

DC CHARGER - CHARGING OPTIONS

The Thumper Lithium battery packs are available with and without a DC charger option.

DC Battery chargers are designed to guarantee the rate of charge produced from the vehicle to ensure the secondary battery reaches full capacity. The DC charger option is recommended for use with all newer model vehicles that are fitted with a variable alternator. If a package without a DC charger has been selected, then it is further recommended that 240 Volt charging is undertaken every 2-3 weeks to ensure the battery recovers to 100% capacity.

The Thumper Lithium battery pack is available with both REDARC or POWERTECH DC charger options.

REDARC BCDC1225D *optional package

The Redarc BCDC1225D is a multi-chemistry 25Amp battery charger, designed for both 'in vehicle' and 'solar charging'. Pre-set for Lithium charging, the DC has been wired directly to two independent Anderson connectors, labelled 'ALTERNATOR INPUT' & 'UNREGULATED SOLAR INPUT'.

The DC charger is designed to alter the input voltage of the alternator and provide a regulated charge output to the AUX battery. Vehicle charging must be connected to the Anderson labelled 'ALTERNATOR INPUT'.

The Anderson labelled 'UNREGULATED SOLAR INPUT' allows for the connection of an unregulated solar panel

- Output current: 25 Amps (solar and vehicle)
- Vehicle input voltage: 9 - 33 Volts
- Solar Input VOC: 9 - 33 Volts

POWERTECH MB3940 *optional package

The Powertech MB3940 is multi-chemistry 20 Amp charger, designed for both vehicle and solar charge.

This charger is hardwired to the Thumper Lithium battery pack in the same way the Redarc has been explained above. Once again the pack is fitted with two designated Anderson connectors that are wired directly to the DC charger that will allow for both VEHICLE and SOLAR charge (solar panels must be unregulated to be compatible via this connection).

- Output current: 20 Amps (solar and vehicle)
- Vehicle input voltage: 13.0 - 16.0 Volts
- Solar Input VOC: 16.0 - 25.0 Volts

Many vehicles on the market today will produce a low voltage output from the alternator. DC chargers require a min. of 13.0 Volts from the alternator to begin charging.

DC CHARGER - CHARGING OPTIONS (continued)

In order to over-ride any low voltage issues, Blue Apple has equipped the Thumper Lithium battery pack with a 'Low Voltage Switch'. The Low Voltage Switch is designed to work in conjunction with the DC charger and TUR-L (provided) to allow the charger to work as 'ignition activated' when needed.

SWITCH IN ON POSITION: When 'ON' the ignition switch will illuminate BLUE and will act to immediately engage the DC charger. The DC charger will cease to operate immediately when the vehicle's ignition is OFF (TUR-L must be fitted).

SWITCH IN OFF POSITION: When 'OFF' the switch will allow the DC charger to run normally as 'voltage sensitive'. The DC charger will require a minimum voltage of 13.0V from the main start battery in order to engage the DC Charger. When the main vehicle battery drops below 12.7V (indicating the vehicle is no longer charging), the DC charger will disconnect.

Note: When using the DC model in any vehicle without the TUR-L fitted, the Low Voltage Switch must be OFF. Failure to turn switch OFF may drain main start battery.

USING YOUR OUTLET SOCKETS

All sockets within the Thumper Lithium battery pack are wired bi-directional, allowing the user to charge or discharge from the connection. *An exclusion to this is the USB socket, which is purely an output offering 5 volt - min. of 2.4 Amp
In addition, the two Andersons labelled 'ALTERNATOR INPUT' and 'UNREGULATED SOLAR INPUT' are designated solely for these purposes with use of the DC charger only.

INTERNAL CIRCUIT BREAKER PROTECTION

The range of Thumper Lithium battery packs are fitted with internal automatic reset circuit breakers. The outlet sockets are protected via a 30 Amp manual reset circuit breaker, whilst the 50 Amp Anderson is protected with a 50 Amp circuit breaker.
Note: The 24 AH uses 1 x 15 Amp Manual reset breaker to protect all outlets and 1 x 30 Amp automatic breaker for the Anderson connector.

APPROX. RUN TIMES - LITHIUM VS AGM

35Lt - 50Lt Fridge 0°C at 25°C Ambient Temperature

Capacity	LITHIUM Running time	AGM Running time
24 AH	36 HOURS	22 HOURS
40 AH	60 HOURS	37 HOURS
60 AH	90 HOURS	55 HOURS
90 AH	135 HOURS	83 HOURS

Discharged to 90% capacity at 11.8Volts Discharged to 80% capacity at 11.8Volts

If the BMS trips under use, a charge load is required to re-engage the BMS

Thumper LIFEPO4 LITHIUM



Information booklet

The Thumper Lithium battery pack is a reliable, compact and lightweight alternative to the standard lead acid dual battery system.

Designed with the latest technology of Lithium LiFePo4 cells, the Thumper offers a fully sealed and maintenance free battery pack that can safely be used on any side.

Equipped with an internal Battery Management System (BMS), the Thumper Lithium offers safe charging and discharging with over temperature protection, under and over voltage cut off protection and internal short circuit protection.

Note: The Thumper Lithium is not suitable for Jump-Starting

Available in 12AH / 24 AH / 40AH / 60AH / 90 AH

Built in Australia by Blue Apple Thumper

Your Australian 12 Volt Specialist

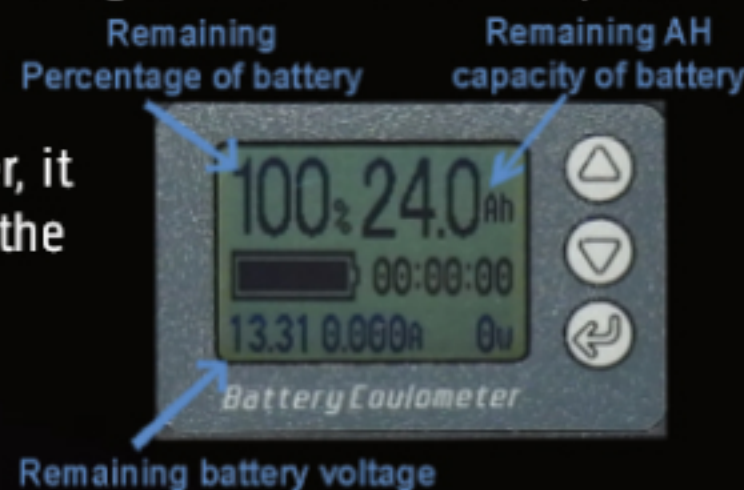
Service Ph: 08 8398 5381

UNDERSTANDING THE LCD DIGITAL SCREEN

The Thumper Lithium pack is completely charged before purchase. The condition of charge can be monitored by use of the LCD digital screen.

The screen will remain active at all times, however, it will only illuminate when the pack is in use (see below)

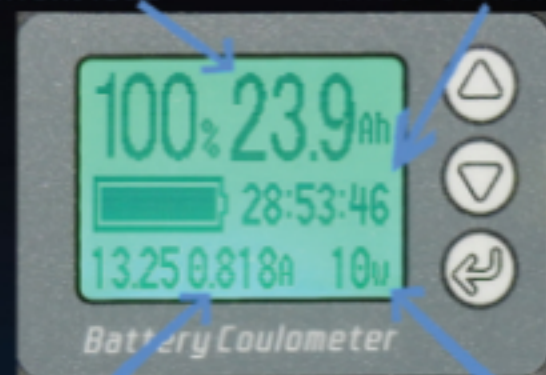
The screen will provide a reading of remaining percentage, AH capacity and battery voltage. When no load is connected to the pack, all other readings will be zero.



DISCHARGING:

The LCD screen will illuminate when the pack is in use.

Remaining AH at current load Remaining run time under current load



The screen will provide the remaining amp hour capacity, the current load in both amps and watts and the time remaining under the current load.

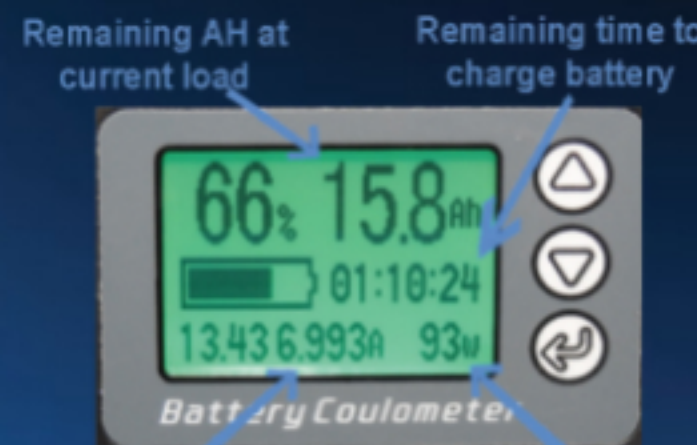
Current load in Amps Current load in Watts

The screen will remain illuminated at all times when in use and will not cease to illuminate until all loads have been disconnected.

CHARGING:

The LCD screen will FLASH when charging from any source, including the vehicle, 240 volt or solar. The screen will stop flashing only once the battery is 100% charged. The screen will read the remaining amp hours, time remaining to charge and the input charge rate in both watts and amps.

If the unit is charging and discharging simultaneously, the LCD screen will show the difference between the input and output current and will calculate either time remaining for discharging or time remaining to charge (dependent on whether the input or output is greater).



Input charge in Amps Input charge in Watts

TROUBLESHOOTING WITH THE LCD SCREEN

The LCD screen is 100% pre-set and will not need to be adjusted upon purchase or throughout the life of the battery. If the screen does fall out of calibration with the Amp Hour capacity of the unit, then follow the steps below to reset the screen:

- Fully charge the battery pack until the gauge ceases to flash
- Hold the UP arrow for 5 seconds. The Amp Hours will reset.

CHARGING METHODS & ACCESSORIES

The Thumper Lithium 12 AH & 24 AH are supplied *only* with a unique cigarette charge lead (TL-A-C1.2).

An *option* to upgrade the 12 / 24 AH to include a full wiring loom is available to purchase.

The TL-A-C1.2 is an *optional extra* to purchase with any larger capacity

Thumper Lithium battery pack. This lead **must** be used when charging via the cigarette plug in any vehicle as it will prevent reverse drain occurring between the main start battery and the Thumper Lithium battery pack.

The TL-A-C1.2 lead will charge at approx. 5 - 8 Amps per hour, depending on the vehicle's alternator size and wiring.

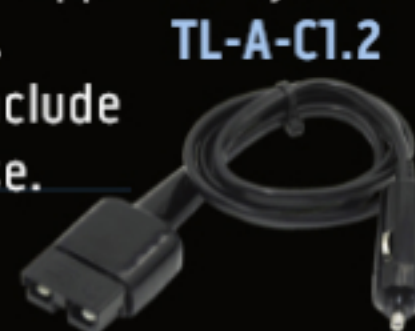
Available to purchase as an *optional extra* is the Thumper Dual Battery adaptor (TL-DB). This adaptor is a **must** for anyone wanting to 'link' the Thumper Lithium battery pack to an *existing* dual battery system. Simply connect the GREY side of the adaptor to the existing dual battery and connect the BLACK side of the adaptor to the Thumper Lithium battery pack. The adaptor will allow for both batteries to charge from the same charging system but will act to prevent any reverse drain from occurring.

The TL-DB will allow for a max charge rate of approx. 20 Amps

Why do I need the TL-DB adaptor?

Lithium batteries run at a higher voltage throughout their cycle. This higher voltage means that when a Lithium is 'linked' to another battery with a differing chemistry, the Lithium will lose power by draining into the battery that it is connected to. This drain will occur until both batteries 'equalise' in voltage.

By using the TL-DB lead, it prevents any back-feed / drain from the Lithium and will keep the two batteries working independently from one another so they can successfully charge from the same charging system.



TL-DB ADAPTOR



CHARGING METHODS & ACCESSORIES

The Thumper Lithium battery pack is fitted with a 2.1mm socket. This socket is wired bi-directional to allow both input charge and running of appliances such as lighting.

Thumper offers as an *optional extra* 240V Lithium Battery charger, designed to suit the 2.1mm socket; rated to 5Amp & 8Amp.

5 Amp (suits batteries 5AH - 60 AH)
8 Amp (suits batteries 8AH -100 AH).

The 2.1mm socket is rated at a maximum of 8 Amps.

Battery chargers exceeding the 8 Amp rating are required to connect via the 50 Amp Anderson connector.

The use of Lithium battery chargers are recommended to extend the life expectancy of the Lithium, however, any quality AGM battery charger can be used successfully.

Recommended size of 240V Battery Charger:

24 AH =	5 Amp - 12 Amp (Max 24 Amp)
40 AH =	5 Amp - 20 Amp (Max 40 Amp)
60 AH =	5 Amp - 30 Amp (Max 60 Amp)
90 AH =	8 Amp - 45 Amp (Max 90 Amp)

It is recommended to charge the Thumper Lithium battery pack on 240V every 3 months to recover full battery capacity.

The Thumper Lithium 40 AH / 60 AH / 90 AH battery packs are provided with a full vehicle wiring loom (TUR-L). This same wiring loom will suit the Thumper Lithium models with and without the DC charger fitted. It is recommended to install the provided wiring loom to each vehicle to maximize the charging ability from the vehicle.

The Thumper Lithium 12 AH and 24 AH do not include the TUR-L as a stock item, however, the kit is available to purchase as an *optional extra* if desired.

The Thumper Lithium wiring loom (TUR-L) comes fully equipped with all components for your vehicle installation (please refer to your fitting instructions for more information on this kit).

The TUR-L charge rate is dependent on the output of the vehicle. The charge rate will range from 15 Amps to 50 Amps, depending on the alternator's ability. The maximum charge rate of the TUR-L is 50 Amps.

2.1mm socket

