



2022 brochure



# 12V Lithium Iron Phosphate Batteries w/ built in Bluetooth BMS and App functionality

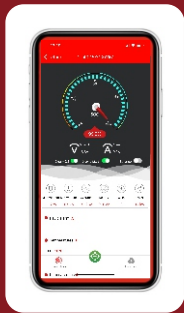
20Ah | 60Ah | 80Ah | 100Ah | 120Ah | 150Ah | 200Ah | 300Ah  
24V 150Ah  
5 Years Warranty



BC range of  
AC to DC chargers  
2 output  
Live voltage output  
Linear wave DC charger



Sterling Power's range of  
DC to DC chargers  
Live voltage output  
Linear wave DC charger  
Current limiting  
Protects alternator + battery.  
Ideal for charging when driving



Bluetooth APP -  
SMART BMS  
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QR Code PDF

[ampsystems.co.uk](http://ampsystems.co.uk)





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Lithium Battery Quick Guide

Part No	Capacity Ah	Charge V	Charge	Discharge	Bluetooth	series limit	Dimensions (cm) LHW	Weight (kg)
			Current (max)	Current (max)				
<b>AL1220</b>	20Ah	≤14.4V	20A	40A	no	48V	19 x 18.7 x 7.7	2
<b>AL1260</b>	60Ah	≤14.4V	50A	120A	yes	48V	28 x 17.2 x 17.6	8
<b>AL1280</b>	80Ah	≤14.4V	60A	140A	yes	48V	26 x 21 x 16.5	11
<b>AL12100</b>	100Ah	≤14.4V	70A	150A	yes	48V	33 x 21.5 x 17	13
<b>AL12120</b>	120Ah	≤14.4V	70A	150A	yes	48V	41 x 23.5 x 17	15
<b>AL12150</b>	150Ah	≤14.4V	100A	200A	yes	48V	41 x 23.5 x 17	18
<b>AL12200</b>	200Ah	≤14.4V	150A	300A	yes	48V	53.2 x 20.7 x 21.5	22
<b>AL12300</b>	300Ah	≤14.4V	150A	300A	yes	48V	53.2 x 20.7 x 21.5	31
<b>AL24150</b>	200Ah	≤14.4V	150A	300A	yes	48V	53.2 x 20.7 x 21.5	31



Advanced Mobile Power Systems is a company that specialises in lithium battery storage and battery charging. We supply retail and trade customers and our primary industries are commercial vehicles, recreation vehicles and marine.

**Warranty** We provide 5 years warranty on all of our products.

**Lithium Benefits** The advantages of lithium batteries are well known over conventional batteries.

- Greater energy density, providing more usable power in the same space
- Superior charge and discharge capabilities
- Improved unit safety

They are superior on every level - everyone wants them. However installing them on vehicles was not simple and required a lot of knowledge because they have a very specific envelope for their charging and discharging curves. Failure to operate within these parameters will reduce the performance ability and life of the battery.

Lithium batteries require additional care over lead acid batteries. In AMPS batteries, much of this care is solved and monitored by the BMS onboard. The BMS tries to protect the cells from allow over-voltage, over-current, short circuit damage and over/under temperature situations.

Lithium poses a risk to alternators, and as such we cannot consider warranty claims where Lithium batteries are charged directly off of an alternator (IE, Not with a battery to battery charger to protect both the alternator and the Lithium from one another). When charging lithium from an alternator source (DC/DC charge on vehicles) we require a battery to battery charger for their current limiting and isolating properties.

Due to their very low internal resistance, Lithium batteries are very easy and quick to charge. This historically would be perceived as a good thing, however, on a mechanical source like an alternator this can rapidly lead to alternators running at 100% output for extended periods of time, and imminent degradation. Current limiting chargers limited to 80% of the alternators maximum output is AMPS' recommendation for DC/DC charge.

A.M.P.S recommends the Sterling Battery to Battery charger range for its current limiting features, its ability to isolate the battery from the alternator side, its Euro-6 compatibility and its complete voltage control.

- Capacity and performance - Lithium batteries allow, when the BMS allows it, full use of the battery capacity, as opposed to the 50% recommended depth of discharge of a lead acid battery. Their low internal resistance allows much faster charge than many other battery types and very impressive rates of discharge.
- Often significantly lighter and significantly smaller than their lead acid competition.
- Even when being discharged to significantly greater degrees than a lead acid battery, we will still expect to see between 10-20 times the service life of a lithium battery against a lead acid battery.



**BATTERY CHARGERS** 230VAC to 12V | 24V 2 output battery charger - BC Charger Series

- Charger Type** 190VAC - 260VAC input 50/60Hz - 5 stage battery charger
- Battery Charger Efficiency** 94%
- Nominal Voltage** 12V and 24V models - live output | linear
- Nominal Current** 20A and 40A models | with half power mode and 8 hours night mode
- Battery Chemistries** Lithium, LeadAcid and AGM
- Number of outputs** 2
- Pre-wired AC** Yes, 2m with UK mains plug - for ease of install
- Dimensions and Weight** 20.1cm x 11.2xm x 7.3cm at ~2Kg
- Operating Temperature** Charge - 10°C to 50°C
- Approvals** EN55014, EN61000, EN60335, EN62233
- No load standby AC current** <120mA
- Max load AC current** 2-4A
- Protections** Short Circuit protections, self-recoverable  
Over temperature protection, 3 steps decrease of output power, self-recoverable  
Battery over temperature protection, with battery remote sensor, self-recoverable  
Reverse Polarity (fused)
- Temperature sensor** Comes in box - temperature compensation + 0DegC trip on lithium
- Warranty** 5 years



**Appearance**  
BC Series



Part No	Voltage (V)	Current (A)	Bluetooth	Outputs
BC1220	12V	20A	no	2
BC1220B	12V	20A	yes	2
BC1240	12V	40A	no	2
BC1240B	12V	40A	yes	2
BC2420B	24V	20A	yes	2

**Bluetooth**  
BC Series Charger



Information regarding the Bluetooth APP can be found here: Scan the QR code



## BATTERY SPECIFICATIONS AL1220

Battery Capacity	20 Ampere hour (20Ah)   256Wh
Nominal Voltage	12V
Battery Chemistry	LiFePO <sub>4</sub> Chemistry - Cylindrical cells
Series Limit	4 (48V bank)
Parallel Limit	Infinite
Dimensions and Weight	19.0L x 18.7H x 7.7W (CM) - 2.2KG
Operating Temperature	Charge - 0°C to 60°C // Discharge from -20°C to 60°C
Operating Voltage	13.6V (4S x 3.4V)
Charge Voltage	14.2V-14.6V, 14.4V recommended
Float Voltage	13.4V-14.0V, 13.8V recommended
Max Continuous Charge Rate	1C (20A)
Max Continuous Discharge Rate	1C (20A)   40A peak discharge
BMS Features	<ul style="list-style-type: none"><li>• Low temperature battery disconnect (0°C for charge, -20°C for discharge)</li><li>• Over voltage disconnect (14.8V or above on input)</li><li>• Low voltage disconnect (Individual cells below 2.7V, battery voltage of 10.8V)</li><li>• Cell imbalance disconnect (Cell voltage differential of above 0.3V)</li><li>• Automatic cell voltage balancing</li><li>• Over current disconnect (40A draw, per battery)</li><li>• Short circuit protection</li></ul>
Operational Quiescent Current	10mA
Standby Quiescent Current	0.1mA
E Marking	E13 - 10R00-10R05-14430-00
Charge Curve	Constant Current / Constant Voltage - CC/CV
Terminals	M5
Warranty	5 years

Appearance  
AL1220





## BATTERY SPECIFICATIONS AL1260

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**Battery Capacity** 60 Ampere hour (60Ah) | 768Wh

**Nominal Voltage** 12V

**Battery Chemistry** LiFePO<sub>4</sub> Chemistry - Prismatic cells

**Series Limit** 4 (48V bank)

**Parallel Limit** Infinite

**Dimensions and Weight** 28.0L x 17.2H x 17.6W (CM) - 8KG

**Operating Temperature** Charge - 0°C to 60°C // Discharge from -20°C to 60°C

**Operating Voltage** 13.6V (4S x 3.4V)

**Charge Voltage** 14.2V-14.6V, 14.4V recommended

**Float Voltage** 13.4V-14.0V, 13.8V recommended

**Max Continuous Charge Rate** 0.8C (50A)

**Max Continuous Discharge Rate** 2C (120A)

- BMS Features**
- Bluetooth interface for battery information
  - Low temperature battery disconnect (0°C for charge, -20°C for discharge)
  - Over voltage disconnect (14.8V or above on input)
  - Low voltage disconnect (Individual cells below 2.7V, battery voltage of 10.8V)
  - Cell imbalance disconnect (Cell voltage differential of above 0.3V)
  - Automatic cell voltage balancing
  - Over current disconnect (>120A draw, per battery)
  - Short circuit protection

**Operational Quiescent Current** 10mA

**Standby Quiescent Current** 0.1mA

**E Marking** E13 - 10R00-10R05-14430-00

**Charge Curve** Constant Current / Constant Voltage - CC/CV

**Terminals** T1 Standard DIN Post 19.5mm + (pos) and 17.9mm - (neg) with plastic terminal covers.

**Warranty** 5 years

**Appearance**  
AL1260





## BATTERY SPECIFICATIONS AL1280

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**Battery Capacity** 80 Ampere hour (80Ah) | 1024Wh

**Nominal Voltage** 12V

**Battery Chemistry** LiFePO4 Chemistry - Prismatic cells

**Series Limit** 4 (48V bank)

**Parallel Limit** Infinite

**Dimensions and Weight** 26.0L x 21.0H x 16.5W (CM) - 11KG

**Operating Temperature** Charge - 0°C to 60°C // Discharge from -20°C to 60°C

**Operating Voltage** 13.6V (4S x 3.4V)

**Charge Voltage** 14.2V-14.6V, 14.4V recommended

**Float Voltage** 13.4V-14.0V, 13.8V recommended

**Max Continuous Charge Rate** 0.8C (60A)

**Max Continuous Discharge Rate** 1.75C (140A)

- BMS Features**
- Bluetooth interface for battery information
  - Low temperature battery disconnect (0°C for charge, -20°C for discharge)
  - Over voltage disconnect (14.8V or above on input)
  - Low voltage disconnect (Individual cells below 2.7V, battery voltage of 10.8V)
  - Cell imbalance disconnect (Cell voltage differential of above 0.3V)
  - Automatic cell voltage balancing
  - Over current disconnect
  - Short circuit protection

**Operational Quiescent Current** 10mA

**Standby Quiescent Current** 0.1mA

**E Marking** E13 - 10R00-10R05-14430-00

**Charge Curve** Constant Current / Constant Voltage - CC/CV

**Terminals** M8

**Warranty** 5 years

**Appearance**  
AL1280





## BATTERY SPECIFICATIONS AL12100

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Battery Capacity 100 Ampere hour (100Ah) | 1280Wh

Nominal Voltage 12V

Battery Chemistry LiFePO<sub>4</sub> Chemistry - Prismatic cells

Series Limit 4 (48V bank)

Parallel Limit Infinite

Dimensions and Weight 33.0L x 21.5H x 17.0W (cm) - 13KG

Operating Temperature Charge - 0°C to 60°C // Discharge from -20°C to 60°C

Operating Voltage 13.6V (4S x 3.4V)

Charge Voltage 14.2V-14.6V, 14.4V recommended

Float Voltage 13.4V-14.0V, 13.8V recommended

Max Continuous Charge Rate 0.7C (70A)

Max Continuous Discharge Rate 1.5C (150A)

- BMS Features**
- Bluetooth interface for battery information
  - Low temperature battery disconnect (0°C for charge, -20°C for discharge)
  - Over voltage disconnect (14.8V or above on input)
  - Low voltage disconnect (Individual cells below 2.7V, battery voltage of 10.8V)
  - Cell imbalance disconnect (Cell voltage differential of above 0.3V)
  - Automatic cell voltage balancing
  - Over current disconnect (>120A draw, per battery)
  - Short circuit protection

Operational Quiescent Current 10mA

Standby Quiescent Current 0.1mA

E Marking E13 - 10R00-10R05-14430-00

Charge Curve Constant Current / Constant Voltage - CC/CV

Terminals M8

Warranty 5 years

Appearance  
AL12100





## BATTERY SPECIFICATIONS **AL12120 | AL12150**

Battery Capacity 120Ah - 1536Wh | 150Ah - 1920Wh

Nominal Voltage 12V

Battery Chemistry LiFePO<sub>4</sub> Chemistry - Prismatic cells

Series Limit 4 (48V bank)

Parallel Limit Infinite

Dimensions and Weight 41.0L x 23.5H x 17.0W (cm) ~ 15Kg | 18Kg

Operating Temperature Charge - 0°C to 60°C // Discharge from -20°C to 60°C

Operating Voltage 13.6V (4S x 3.4V)

Charge Voltage 14.2V-14.6V, 14.4V recommended

Float Voltage 13.4V-14.0V, 13.8V recommended

Max Continuous Charge Rate 0.7C (80A) | 0.75C (100A)

Max Continuous Discharge Rate 1.25C (150A) | 1.33C (200A)

- BMS Features**
- Bluetooth interface for battery information
  - Low temperature battery disconnect (0°C for charge, -20°C for discharge)
  - Over voltage disconnect (14.8V or above on input)
  - Low voltage disconnect (Individual cells below 2.7V, battery voltage of 10.8V)
  - Cell imbalance disconnect (Cell voltage differential of above 0.3V)
  - Automatic cell voltage balancing
  - Over current disconnect (>120A draw, per battery)
  - Short circuit protection

Operational Quiescent Current 10mA

Standby Quiescent Current 0.1mA

E Marking E13 - 10R00-10R05-14430-00

Charge Curve Constant Current / Constant Voltage - CC/CV

Terminals M8

Warranty 5 years

Appearance  
AL12120  
AL12150







## BATTERY SPECIFICATIONS AL12200

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**Battery Capacity** 200 Ampere hour (200Ah) | 2560Wh

**Nominal Voltage** 12V

**Battery Chemistry** LiFePO<sub>4</sub> Chemistry - Prismatic cells

**Series Limit** 4 (48V bank)

**Parallel Limit** Infinite

**Dimensions and Weight** 53.2L x 20.7H x 21.5W (CM) - 22KG

**Operating Temperature** Charge - 0°C to 60°C // Discharge from -20°C to 60°C

**Operating Voltage** 13.6V (4S x 3.4V)

**Charge Voltage** 14.2V-14.6V, 14.4V recommended

**Float Voltage** 13.4V-14.0V, 13.8V recommended

**Max Continuous Charge Rate** 0.7C (150A)

**Max Continuous Discharge Rate** 1.5C (300A)

- BMS Features**
- Bluetooth interface for battery information
  - Low temperature battery disconnect (0°C for charge, -20°C for discharge)
  - Over voltage disconnect (14.8V or above on input)
  - Low voltage disconnect (Individual cells below 2.7V, battery voltage of 10.8V)
  - Cell imbalance disconnect (Cell voltage differential of above 0.3V)
  - Automatic cell voltage balancing
  - Over current disconnect (>120A draw, per battery)
  - Short circuit protection

**Operational Quiescent Current** 10mA

**Standby Quiescent Current** 0.1mA

**E Marking** E13 - 10R00-10R05-14430-00

**Charge Curve** Constant Current / Constant Voltage - CC/CV

**Terminals** M8

**Warranty** 5 years

**Appearance**  
AL12200





## BATTERY SPECIFICATIONS AL12300

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**Battery Capacity** 300 Ampere hour (200Ah) | 3840Wh

**Nominal Voltage** 12V

**Battery Chemistry** LiFePO<sub>4</sub> Chemistry - Prismatic cells

**Series Limit** 4 (48V bank)

**Parallel Limit** Infinite

**Dimensions and Weight** 53.2L x 20.7H x 21.5W (CM) - 31KG

**Operating Temperature** Charge - 0°C to 60°C // Discharge from -20°C to 60°C

**Operating Voltage** 13.6V (4S x 3.4V)

**Charge Voltage** 14.2V-14.6V, 14.4V recommended

**Float Voltage** 13.4V-14.0V, 13.8V recommended

**Max Continuous Charge Rate** 0.5C (150A)

**Max Continuous Discharge Rate** 1.0C (300A)

- BMS Features**
- Bluetooth interface for battery information
  - Low temperature battery disconnect (0°C for charge, -20°C for discharge)
  - Over voltage disconnect (14.8V or above on input)
  - Low voltage disconnect (Individual cells below 2.7V, battery voltage of 10.8V)
  - Cell imbalance disconnect (Cell voltage differential of above 0.3V)
  - Automatic cell voltage balancing
  - Over current disconnect (>120A draw, per battery)
  - Short circuit protection

**Operational Quiescent Current** 10mA

**Standby Quiescent Current** 0.1mA

**E Marking** E13 - 10R00-10R05-14430-00

**Charge Curve** Constant Current / Constant Voltage - CC/CV

**Terminals** M8

**Warranty** 5 years

**Appearance**  
AL12300





## BATTERY SPECIFICATIONS AL24150

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**Battery Capacity** 150 Ampere hour (150Ah) | 3840Wh

**Nominal Voltage** 24V

**Battery Chemistry** LiFePO<sub>4</sub> Chemistry - Prismatic cells

**Series Limit** 2 (48V bank)

**Parallel Limit** Infinite

**Dimensions and Weight** 53.2L x 20.7H x 21.5D (CM) - 31KG

**Operating Temperature** Charge - 0°C to 60°C // Discharge from -20°C to 60°C

**Operating Voltage** 27.2V (8S x 3.4V)

**Charge Voltage** 28.4V-29.2V, 28.8V recommended

**Float Voltage** 26.6V-28.0V, 27.6V recommended

**Max Continuous Charge Rate** 0.5C (80A)

**Max Continuous Discharge Rate** 1.0C (150A)

- BMS Features**
- Bluetooth interface for battery information
  - Low temperature battery disconnect (0°C for charge, -20°C for discharge)
  - Over voltage disconnect (29.6V or above on input)
  - Low voltage disconnect (Individual cells below 2.7V, battery voltage of 21.6V)
  - Cell imbalance disconnect (Cell voltage differential of above 0.3V)
  - Automatic cell voltage balancing
  - Over current disconnect (>120A draw, per battery)
  - Short circuit protection

**Operational Quiescent Current** 5mA

**Standby Quiescent Current** 0.1mA

**E Marking** E13 - 10R00-10R05-14430-00

**Charge Curve** Constant Current / Constant Voltage - CC/CV

**Terminals** M8

**Warranty** 5 years

**Appearance**  
AL24150





**CHARGING** Recommend Battery Chargers and DC to DC charging

**AMPS AC to DC Battery Charger / from mains**

- BC1220
- BC1220B
- BC1240
- BC1240B
- BC2420B

Our range of BC chargers provide a live output voltage that wakes up the battery BMS.

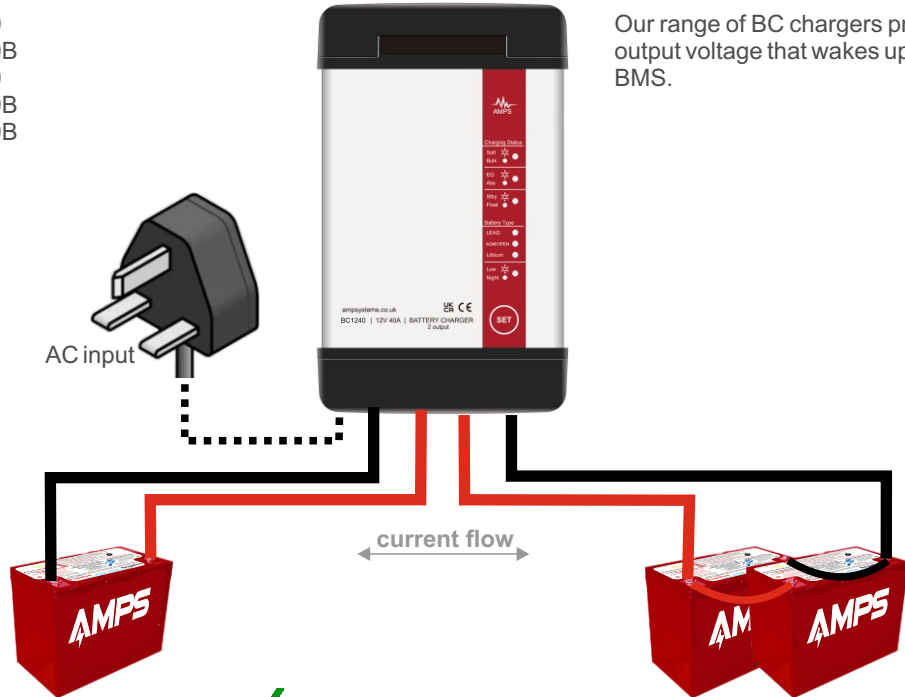
To charge our lithium batteries we recommend using our very own range of battery chargers - the BC series.

Ensure, when charging your batteries, you keep the current rating and voltage rating within the specification of the batteries. For example, the 12V 20Ah AL1220 battery should not be charged with our 12V 40A (BC1240) battery charger.

When paralleling batteries to increase Ah capacity, the charger current rating can increase proportionately. For example, 2x AL1220 in parallel can be charged with a BC1240.

Most of our battery chargers are comfortably under the charge rating of the batteries.

If charger rating is too high, the BMS inside the battery shall trip to protect the battery.



- Lead acid style battery ✓✓
- AMPS lithium battery ✓✓
- Other lithium batteries ✓✓

- Lead acid style battery ✓✓
- AMPS lithium battery ✓✓
- Other lithium batteries ✓✓

**Sterling Power DC to DC Battery Charger - Charging when driving / cruising along**

- BB1230
- BB1260
- BB1270
- BB12120

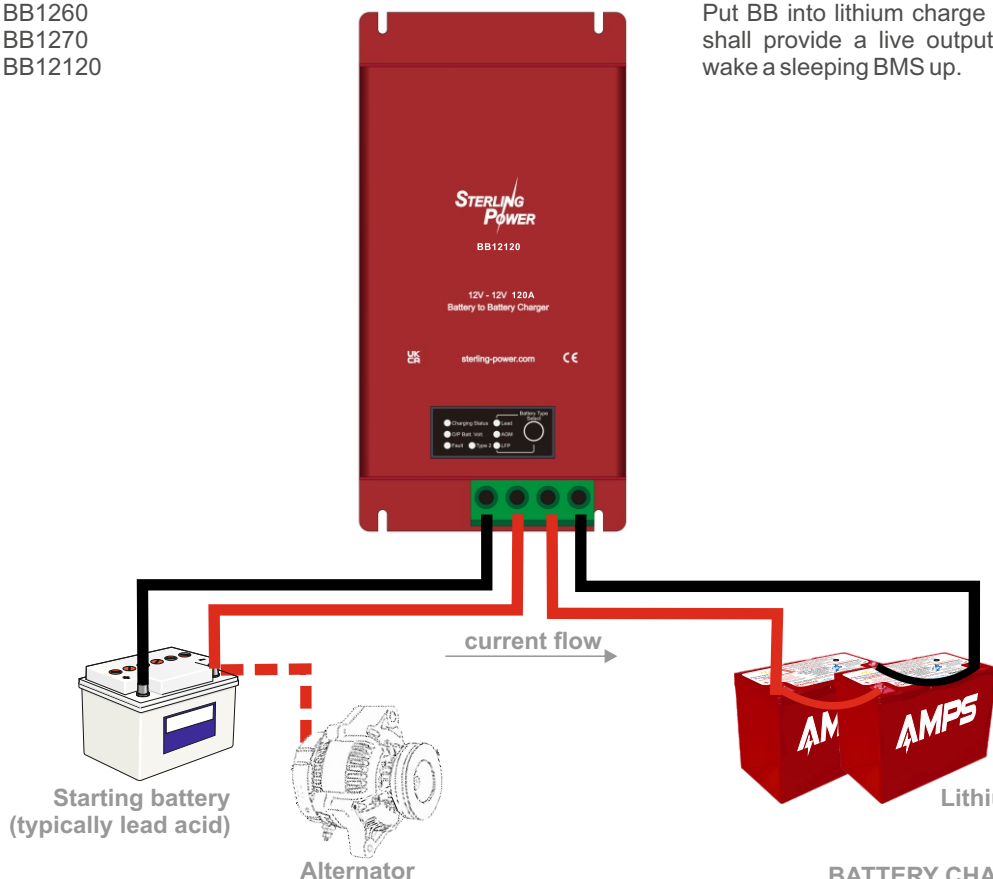
Put BB into lithium charge mode. This shall provide a live output voltage to wake a sleeping BMS up.

Battery to Battery Chargers / DC to DC chargers provides lithium batteries with the correct charging current and charging voltage.

As above, ensure your DC to DC charger is within the current spec of the battery(s) you wish to charge up.

Also, ensure your DC to DC charger is ~70% or lower than your alternator's current rating. Lithium batteries are prone to asking maximum performance from your alternator - resulting in your alternator over heating.

The DC to DC chargers essentially provide appropriate current levels at the correct voltage charging profile.




Starting battery (typically lead acid)

Alternator

Lithium Battery

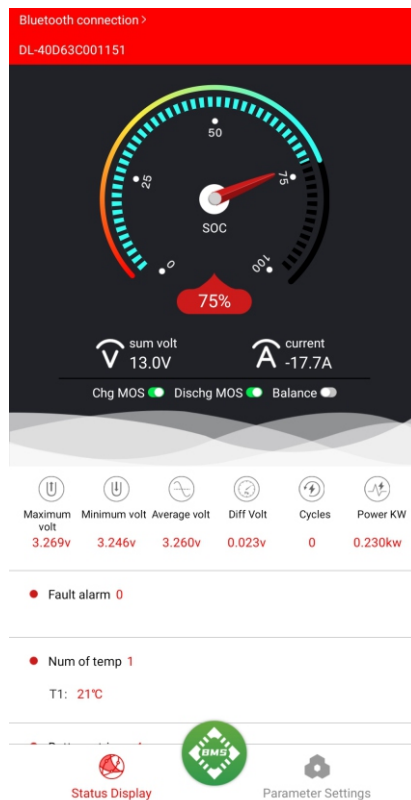


## Bluetooth BMS Bluetooth BMS functions and Features

- SOC %** Displays state of charge in % - gives an approximate indication of the capacity remaining in the battery
- sum volt** This refers to the total voltage across the battery.
- current** This shows the current entering or leaving the battery - the net figure. +ve for entering | -ve for leaving
- Power KW** This is a simple calculation of net power. Voltage x current.
- Diff Volt** The batteries are made of 4 strings of cells - the differential voltage is the difference in voltage between the highest voltage cell and the lowest voltage cell.
- Cycles** This is the number of charge and discharge cycles the battery has been through - to give an indication of battery usage / wear and tear.
- Additional Information** There is a large range of additional information for the consumer - including individual cell voltages, temperatures and balancer enable.
- Parameter Adjustment** One of the successful features of this App is the ability to adjust the parameters of the BMS to tailor make the batteries for the intended use. We set a generic factory preset and any adjustments are password protected.
- App name** Smart BMS 
- Location** Google PlayStore | App Store | .apk file from our website

Main Image  
Smart BMS App Home Page

Smaller Images  
Smart BMS Parameter page examples



project	parameters	Setting
cell volt high protect	3.72V	Enter set
cell volt low protect	2.72V	Enter set
sum volt high protect	14.80V	Enter set
sum volt low protect	10.80V	Enter set
diff volt protection	0.25V	Enter set
Chg overcurrent protect	60.0A	Enter set
dischg overcurrent protect	140.0A	Enter set

project	parameters	Setting
chg high temp protect	75°C	Enter set
chg low temp protect	0°C	Enter set
disChg high temp protect	75°C	Enter set
disChg low temp protect	-20°C	Enter set
diff Temp protect	255°C	Enter set
MOS temp protect	0°C	Enter set



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