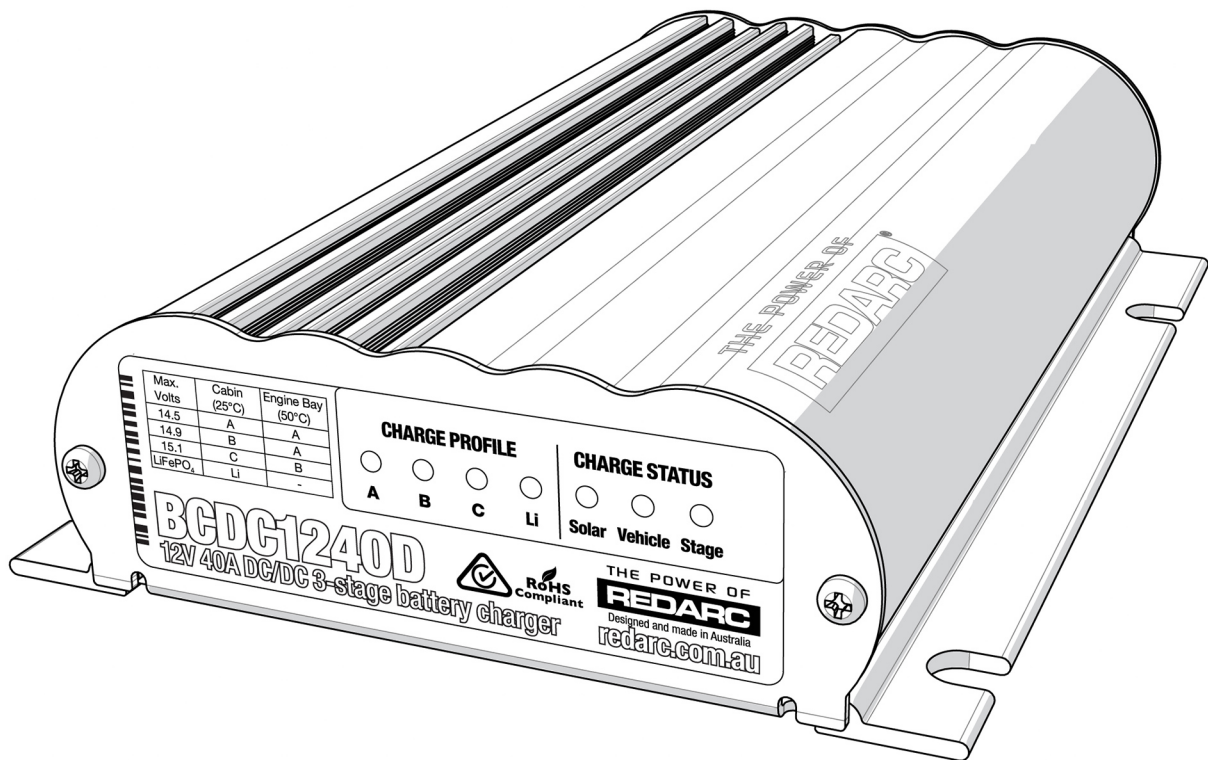


THE POWER OF

**REDARC**<sup>®</sup>

# Dual Input Multi-stage 12V In-vehicle Battery Charger

**BCDC1225D, BCDC1240D**



# THE BCDC1225D & BCDC1240D

BCDC1225D/BCDC1240D는 주행충전기 겸용 MPPT (Maximum Power Point Tracking)솔라 충전기 입니다.

※ MPPT(Maximum Power Point Tracking)는 구형솔라컨트롤러 PWM보다 효율이 125%인 최신형 솔라컨트롤러 입니다.

- 동제 품은 Green Priority방식으로 솔라충전이 자동으로 우선되고, 주행충전이 작동하므로 차량의 연비에 획기적입니다.
- 동 제 품은 세계 최초 모든 납황산 배터리 및 리튬인산철배터리의 충전이 가능한 유일한 제품입니다.
- 동 제 품은 최신 차량에 사용되는 스마트얼터네이터를 위한 전용모드가 있는 유일한 제품입니다.
- 동 제 품은 세계 최초 12V/24V (트럭/카운티 등)차량에 모두 사용할 수 있는 제품입니다.
- 동 제 품은 보조배터리 사용중 시동배터리의 방전을 막기위한 아이소레이터가 내장되어 있습니다.

## WARNING & SAFETY INSTRUCTIONS

**SAVE THESE INSTRUCTIONS - This manual contains IMPORTANT SAFETY INSTRUCTIONS for the BCDC1225D/BCDC1240D battery chargers.**

**DO NOT OPERATE THE BATTERY CHARGER UNLESS YOU HAVE READ AND UNDERSTOOD THIS MANUAL AND THE CHARGER IS INSTALLED AS PER THESE INSTALLATION INSTRUCTIONS. REDARC 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. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT YOU FOLLOW THE INSTRUCTIONS WHEN INSTALLING AND USING THE CHARGER.**

### **⚠ CAUTION**

1. The Battery Charger should not be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are supervised or have been instructed on how to use the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the Battery Charger.
2. Do NOT alter or disassemble the Battery Charger 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 Battery Charger for charging Standard Automotive Lead Acid, Calcium Content, Gel, AGM, SLI, Deep Cycle or Lithium Iron Phosphate type 12V batteries.
4. Check the manufacturers data for your battery and ensure that the 'Maximum' voltage of the profile you select does not exceed the manufacturers recommended maximum charging voltage. If the 'Maximum' voltage is too high for your battery type, please select another charging profile.
5. 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.
6. The Battery Charger is not intended to supply power to a low voltage electrical system other than to charge a battery.
7. Cable and fuse sizes are specified by various codes and standards which depend on the type of vehicle the Battery Charger is installed into. Selecting the wrong cable or fuse size 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 and fuse sizes are used when installing this Battery Charger.
8. NEVER smoke or allow a spark or flame in vicinity of battery or engine. This may cause the battery to explode.
9. **PERSONAL SAFETY PRECAUTIONS**  
To assist with the safe operation and use of the Battery Charger when connected to the battery:
  - a) Wear complete eye protection and clothing protection. Avoid touching eyes while working near a battery.
  - b) 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.

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# SPECIFICATIONS

Part Number	BCDC1225D		BCDC1240D	
Continuous Current Rating	25A		40A	
Vehicle Input Fuse Rating	40A (Not Supplied)		60A (Not supplied)	
Output Fuse Rating	<i>REDARC FK40 recommended</i>		<i>REDARC FK60 recommended</i>	
Output Power	375W		600W	
Vehicle Input Voltage Range	9-32V			
Solar Input Voltage Range	9-32V (솔라패널 장착시 패널은 12V용으로 장착)			
Output Battery Type	Standard Lead Acid, Calcium content, Gel, AGM or LiFePO <sub>4</sub> type only			
Charging Profile	A	B	C	Li
- Maximum Voltage (refer to section 1.2.1)	14.6V	15.0V	15.1V	14.6V
- Float Voltage	13.3V			N/A
No Load Current	<100mA			
Standby Current	<8mA			
Ambient Temperature	0°C to 80°C			
Minimum O/P Battery Volts	4.2V			
Weight	850g			
Dimensions	165x120x37mm			
Warranty	2 years			
Standards	RCM, AS/NZS CISPR11:2004			

# 1 PRODUCT FUNCTION

BCDC1225D / BCDC1240D는 12V(일반승용차량 및 봉고차량 등) 와 24V(트럭 및 카운티 차량 등) 모든 차량에 사용 가능한 세계 최초의 스마트 주행충전기로, 솔라컨트롤러 MPPT가 장착된 솔라(12V) 충전기 겸용입니다.

※ 주행충전기와 솔라충전기가 하나로 된 All-In-One 제품입니다.

동 제품은 또한 세계 최초로 12V용 모든 납황산 배터리 및 리튬인산철 배터리를 충전할 수 있으며, 최근 출시된 차량에 장착된 스마트얼터네이터 및 기존 일반얼터네이터 차량에도 모두 사용할 수 있는 제품입니다.

## 1.1 Display Panel

BCDC1225D / BCDC1240D 에는 7개의 LED 램프가 있어 배터리 종류/충전상태 및 충전종류를 알수 있습니다.

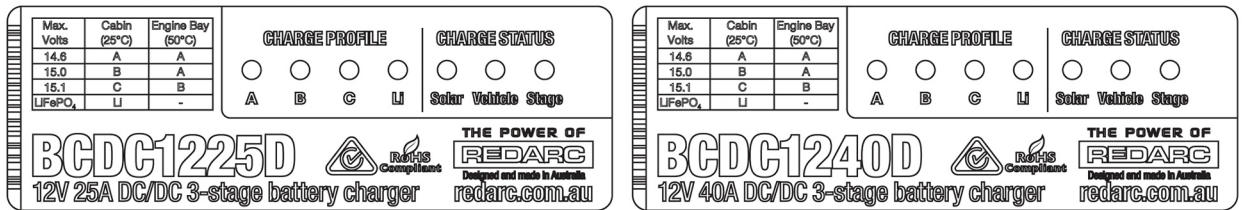
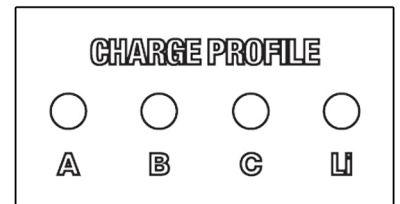


Figure 1.1.1 - The BCDC1225D and BCDC1240D Front Panels

## 1.2 Charge Profile LEDs

BCDC1225D / BCDC1240D의 4개의 LED램프는 납황산 배터리의 종류 (충전전압이 다름)와 리튬인산철 배터리 여부를 표시합니다.

- A, B, C는 납,황산 배터리 종류에 따른 점등
- 리튬인산철 배터리의 경우 “Li”에 점등



Maximum Battery Voltage Specification	Auxiliary Battery Location	
	Cabin Install 25°C	Engine Bay Install 50°C+
14.6	A	A
15.0	B	A
15.1	C	B
LiFePO <sub>4</sub>	Li	Not Recommended

Figure 1.2.1 - Charge Profile Selection

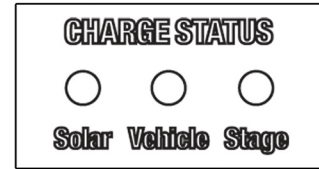
### ⚠ CAUTION

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, please select another charging profile.

# 1 PRODUCT FUNCTION

## 1.3 Charge Status LEDs

솔라 또는 주행충전(알터네이터 작동)이 작동하는지와 충전 상태를 나타냅니다.



### 1.3.1 Solar LED

솔라가 작동하면 Solar 램프가 점등 합니다.

### 1.3.2 Vehicle LED

주행충전(알터네이터 작동) 작동시 Vehicle 램프가 작동합니다.

### 1.3.3 Solar & Vehicle LEDs

#### 1.3.2

솔라와 주행충전이 동시에 작동할 시 Solar&Vehicle램프가 동시에 점등합니다.

### 1.3.4 Stage LED

솔라 / 주행충전이 작동시 충전상태를 보여줍니다.

LED Sequence	A, B or C Profile Stage (납, 황산 배터리)	Li Profile Stage (리튬인산철 배터리)
<p>Continuous</p>	OFF (No Output)	OFF (No Output)
<p>Continuous</p>	<b>Boost</b> 벌크 충전중	<b>Constant Current</b>
<p>2 Seconds</p>	<b>Absorption</b> 세밀 충전중	<b>Constant Voltage</b>  1. 리튬인산철 배터리 전용 정전압/전류 Topup 모드 2. 충전 후 Floating 충전 중
<p>2 Seconds</p>	<b>Float</b> 충전 후 Floating 충전중	
(전기, 전자기기를 사용하거나, 보조배터리 자가 방전이 시작되면 자동으로 Boost 모드로 변경)		

Figure 1.3.2.1 - Charge Stage LED Sequences

# 1 PRODUCT FUNCTION

## 1.3.5 Charging Process

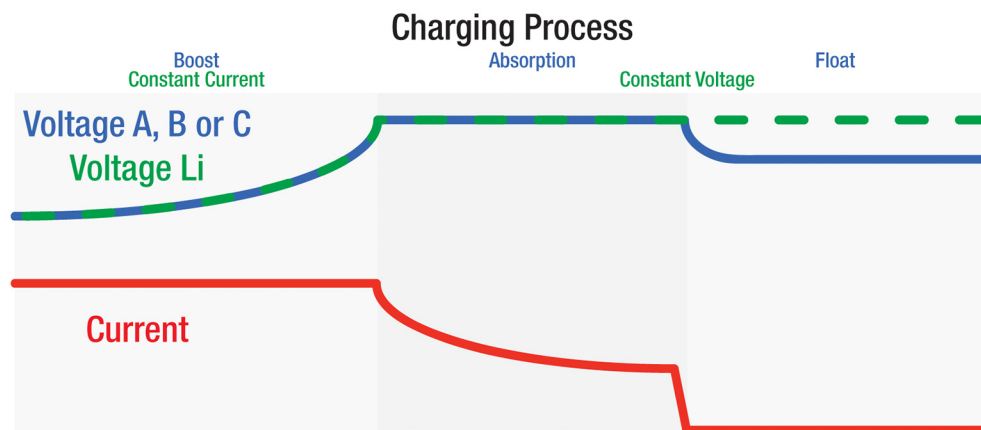


Figure 1.3.3.1 - Charging Process

### ***A, B or C Profiles***

When the Charger is turned on, it will move into the *Boost* stage. The *Boost* stage maintains a constant current until the battery voltage reaches its Absorption Voltage. The current in *Boost* stage may vary during operation in order to maintain safe operating temperature, or to limit the difference between input and output voltages. The Charger will then move to *Absorption* stage which maintains a constant voltage level for a predetermined period of time or until the current being drawn by the output battery drops to less than 4A for 30 seconds; after which the Charger will enter *Float* stage.

*Float* stage maintains 13.3V on the output battery, keeping the battery topped up. This counteracts the battery's self discharging or loads applied to the battery. When the battery loses charge, the Charger will move back into the *Boost* stage.

### ***Li Profile***

When the Charger is turned on, it will move into the *Constant Current* stage. This stage maintains a constant current until the battery voltage reaches its set point. The current may vary during operation in order to maintain safe operating temperature, or to limit the difference between input and output voltage.

The Charger will then move to *Constant Voltage* stage. This stage maintains 14.5V on the output battery, keeping the battery topped up. This stage also counteracts the battery's self discharging. When a load applied to the battery causes it to lose charge, the Charger will move back into the *Constant Current* stage.

### **⚠ CAUTION**

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.

# 1 PRODUCT FUNCTION

## 1.4 Turn On/Off Thresholds

	Input	12V Vehicle Input		24V Vehicle Input		Solar
		Standard	Low Voltage	Standard	Low Voltage	N/A
<b>Input Open Circuit Low voltage conditions</b> *1	Turn ON ABOVE	13.2V	12.0V	26.4V	24.0V	9.0V
	Turn OFF BELOW	12.7V	11.9V	25.4V	23.8V	9.0V
<b>Input Loaded Low voltage conditions</b> *2	Turn OFF instantly BELOW	8.0V		16.0V		9.0V
	Turn OFF after 20s BELOW	9.0V		18.0V		N/A
<b>Input Over voltage shutdown</b>	Turn ON BELOW	15.5V		32V		
	Turn OFF instantly ABOVE	16.0V		32.5V		33.0V
	Turn OFF after 20s ABOVE	15.6V		32.1V		N/A
<b>Output Under voltage shutdown</b> *1	Shutdown if Output Battery < 4V					

\*1 Tested every 100 Seconds.

\*2 Constantly tested.

## 1.5 Error Codes

In the event of a fault with the unit installation, either battery or solar panel, ALL the LEDs on the unit will flash to indicate the fault type. Flashing sequences are described in the table below.

LED State	Description
모든 램프가 3.5초 간격으로 1회 깜박입니다.	내부 하드웨어 문제
모든 램프가 3.5초 간격으로 2회 깜박입니다.	충전가능 온도 이하
모든 램프가 3.5초 간격으로 3회 깜박입니다.	충전 가능 온도 이상
모든 램프가 3.5초 간격으로 4회 깜박입니다.	Output전압이 설치된 배터리에 적합하지 않은 경우
모든 램프가 3.5초 간격으로 5회 깜박입니다.	Input 전압이 너무 낮은 경우
모든 램프가 3.5초 간격으로 6회 깜박입니다.	Input 전압이 너무 높은 경우

## 2 INSTALLATION

### 2.1 Install Location

The charger is suitable for mounting in the cabin of the vehicle, along a chassis rail or in the engine bay (ensure the unit does not become covered by a build up of mud or other). It is important to ensure the charger is mounted as close as possible to the battery being charged (auxiliary battery). Certain batteries are better suited to each of these types of installations so it is important to select the correct battery type. For more information consult your battery manufacturer's specifications.

Lithium type ( $\text{LiFePO}_4$ ) batteries are not suitable for engine bay installations. Refer to figure 1.2.1 for selecting the best Charge Profile for your installation.

The charger should be mounted in any orientation (so that the front decal is visible) using the 4 mounting tabs provided on the heatsink (refer figure 2.1.1) using suitably sized screws.

The unit will operate optimally below  $55^\circ\text{C}$  with good airflow. At higher temperatures the unit will de-rate output current up to  $80^\circ\text{C}$  where the unit will turn OFF.

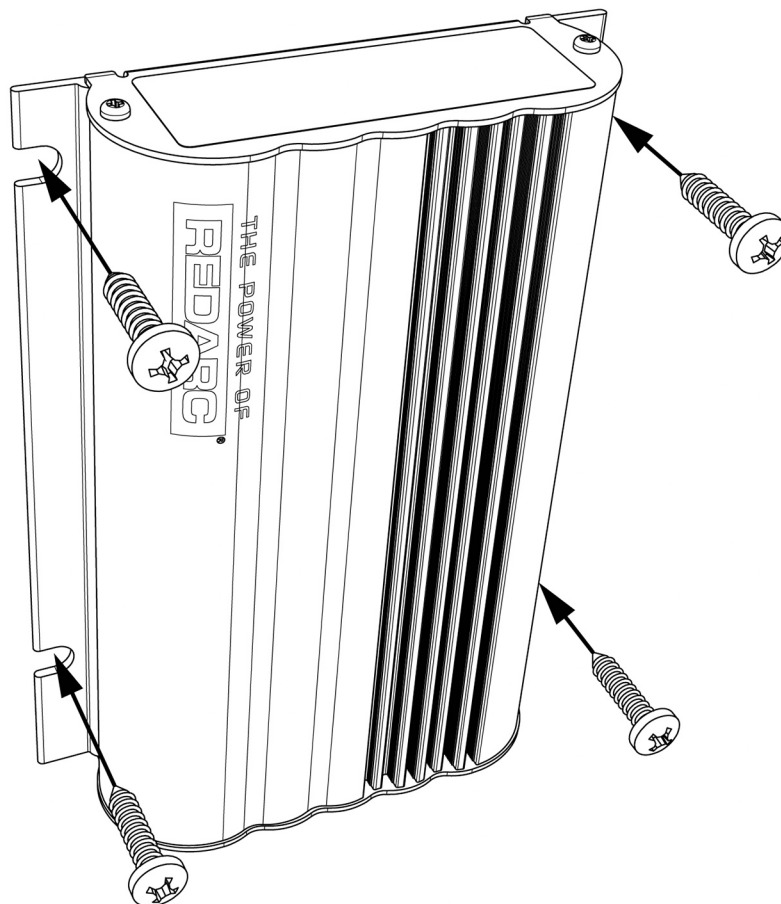


Figure 2.1.1 - Mounting the Charger



## 2 INSTALLATION

### 2.2 Charge Profile Selection (ORANGE Wire)

#### Profile A

Max 충전전압 14.6V

가는 3선(오렌지/그린/블루)을 사용하지 않습니다.

※ 일반적인 납황산배터리의 경우

#### Profile B

Max 충전전압 15V

가는 3선중 오렌지선을 접지 하세요.

#### Profile C

Max 충전전압 15.1V

가는 3선중 오렌지선을 시동배터리에 연결된  
빨간선에 연결하세요.

#### Profile Li

리튬인산철배터리 사용시

가는 3선중 오렌지와 그린선을 결선해 주세요.

### ⚠ CAUTION

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, please select another charging profile.

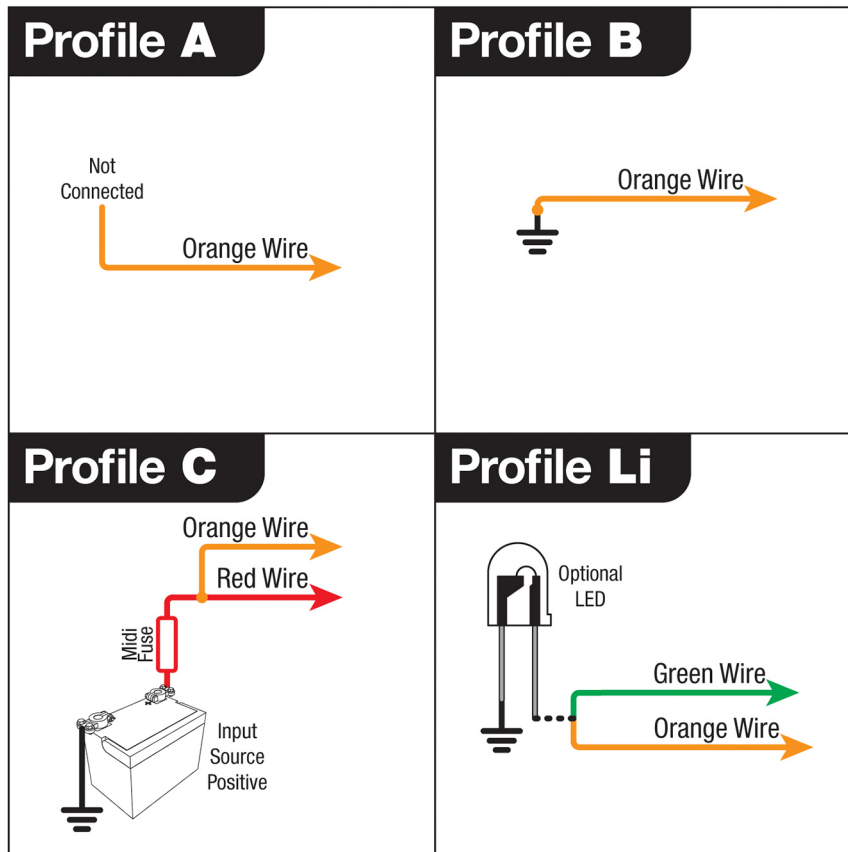


Figure 2.2.1 - Charge Profile Selection

## 2 INSTALLATION

### 2.3 일반 얼터네이터 VS 스마트 얼터네이터

**Standard : 일반 얼터네이터**

- 가는 파란선을 연결하지 말고 그대로 두세요.

**Low Voltage : 스마트 얼터네이터**

- 가는 파란선을 차량 Ignition(스위치)에 연결 하세요.

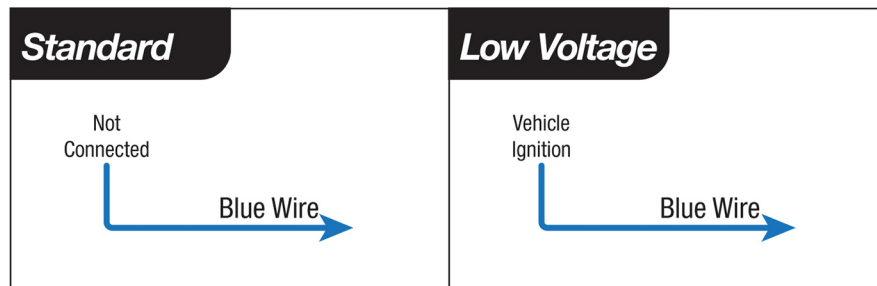


Figure 2.3.1 - Setting the Input Trigger Settings

### 2.4 케이블 사이즈

아래 하단의 표에 나타나는 길이는 시동배터리/솔라/보조배터리/접지에서 BCDC1225D/BCDC1240D 까지의 거리에 따른 케이블 굵기 입니다.

Part Number	Cable Install Length (m)	Recommended Wire Size (mm <sup>2</sup> )	Closest (BAE, B&S, AWG)
BCDC1225D	1 - 5	7.71	8
	5 - 9	13.56	6
BCDC1240D	1 - 5	13.56	6
	5 - 9	20.28	4

#### **⚠ CAUTION**

Cable and fuse sizes are specified by various codes and standards which depend on the type of vehicle the Battery Charger is installed into. Selecting the wrong cable or fuse size 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 and fuse sizes are used when installing this Battery Charger.

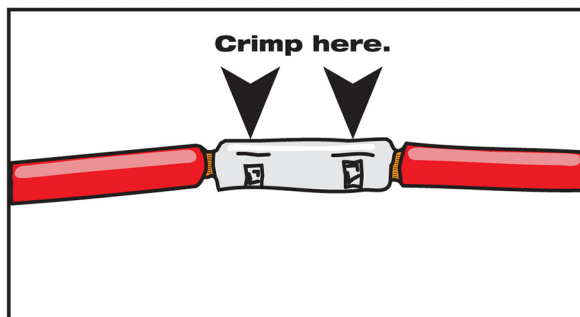
## 2 INSTALLATION

### 2.5 Wiring

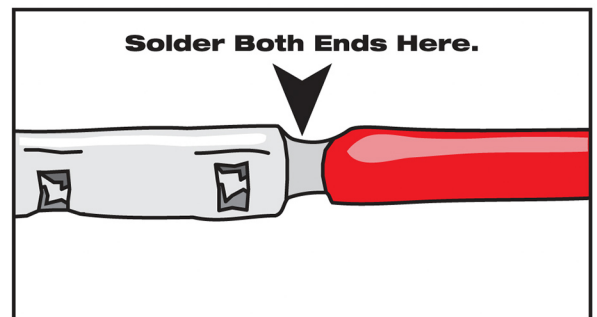
The heavy gauge wires on the BCDC1225D and BCDC1240D unit carry peak currents of up to 35 and 50 Amps respectively, and it is important to make a good, low resistance, electrical connection that will not degrade over time. Failure to make a good, reliable contact may result in breakdown of the wire insulation and cause a short circuit, or worst case a fire. We recommend that this activity be undertaken by an appropriately trained person.

REDARC recommends using a soldered butt splice crimp connection that is covered with heatshrink. See Figure 2.5.1. REDARC does not recommend using standard red/blue/yellow blade connections as they are not rated for either the current required or gauge of wire supplied on the unit.

Crimping provides good mechanical connection, soldering provides a long lasting electrical connection and forming of the heatshrink will prevent any shorting/contact with your vehicle chassis.



Crimp both wires to the butt splice using indent type crimpers.



Solder the wires to the butt splice. Ensure that a good connection is made. Keep heatshrink away until after soldering is complete and has cooled.

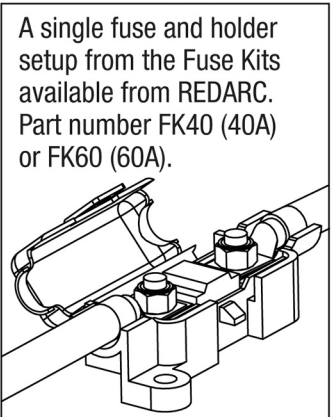
Figure 2.5.1 - Ensuring a good wiring connection

### 2.6 Fusing

BCDC1225D 의 경우 40A / BCDC1240D의 경우 60A 의 휴즈를 사용하세요.

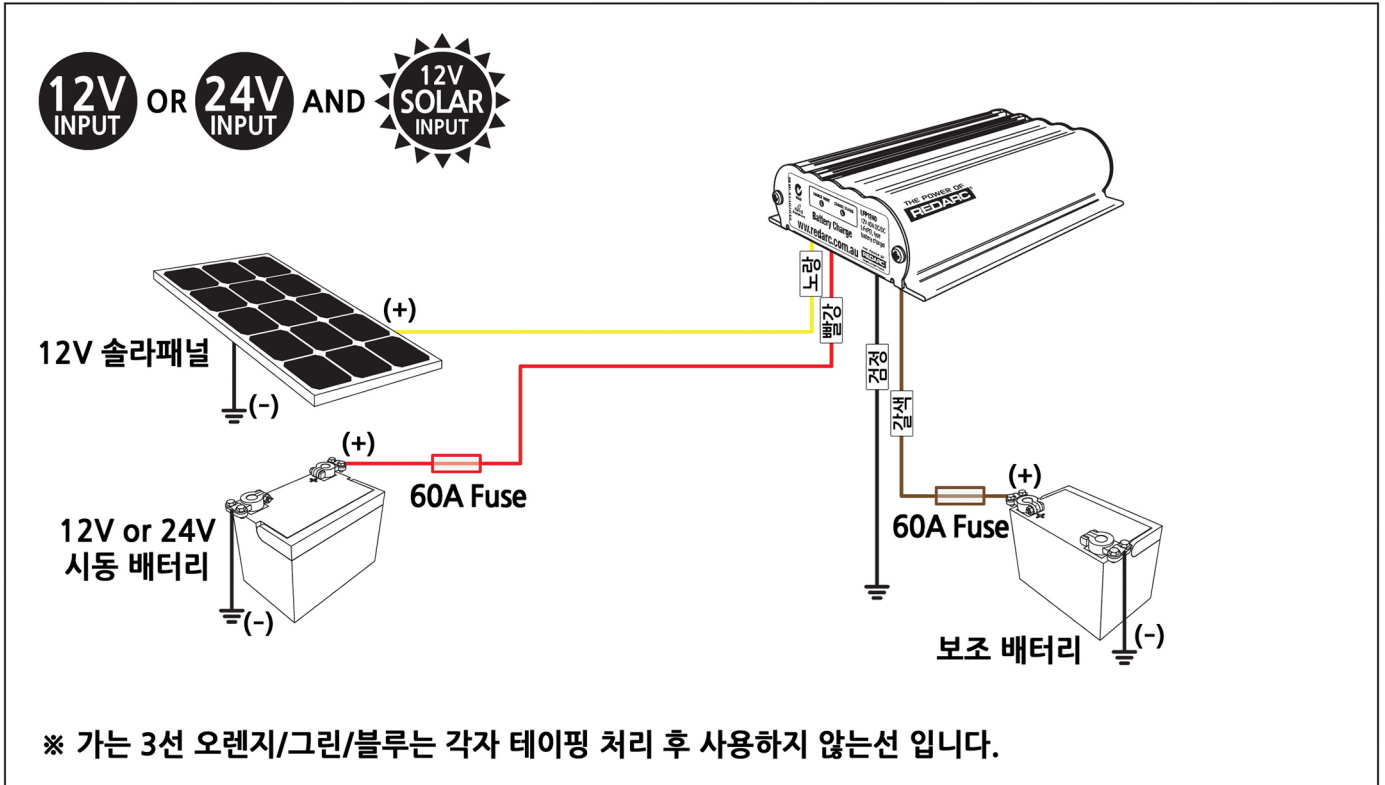
동 제품의 연결을 위하여 사용하는 휴즈는 **MIDI Fuse** (미디 휴즈를 사용하세요.)

휴즈는 시동배터리 Input의 (+)와 보조배터리 Output의 (+)쪽에 사용하세요.

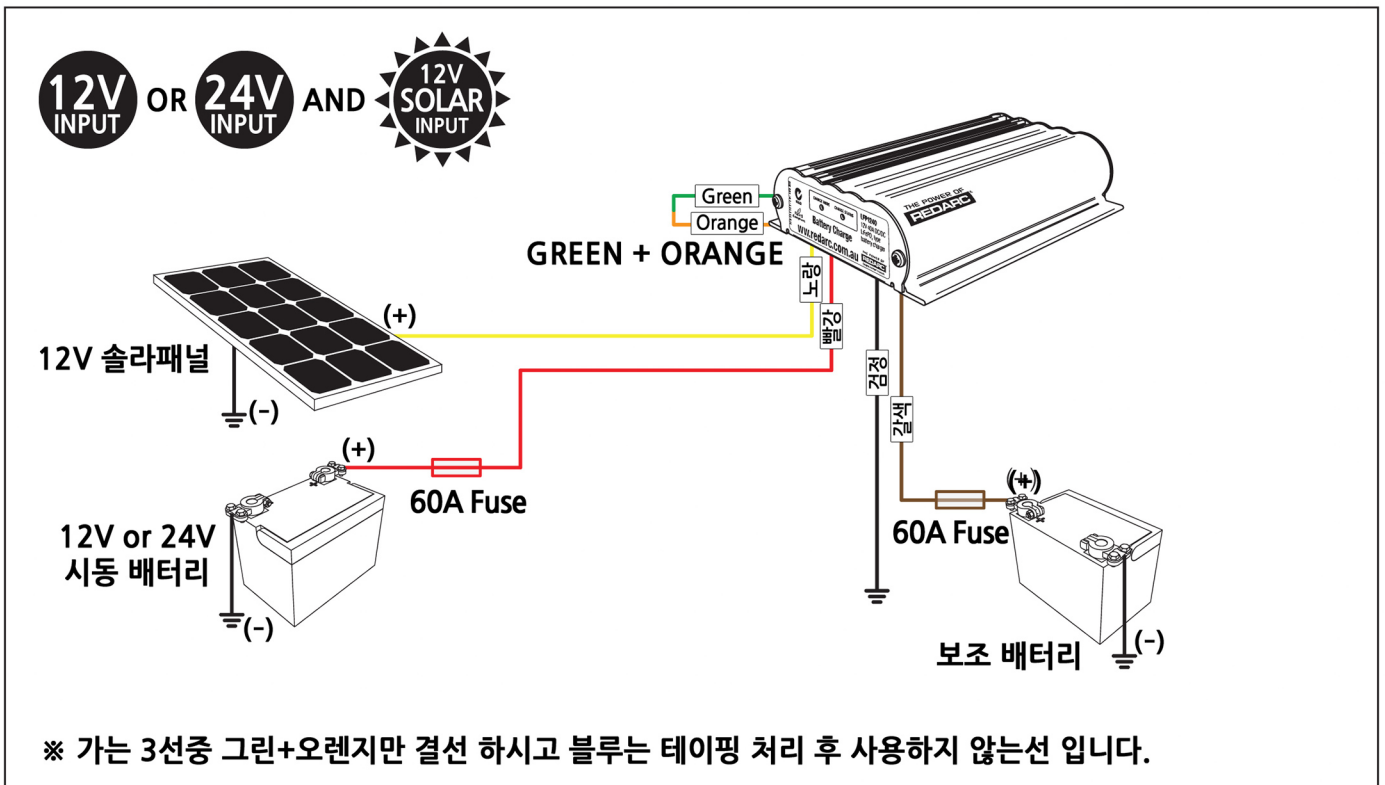


## 2 INSTALLATION

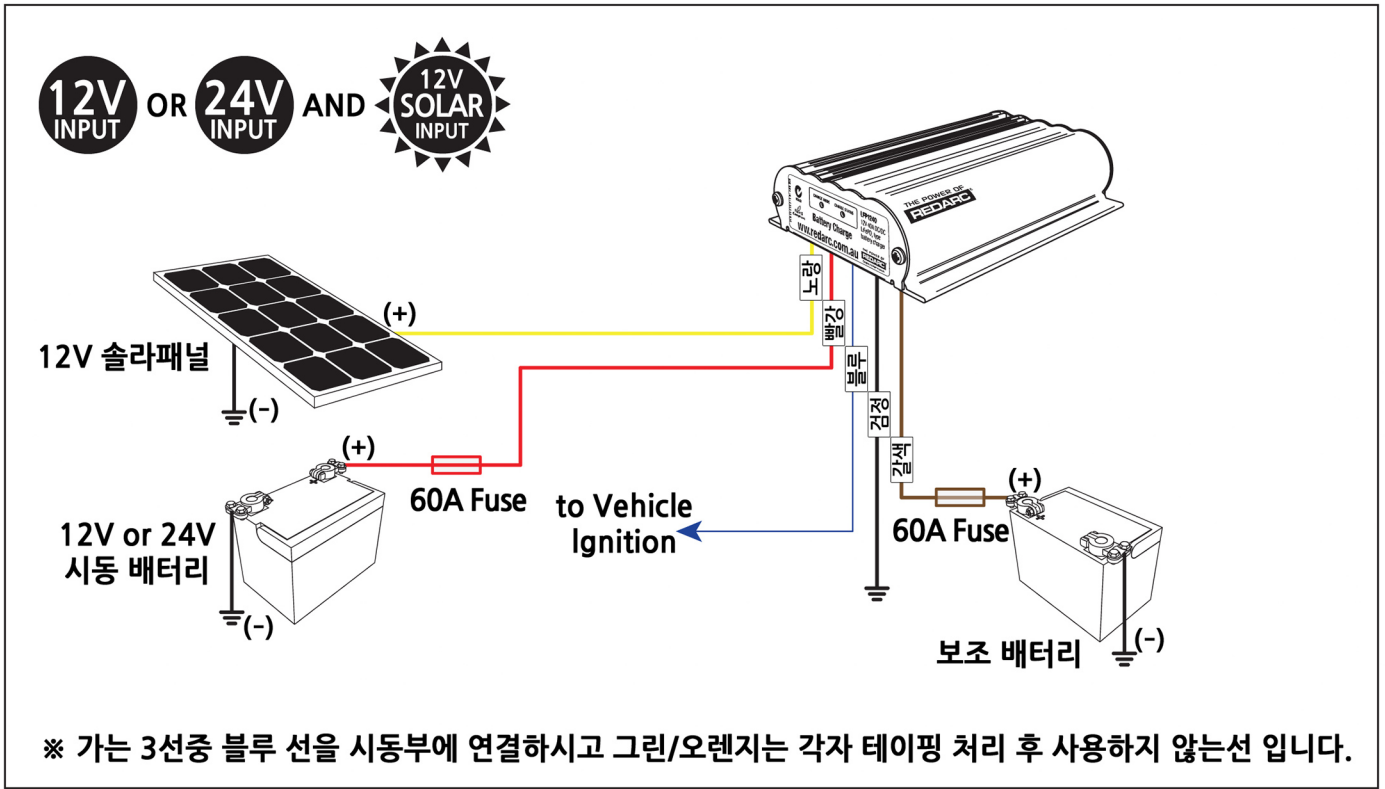
### 2.7 Typical Setup



모든 납황산 배터리 (주행충전시)



리튬인산철 배터리 사용시 (세계 최초 리튬인산철 배터리 주행충전시)



유럽/미국 최신 국제 기준 (스마트얼터네이터 장착 차량 주행충전시)

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### 3 증상 / 진단 / 해결

#### ○ LED램프에 전혀 불이 들어오지 않는다.

- 시동배터리 Input(빨간선) / 솔라 Input(노란선) 및 보조배터리로 Output(갈색선)이 제대로 연결 되었는지 확인한다.
- BCDC1225D/BCDC1240D의 검은색 선이 접지되었는지 확인한다.
- 보조배터리의 전압이 4.2V이상인지 확인한다.
- 퓨즈가 손상되었는지 확인한다.

#### ○ Charge Profile - “ A B C Li ”의 램프가 반짝이며 점등한다.

- Input 이나 Output이 정상이 아닐 경우가 많습니다.
- Input소스(시동배터리/솔라)가 정상 작동되지 않습니다.
- Output(보조배터리)배터리의 전압이 너무 낮습니다.
  1. 시동배터리 Input(빨간선이 시동배터리 +에 / 솔라 Input(노란선이 솔라 +에)이 제대로 연결 되었는지 확인 한다.
  2. 보조배터리 (-) / BCDC1225D/BCDC1240D의 검은색선 / 솔라 (-)등이 제대로 접지되었는지 확인한다.
  3. 보조배터리 전압이 4.2V 이상 인지 확인한다.

#### ○ 솔라를 연결 하였는데 솔라램프에 불이 들어오지 않는다.

- 햇빛이 비추고 있지 않거나, 일조량이 솔라패널이 작동할 정도로 충분한지 확인한다.
- 솔라패널이 나무 등에 가려 있지 않은지 확인한다.
- 솔라패널에 연결된 노란선의 전압을 확인한다. / 솔라 Input이 9V 이상인지 확인한다.
- 솔라패널의 (-)가 접지 되었는지 확인한다.

상기의 요소를 확인하여 정상으로 변경 후 약 2분간의 Relay가 있습니다.

#### ○ BCDC1225D / BCDC1240D가 시동배터리(주행충전)에 연결되었는데 Vechicle램프가 들어오지 않는다.

- 차량의 시동을 켜는지 확인한다.
- 시동을 켜어도,현재 보조배터리를 충전하는데 솔라만으로 충분하면 Vechicle램프가 들어오지 않습니다.
  - ※ BCDC12256D / BCDC1240D는 세계 최초로 Green Priority 기술을 채용, 솔라파워가 충분하면 솔라 파워부터 먼저 사용 연비를 줄이고/배기가스를 감소시키는 신기술 입니다.
- 시동배터리에 연결된 빨간선의 전압이 아래보다 높은지 확인하세요.
  - ▷ 일반 12V 차량 : 13.2V / 일반 24V 차량 : 26.4V
  - ▷ 스마트얼터네이터 차량 12V : 12.0V / 스마트얼터네이터 차량 24V : 24.0V
- BCDC1225D/BCDC1240D의 검은선이 접지 되었는지 확인한다.

## 4 BCDC1225D / BCDC1240D 의 작동 Tip

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1. BCDC1225D/BCDC1240D는 시동배터리의 무부하 전압이 13.2V(12V)이상인 경우 작동하고, 12.7V(11.9V)이하인 경우 작동이 꺼집니다.
  2. 시동배터리의 무부하전압이 13.2V(12V)이상이지만 얼터네이터 전압이 14.4V미만의 저전압(EX : 10V) 또는 15V같은 과전압의 경우에도 REDARC사의 독점특허기술인 충전알고리즘으로 저전압/고전압을 배터리종류에 맞는 충전유효전압으로 증폭/감소시켜 줍니다.
  3. BCDC1225D/BCDC1240D의 설치는 가능한 보조배터리에 가까운 곳에 위치하게 하십시오.
  4. BCDC1225D/BCDC1240D는 극한의 고온에서도 스스로 전류의 양을 줄여가며 배터리를 보호해주는 기능이 있습니다.
  5. BCDC1225D/BCDC1240D는 아이소레이터 기능이 있어 보조배터리를 사용하시다 부족하여도 시동배터리의 파워를 가져오지 않습니다.
  6. BCDC1225D/BCDC1240D는 시동배터리와 보조배터리의 종류가 달라도 특허 받은 충전 알고리즘과 마이크로프로세서로 알아서 최적의 충전효율을 찾아 충전합니다.  
(EX : 시동배터리-AGM / 보조배터리-리튬인산철배터리)
  7. BCDC1225D/BCDC1240D는 솔라충전과 주행충전이 동시에 가능하며, 연비를 좋게 하기위해 솔라충전 만으로 충전량이 충전하면 솔라충전 Firs기능이 있습니다.
  8. BCDC1225D/BCDC1240D는 세계 유일의 리튬인산철배터리 충전이 가능한 제품입니다.
  9. BCDC1225D/BCDC1240D는 세계 유일의 12V / 24V 전차종에 사용 가능한 제품입니다.
- ※BCDC1225D/BCDC1240D는 공장 출고시 간혹 24V용으로 셋팅된 경우가 있습니다. 그 경우, 시동배터리 연결선(빨간선)을 떼었다가 다시 연결 하여 보십시오.

## 5 TWO YEAR PRODUCT WARRANTY

Over the last three decades our company has established a reputation as the power conversion specialist.

A 100% Australian-owned company, we have met the needs of customers in transport and other industries through exciting, innovative thinking.

We believe in total customer satisfaction and practice this by offering our customers:

- Technical advice free of jargon and free of charge
- Prompt turnaround of orders throughout Australia and globally
- Friendly, personalised, professional service and product support

In the unlikely event that a technical issue arises with a Redarc product, customers are encouraged to initially contact the Redarc Technical Support Team on (08) 8322 4848 or [power@redarc.com.au](mailto:power@redarc.com.au) for prompt and efficient diagnosis and product support.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

The benefits of this Warranty are in addition to other rights and remedies available at law in respect of the Products and shall not derogate from any applicable mandatory statutory provisions or rights under the Australian Consumer Law.

Redarc Electronics Pty Ltd atf the Redarc Trust trading as Redarc Electronics ("Redarc") offers a warranty in respect of its Products where the Products are purchased from an authorised distributor or reseller of Redarc by a person ("Purchaser"), on the terms and conditions, and for the duration, outlined below in this document ("Warranty").

- In this Warranty, the term **Products** means:
  - all products manufactured or supplied by Redarc (excluding its solar products which are covered by Redarc's Solar Product Warranty); and
  - any component of or accessory for any product in clause 1.1 manufactured or supplied by Redarc.
- Without limiting any other clause in this Warranty, Redarc has the right to reject any Warranty claim made by a Purchaser pursuant to this Warranty where:
  - the Purchaser does not notify Redarc in writing of a Warranty claim within the Warranty Period;
  - the Purchaser does not notify Redarc in writing of a Warranty claim within 1 month of becoming aware of the relevant circumstances giving rise to the claim, so that any further problems with the Product are minimised;
  - the serial number of the Product has been altered, removed or made illegible without the written authority of Redarc;
  - the Purchaser is unable to provide proof of purchase documentation in accordance with clause 7.4 or evidence that the Product was properly installed and removed (if relevant), and that proper maintenance has been performed on the Product, by, or under the supervision of, a qualified auto electrician or technician, in accordance with the instructions of Redarc.
- If the Product is found to be working satisfactorily on return to Redarc or upon investigation by Redarc, the Purchaser must pay Redarc's reasonable costs of testing and investigating the Product in addition to shipping and transportation charges. Where Redarc is in possession of the Product, the Product will be returned to the Purchaser on receipt of the amount charged.
- Any replaced Products or components of Products shall become the property of Redarc.
- Redarc may, in exercise of its sole discretion, deliver another type of Product or component of a Product (different in size, colour, shape, weight, brand and/or other specifications) in fulfilling its obligations under this Warranty, in the event that Redarc has discontinued manufacturing or supplying the relevant Product or component at the time of the Warranty claim, or where such Product or component is superior to that originally purchased by the Purchaser.

### Offer and duration of product warranties

- Redarc warrants that its Products will be free, under normal application, installation, use and service conditions, from defects in materials and workmanship affecting normal use, for **2 years** from the date of purchase (**Warranty Period**).
- Where a Product malfunctions or becomes inoperative during the Warranty Period, due to a defect in materials or workmanship, as determined by Redarc, then subject to further rights conferred by the Australian Consumer Law on the Purchaser, Redarc will, in exercise of its sole discretion, either:
  - repair the defective Product;
  - replace the defective Product; or
  - provide a refund to the Purchaser for the purchase price paid for the defective Product,

without charge to the Purchaser.

- The warranty given by Redarc in clause 3 covers the reasonable costs of delivery and installation of any repaired or replaced Products or components of Products to the Purchaser's usual residential address notified to Redarc, together with the reasonable costs of removal and return of any Products determined by Redarc to be defective.
- If the Purchaser incurs expenses of the nature referred to in clause 4 in the context of making a claim pursuant to this Warranty that is accepted by Redarc, the Purchaser will be entitled to claim for reimbursement of those expenses which Redarc determines, in exercise of its sole discretion, to be reasonably incurred, provided that the claim is notified to Redarc in writing at the postal address or email address specified in clause 21 and includes:
  - details of the relevant expenses incurred by the Purchaser; and
  - proof of the relevant expenses having been incurred by the Purchaser.

### Exclusions and limitations

- This Warranty will not apply to, or include any defect, damage, fault, failure or malfunction of a Product, which Redarc 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 Redarc, including instructions concerning installation, configuring, connecting, commissioning, use or application of the Product, including without limitation choice of location;
  - failure to ensure proper maintenance of the Product strictly in accordance with Redarc's instructions or failure to ensure proper maintenance of any associated equipment or machinery;
  - repairs to the Product that are not strictly in accordance with Redarc's instructions;
  - 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 Redarc;
  - 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 Redarc.
- Warranty claims in respect of a Product must be made in writing to Redarc at the postal address or email address specified in clause 21 within the Warranty Period. Such claims must include the following:
  - details of the alleged defect or fault and the circumstances surrounding the defect or fault;
  - evidence of the claim, including photographs of the Product (where the subject of the claim is capable of being photographed);
  - the serial number of the Product, specified on the label affixed to the Product; and
  - proof of purchase documentation for the Product from an authorised distributor or reseller of Redarc, which clearly shows the date and place of purchase.The return of any Products without the prior written instructions of Redarc will not be accepted by Redarc.

### Other conditions of Warranty

- 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 Redarc has no control over the storage, handling, quality or safety of Products sold by such persons.
- A Purchaser shall only be entitled to the benefit of this Warranty after all amounts owing in respect of the Product have been paid.
- While Redarc warrants that the Products will be free from defects in materials and workmanship in the circumstances set out in this Warranty, to the maximum extent permitted by law Redarc does not warrant that the operation of the Products will be uninterrupted or error-free.
- To the maximum extent permitted by law, Redarc's determination of the existence of any defect and the cause of any defect will be conclusive.
- Spare parts or materials for the Products are guaranteed to be available for a period of at least 2 years after purchase of the Products.
- The agents, officers and employees of any distributor or reseller of the Products and of Redarc are not authorised to vary or extend the terms of this Warranty.
- Redarc shall not be responsible or liable to the Customer or any third party in connection with any non-performance or delay in performance of any terms and conditions of this Warranty, due to acts of God, war, riots, strikes, warlike conditions, plague or other epidemic, fire, flood, blizzard, hurricane, changes of public policies, terrorism and other events which are beyond the control of Redarc. In such circumstances, Redarc may suspend performance of this Warranty without liability for the period of the delay reasonably attributable to such causes.
- If a clause or part of a clause in this Warranty can be read in a way that makes it illegal, unenforceable or invalid, but can also be read in a way that makes it legal, enforceable and valid, it must be read in the latter way. If any clause or part of a clause in this Warranty is illegal, unenforceable or invalid, that clause or part is to be treated as removed from this Warranty, but the rest of this Warranty is not affected.

### Redarc's contact details

21. Redarc's contact details for the sending of Warranty claims under this Warranty are:  
Redarc Electronics Pty Ltd  
23 Brodie Road (North), Lonsdale SA 5160  
Email: [power@redarc.com.au](mailto:power@redarc.com.au)  
Telephone: +61 8 8322 4848



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