not exceed the manufacturer's recommended maximum charging current. The battery charge current can be configured to match the manufacturer's recommendations if required.
- 8. Wiring must be installed in protected areas away from heat sources and sharp objects. Cables must not be routed over or through moving parts of the vehicle. Additional protection such as conduit may be required, especially if routing cables through the engine bay.

- 9. Cable and fuse sizes are specified by various codes and standards which depend on the type of vehicle the Main Unit and Battery Monitor is installed into. Selecting the wrong cable or fuse size could result in harm to the installer or user and/or damage to the Main Unit or Battery Monitor or other equipment installed in the system. The installer is responsible for ensuring that the correct cable and fuse sizes are used when installing this product.
- 10. The BCDC Alpha 100R is not intended to supply power to a low voltage electrical system other than to charge a battery.
- 11. DO NOT attempt to charge non-rechargeable batteries with the BCDC Alpha 100R.
- 12. NEVER smoke or allow a spark or flame in the vicinity of the battery or engine. This may cause the battery to explode.
- 13. The auxiliary battery must be placed in a well-ventilated area when charging vented batteries.
- 14. The Auxiliary Battery output terminal of this Charger should not be connected to the vehicle start battery.
- 15. The BCDC Alpha 100R must be installed in the following order: auxiliary battery positive (+), auxiliary battery negative (-) (battery monitor), common ground, start battery positive (+), vehicle ignition (if required), solar then the R-Bus cable.
- 16. The BCDC Alpha 100R must be disconnected in the following order: R-Bus cable, vehicle ignition (if installed), solar, start battery positive (+), common ground, auxiliary battery negative (-) (battery monitor) then auxiliary battery positive (+).

PERSONAL SAFETY PRECAUTIONS

To assist with the safe operation and use of the Main Unit and Battery Monitor when connected to the battery:

- a. **HOT SURFACE:** High amperage loads connected to the Battery Monitor can cause the terminals and metal components to become extremely hot. To avoid burns, do not touch the hot parts without suitable personal protective equipment.
- b. Wear complete eye protection and clothing protection. Avoid touching eyes while working near a battery.
- c. 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.



NOTICE

- 1. Keep the Main Unit and Battery Monitor away from major heat sources, high voltages, and avoid extended exposure to sunlight.
- 2. DO NOT install the Main Unit and Battery Monitor in the engine bay, they are not designed to operate in engine bay environments.
- 3. The installer is responsible for applying the correct torque to the Terminal Bolts on the Battery Monitor. Over-torquing bolts may damage the Terminals.
- 4. DO NOT bottom-out the bolt threads when fastening Terminal Bolts to the Battery Monitor Terminals, this may cause a poor electrical connection.

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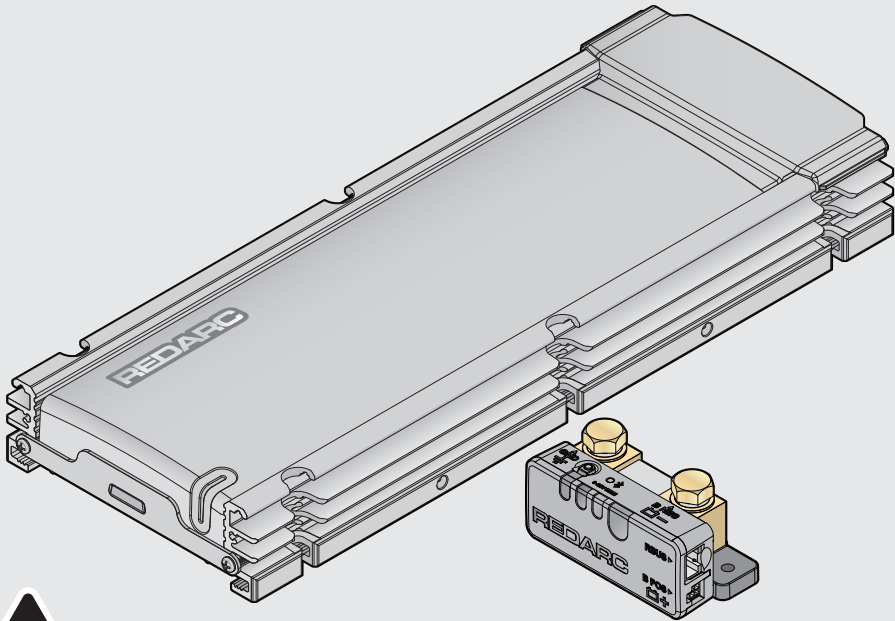
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INSTALL GUIDE

BCDC ALPHA® 100R
BCDC12100R

12V 100A DC-DC Battery Charger with
Smart Battery Monitoring and Bluetooth®



BCDC ALPHA 100R OVERVIEW

The BCDC Alpha 100R charges all common 12V automotive battery types including standard and heated lithium and is equipped with screw terminals for easy installation.

The BCDC Alpha 100R prioritises charging from solar before supplementing from the vehicle start battery to lighten the load on your alternator and maximise the collection of free solar energy, with an option for excess solar energy to then top-up the vehicle start battery.

The Battery Monitor provides critical system information including battery voltage, current, State of Charge (SoC) and temperature information of the connected battery via the RedVision® app.

The BCDC Alpha 100R can be combined with REDARC R-Bus compatible products, including the RedVision® Display and TVMS Rogue.

The BCDC Alpha 100R also features the capability to seamlessly revive and charge a fully flattened lithium battery.

FULL-LENGTH
MANUAL

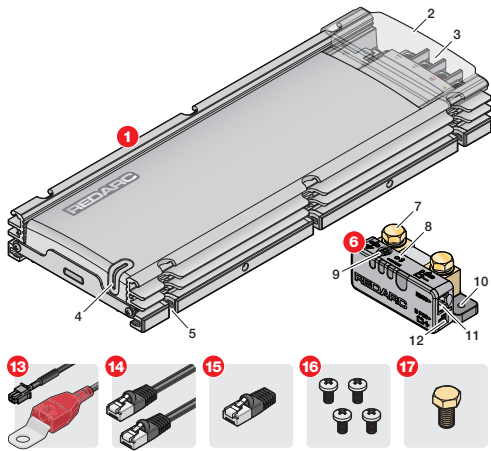
This document contains everything you need to know to complete a basic install of your BCDC Alpha 100R.

Note that there is a full-length manual available that contains expanded installation information for more complex systems.



For the latest version of this document and any available translations, visit the REDARC website: www.redarcelectronics.com

KIT CONTENTS



1 MAIN UNIT

- 2. Terminal Cover
- 3. Terminals
- 4. Status LED
- 5. Mounting Points (x6)

6 BATTERY MONITOR

- 7. Terminal Bolts M10 x 16 mm (x2)
- 8. Status LED
- 9. Control Button
- 10. Mounting Points (x2)
- 11. R-Bus Socket
- 12. Battery Sense Lead Socket

13 BATTERY SENSE LEAD — 1 m (3'3")

14 R-BUS (RJ45) CABLE — 2 m (6'7")

15 TERMINATING RESISTOR

Located in the R-Bus Interface input on the Main Unit.

16 M6 x 12mm PAN HEAD FASTENERS (x4)

Located in the M6 Terminals on Main Unit.

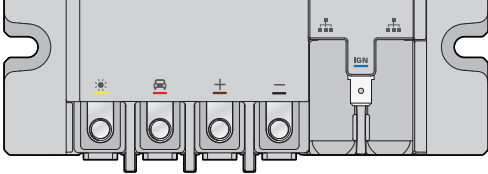
17 M10 x 20mm ALTERNATIVE TERMINAL BOLT

MAIN UNIT PARTS

STATUS LED

On start-up, the Status LED will light up red for a short period. If there are faults, the Status LED will flash or turn solid red.

TERMINALS



Solar (M6)
Connects to the solar panel positive (+) wire.

Start Battery (M6)
Connects to the start battery positive (+) terminal.

Auxiliary Battery (M6)
Connects to the auxiliary battery positive (+) terminal.

Ground (M6)
Connects to common ground.

R-Bus Interface Inputs
Connects to the Battery Monitor and terminating resistor or to another R-Bus device to expand the RedVision® system.

IGN **Vehicle Ignition FASTON Input**
Connects to an ignition signal for vehicles with smart alternators.

SWARF BARRIERS

On the Main Unit there are swarf barriers to prevent swarf, cable trimmings and other materials from entering the Main Unit during installation.

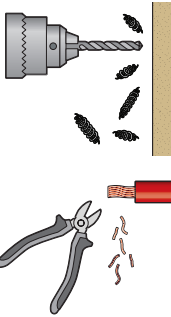
DURING INSTALLATION

DO NOT remove any of the barriers when mounting and wiring your system.

Metallic objects entering the Main Unit can cause permanent damage and may void the warranty.

AFTER INSTALLATION

Once the Main Unit and all other components in your system are fully installed, the barriers should be removed.



INSTALLATION — MOUNTING

DON'T:

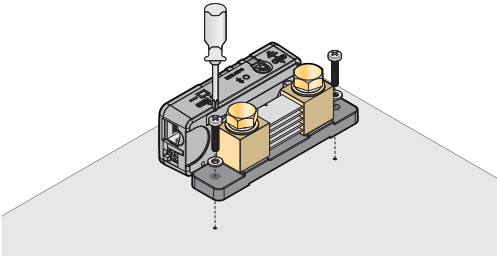
- ✗ DO NOT install the Main Unit and Battery Monitor in the engine bay.
- ✗ DO NOT mount the Main Unit with the Terminals facing upwards.
- ✗ DO NOT mount the Battery Monitor with the R-Bus and B POS sockets facing upwards.
- ✗ DO NOT mount using adhesives or adhesive tape.

DO:

- ✓ Use all mounting points on the Main Unit and Battery Monitor.
- ✓ Mount in a location where the Battery Monitor's Control Button and Status LED, and the Main Unit's Status LED are accessible and visible.
- ✓ Mount in a dry and protected location e.g. inside the vehicle's cabin, ute canopy, caravan or battery box.
- ✓ If installing the Main Unit or Battery Monitor in an enclosed space, make sure there is adequate venting at the top and bottom of the enclosure for cross-flow of air.
- ✓ Mount the Main Unit and Battery Monitor to fixed surfaces.
- ✓ Mount on flat a surface. Check the reverse side before drilling.
- ✓ Leave 100 mm (4") clearance around the Main Unit.
- ✓ Leave 30 mm (1.2") clearance around the Battery Monitor.

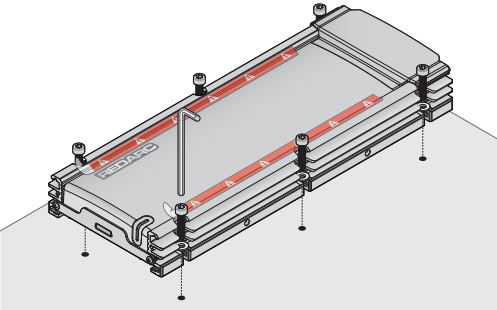
MOUNT THE BATTERY MONITOR

Mount using two **M6 (1/4")** to **M4 (5/32")** fasteners with washers.



MOUNT THE MAIN UNIT

Mount using six **M6 (1/4")** fasteners with washers.



SPECIFICATIONS

MAIN UNIT SPECIFICATIONS	
Nominal Current Rating	100A
Operating temperature*1	−20°C to 60°C (−4°F to 140°F)
Start Battery Input	
Voltage Range	9–32 VDC ===
Maximum Input Current	110A
Solar Input	
Voltage Range*2	9–48 VDC ===
Maximum Input Current	110A
Maximum Array Size	2000W
Output	
Nominal Output Voltage	12V
Voltage Range	9–16 VDC ===
Maximum Output Current	100A
Recommended Battery Capacity	100–1250Ah
Maximum Output Power	1600W
*1 As the temperature of the Main Unit rises above a certain level the current capacity of the output is decreased gradually to protect the battery and the Main Unit.	
*2 The maximum voltage of the solar array should be calculated for the minimum temperature that it would be exposed to. The value should be less than 48V or else damage to the Main Unit may occur. The Main Unit will not charge if the voltage is too high.	

BATTERY MONITOR SPECIFICATIONS	
Operating Voltage Range	9–32 VDC ===
Operating Temperature	−20°C to 60°C (−4°F to 140°F)
Current Measurement Range	± 500A
Current Measurement Accuracy	±0.3%, 1 to 500A @ 50°C (122°F)
Voltage Measurement Accuracy	±0.7%
Battery Temperature Measurement Range	−40°C to 100°C (−40°F to 212°F)
Temperature Measurement Accuracy	±3°C (±5.4°F)
Regulatory Compliance	FCC ID: 2BAH6-SU601 IC: 30290-SU601

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

This device complies with Industry Canada (IC) license-exempt RSS standard(s). Operation is subject to the following two conditions.

(1) This device may not cause interference.

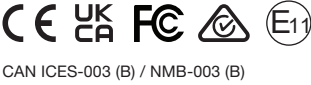
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes.

(1) L'appareil ne doit pas produire de brouillage.

(2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillard est susceptible d'en compromettre le fonctionnement.

COMPLIANCE



FCC — CLASS B

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules and with Innovation, Science and Economic Development Canada's licence-exempt RSS (s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

IMPORTER CONTACT INFORMATION

UK: Ozparts UK Ltd, 1 Prospect Place, Pride Park, DE24 8HG, Derby, UK

Europe: OZPARTS PL sp. z o.o. ul. Słowackiego 32/5 87-100, Torun, Poland

For written request please email power@redarcelectronics.eu

WARRANTY

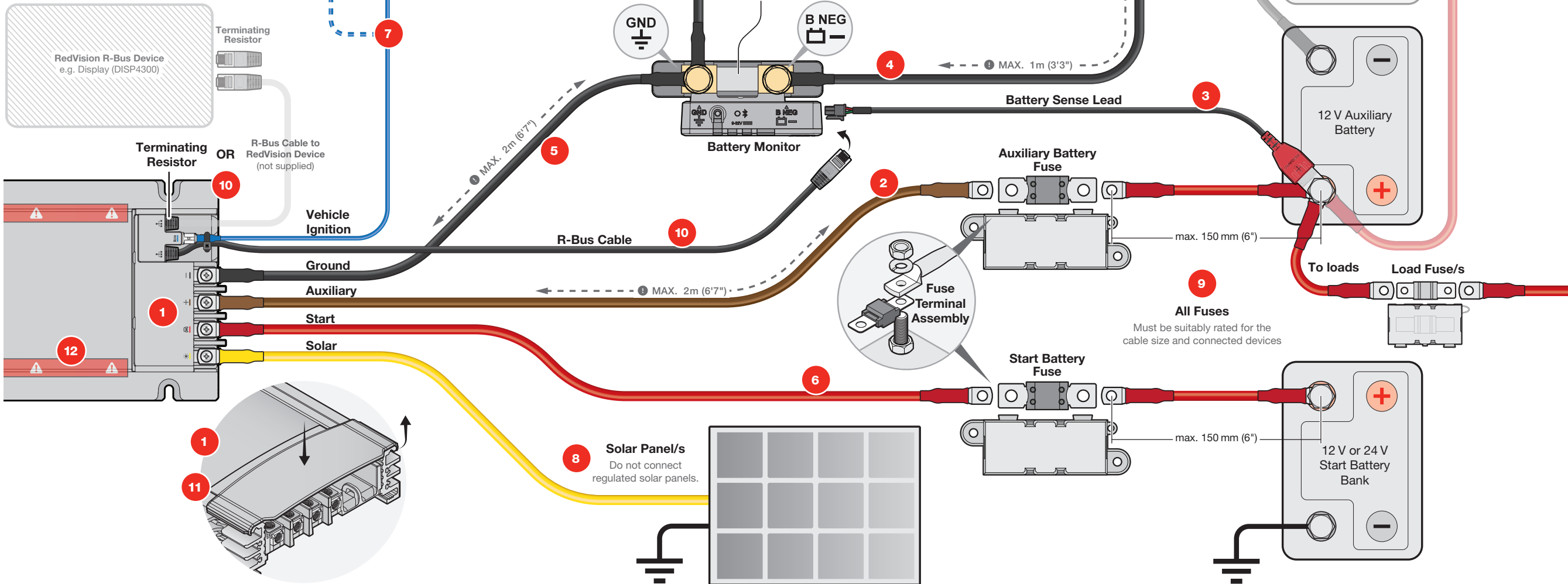
For full warranty terms and conditions, visit the Warranty page of the REDARC website at www.redarcelectronics.com/warranty

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North America:
REDARC Corporation, c/o Shalloco, Inc.
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- Faults are indicated by the Status LED on the Main Unit and Battery Monitor. In the event of any Status LEDs flashing or solid red, refer to the RedVision app or to the [full-length manual](#) to identify the cause of the fault.