24VDC TO 12VDC
REDUCER EQUALIZER CHARGER

MODELS:
LV1306
LV1307

INSTALLATION & OPERATING INSTRUCTIONS

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The **LV1306** (20A Output) and **LV1307** (30A Output) next generation units using a new topology reducing the size and increasing the output power compared to its previous products, while still providing all the features of a Reducer, Charger and Equalizer all contained in an extremely compact (373cm³ in volume), weather, dust and vibration resistant package.

Features:

- Extremely compact unit: just 160mm X 70mm X 30mm – fits in small places
- Fully encapsulated: enhanced resistance to vibration and humidity
- Extremely high efficiency: typically 95% - cooler operation and longer life
- Extremely low standby drain: below 0.005A
- Versatile modes: selectable as multi stage charger, equalizer or dual fixed voltage reducer
- Multi chemistry charger: selectable for sealed LA, vented LA (60AH-300AH) or Lithium batteries(40AH to 300AH)
- Built-in automatic current limit, over temperature and over voltage protections
- Remote status led indicator for easy visibility


POWERCON

Safety Precautions for Installation:

1. The following connection sequence is to be followed: Ground, Selection wires (if used), Input, Output and Ignition. Input and ground wires should be suitable for at least 20A and output for at least 30A.

2. Floating or unused wires must be insulated and secured. Ensure polarity of all wires and do not short output terminals. The unit may be damaged and warranty void if the wrong polarities, voltages or a short is applied.

3. Always ensure that this unit is suitable for your specific battery. If in any doubt consult with your battery supplier or auto electrician.

4. Avoid locations where heat sources or hazards are nearby e.g. exhaust or fuel lines.

5. Choose a location with the best possible ventilation and lowest possible temperature.

6. Ensure the wiring and unit are protected from water spray and other sources of contamination like oil or grease

7. Ensure that unit is installed away from any flammable fumes, liquids or materials.

8. During charging process, do not use a naked flame near a battery, due to gases emitted from the battery, which may ignite and explode.
9. With Lithium batteries ensure that a BMS is installed and compatible with the charger.

10. Never smoke or light cigarettes near a battery.

11. Do not place tools on top of battery or allow tools to fall onto battery.

12. Always wear eye protection near a charging battery.

13. Ensure a “well” ventilated area is used when testing or re-charging batteries.

14. If skin or clothing comes into contact with acid, flush the area(s) with water immediately. Seek medical attention if necessary.

Wiring and Installation

BROWN - Positive Input : LV1307 30V 15A Maximum **LV1306:** 30V 10A Maximum
BLACK - Common Ground : Ground/0V and LED Indicator Cathode(-)
RED - Positive Output : LV1307: 10V to 15V, 30A Maximum **LV1306:** 10V-15V, 20A Maximum
GREEN - LED Indicator Anode (+LED) : 10mA Maximum
BLUE - Ignition/Control : Unit will only turn on when Ignition/Control is high (22V-30V)

We recommend that the BLUE wire is connected to a source that is turned on with the ignition of the vehicle. It can be permanently connected to the Brown wire but the drain current will increase from aprox. 0.005A to 0.07A which can cause issues on infrequently used vehicles.

WHITE and ORANGE - Mode Configuration :
These two wires when connected as referenced in the table below will change the operational mode of the unit from either Reducer, Equalizer or Charger as well as determining the output voltage of the unit.

(For similfied instructions please see the Indvidial WIRING DIAGRAM for Reducer, Equalizer or Charger Mode)

Warning: For all wires that are unused and or FLOATING connections please tape up and isolate them from ground or power sources or this may damage your unit.

	ORANGE to GROUND	ORANGE FLOATING	ORANGE to INPUT
WHITE to GROUND	VLA Charging	SLA Charging	Lithium Charging
WHITE FLOATING	EQUALIZER Mode	Reducer Fixed 13.5V	Reducer Fixed 14.5V

For all battery types check with your battery manufacturer that charge voltages and currents are suitable for your battery size and type.

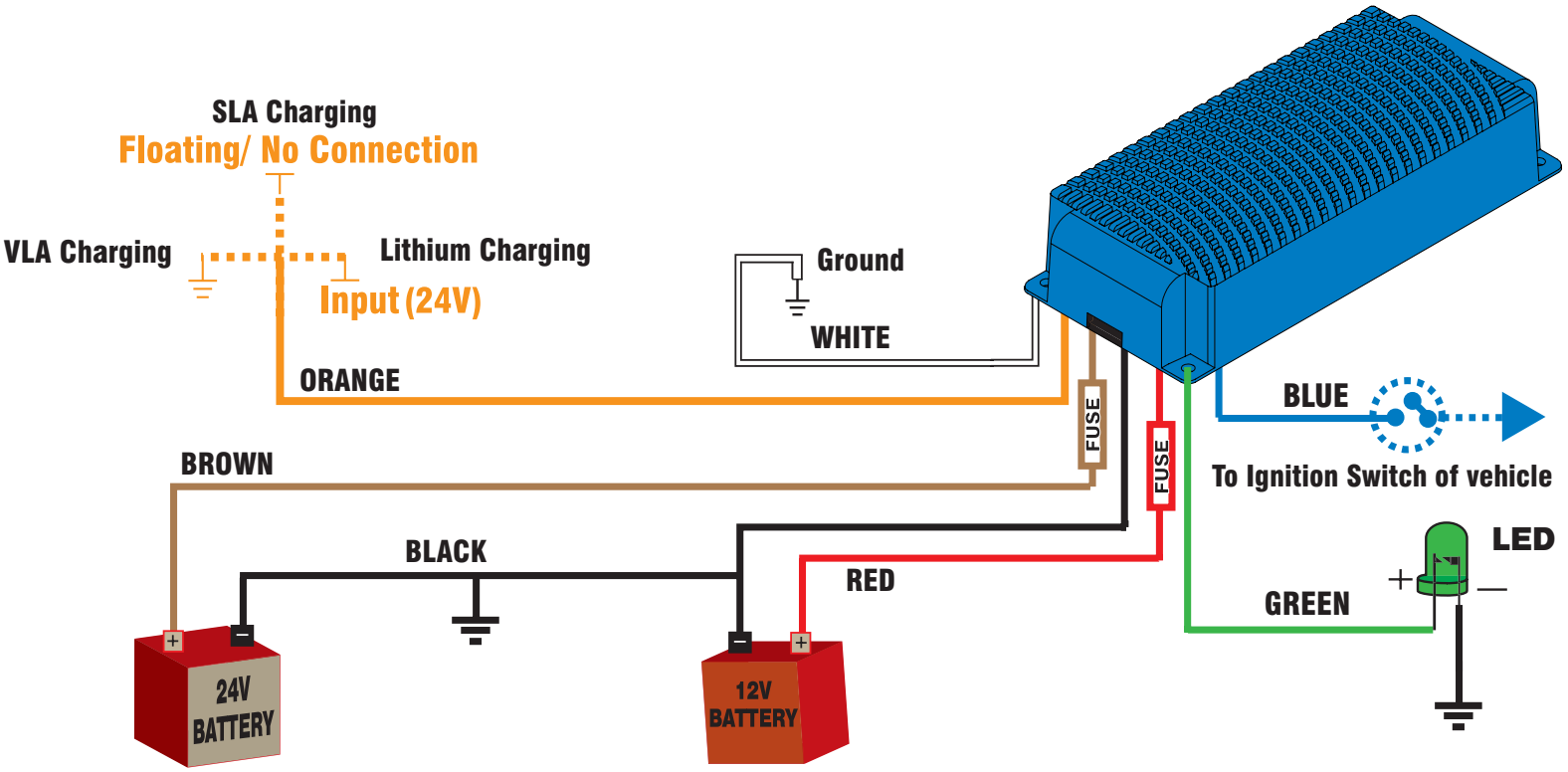
VLA - 12V Vented Lead Acid Battery : 60AH-300AH, 14.5V Absorption 13.5V Float
SLA - 12V Sealed Lead Acid Battery : 60AH-300AH, 14.2V Absorption 13.5V Float
Lithium - 12V Rechargeable Lithium Battery : 40AH-300AH, 14.8V Absorption 13.8V Maintenance
Equalizer Mode : Used to charge the lower 12V battery on a 24V system when the lower battery is subjected to uneven discharge due to a significant 12V load on a single 12V battery in a 2 battery 24V system. The charge on the lower battery is equalized with a voltage equal to half the charge voltage on the 24V battery system.

LED Connection: Via the GREEN wire the unit will give an indication via a LED to the output and the operation of the unit.

LED Operation: LED OFF - Indicates that there is no output voltage. This can be either that there is no ignition/control present or that there is a protection that is active and shutting down the unit. The Over Temperature protection is self-resettable and the unit will restart automatically when the unit has cooled.
LED Solid - REDUCER/EQUALIZER : Normal Operation , CHARGER : Battery Charged and in Float Mode
LED Blinking - CHARGER only: Charging Battery

Wiring Diagram

24V to 12V Charger

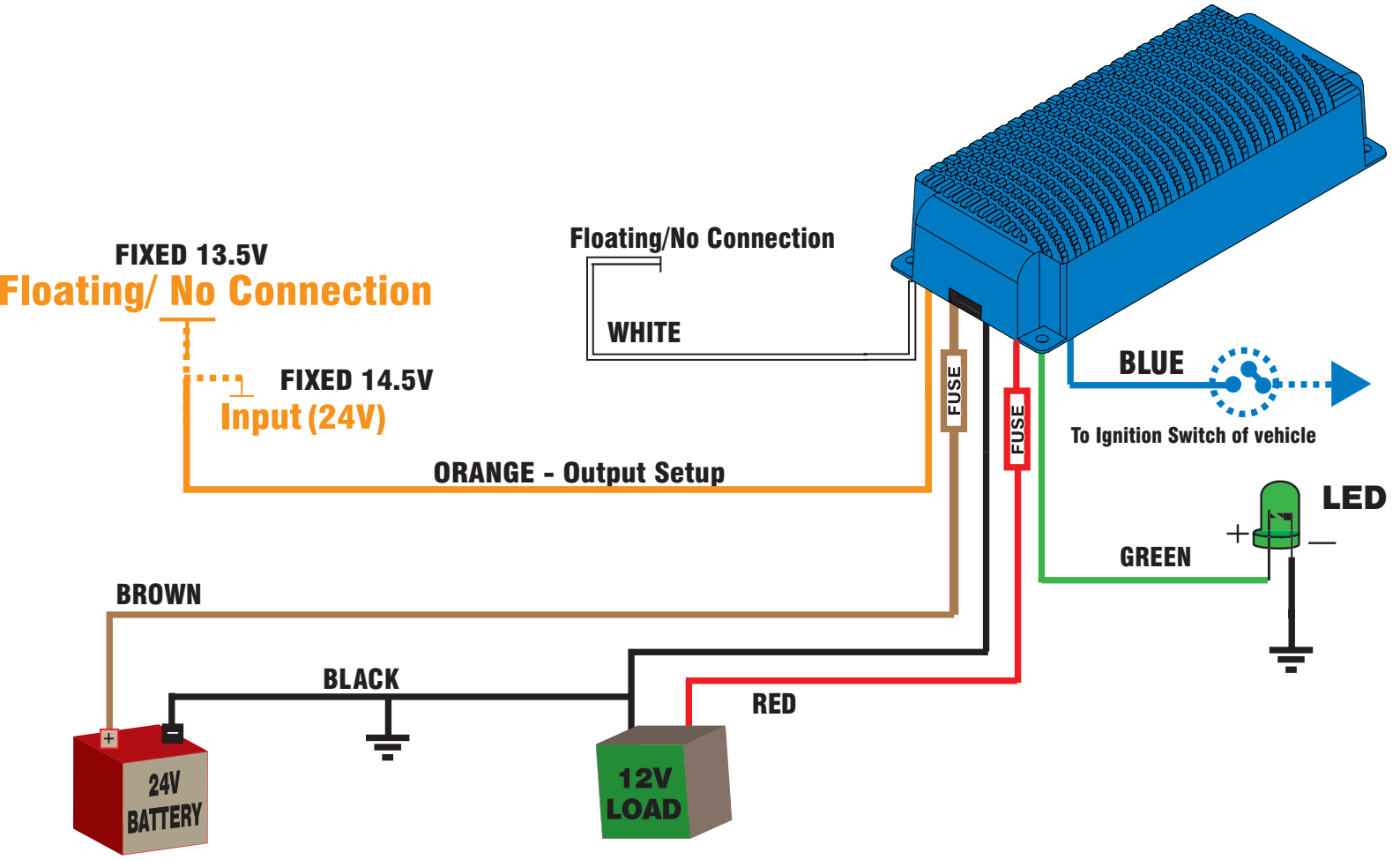


FUSES LV1307	
RED Output	40A
BROWN Input	25A

FUSES LV1306	
RED Output	30A
BROWN Input	20A

Wiring Diagram

24V to 12V Reducer

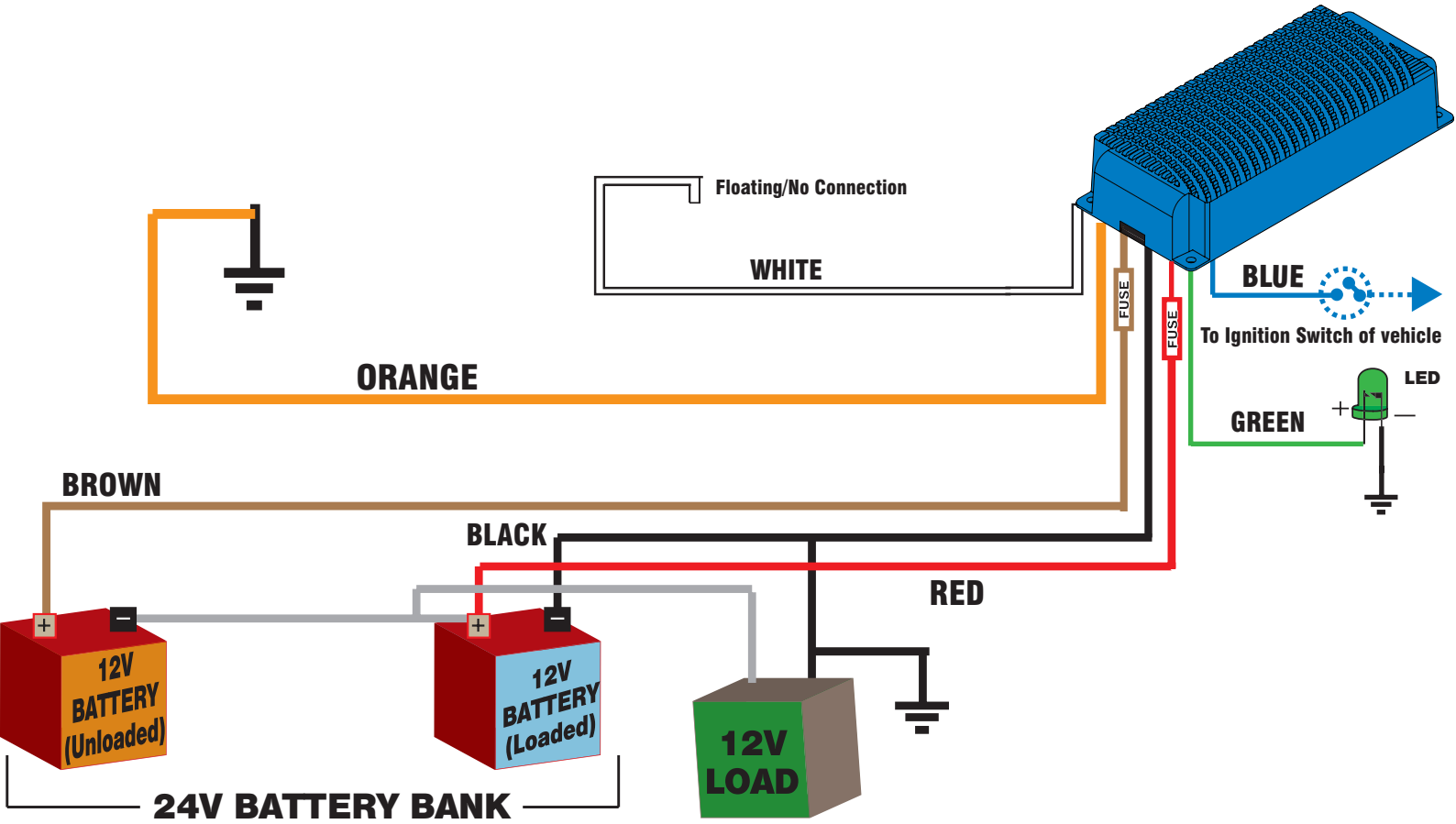


FUSES LV1307	
RED Output	40A
BROWN Input	25A

FUSES LV1306	
RED Output	30A
BROWN Input	20A

WIRING DIAGRAM

24V EQUALIZER



FUSES LV1307	
RED Output	40A
BROWN Input	25A

FUSES LV1306	
RED Output	30A
BROWN Input	20A

Specifications	LV1306	LV1307
Input Voltage (V_{DC})	**22 V_{DC} to 30 V_{DC}**	
Charger Mode		
VLA and SLA Float Voltage	**13.5 V_{DC} ± 1%**	
VLA Absorption Voltage	**14.5 V_{DC} ± 1%**	
SLA Absorption Voltage	**14.2 V_{DC} ± 1%**	
Lithium Maintenance Voltage	**13.8 V_{DC} ± 1%**	
Lithium Absorption Voltage	**14.8 V_{DC} ± 1%**	
Maximum Bulk Charge Current	**20 A_{DC} ± 10%**	**30 A_{DC} ± 10%**
Equalizer Mode		
Output Voltage	**½ Input Voltage V_{DC} ± 2%**	
Reducer Mode		
Output Voltage	**Fixed 13.5 V_{DC} or 14.5 V_{DC} ± 5%**	
General		
Typical Efficiency	**Approx. 95%**	
Max Output Current (A_{DC})	**20 A_{DC} ± 10%**	**30 A_{DC} ± 10%**
Stand-By Current (mA_{DC})	**5mA_{DC} ± 5%**	
Features	**Over Voltage Protection Over Current Protection Over Temperature Protection**	
Dimensions (L x W x H)	**162mm x 71mm x 32 mm**	
Weight	**0.56Kg**	

Warranty Conditions: Our products come with guarantees that cannot be excluded under the Australian Consumer Law. The customer is entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage.The customer is also entitled to have the products repaired or replaced if the products fail to be of acceptable quality and the failure does not amount to a major failure.Low Voltage warrants that its products will, under normal use and service, be free of defects in material and workmanship for a period of two (2) years from the date of the original purchase by the customer as marked on the customer's original invoice.