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Sterling Power Products
EV Roadside Recovery

- Roadside recovery vehicle EV charging solutions.
- A look at various charging speeds and setup size.
- 2.4kW - 120kW EV charging solutions.

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EV Recovery A Working Example

No one size fits all

At Sterling Power we have the solutions for faster EV charging requirements for roadside recovery vehicles. Everything from slow 2.4kW charging up to 120kW supercharging. We have multiple systems and different price points for different requirements.

These systems all encompass a battery for storing / donating the power, a DC-DC charger for charging the donating battery whilst driving, an inverter for converting the power and an EV charger for delivery the power to the stranded EV. These systems also include battery monitoring and fast charging from mains hook up to quickly top up the storage battery.

A working example

Flexibility

The above is an idea of what we can do.
The number of batteries can be increased or reduced.
The power of the inverters can be increased or reduced.
The DC DC charging rate can be added to or reduced.
Essentially, we have all of the power items required to build your own EV roadside recovery system.

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Products **All the items we have and can provide in the systems**

Inverter(s) Charger

This is a 5500W | 48V inverter that provides 230VAC or can be put in series to make 415VAC three phase. These can be added together to increase power. They also charge the donor battery at 3kW each. Their model name is Vulcan.
If 5kW is all that is required, simply use one of them.

If 30kW fast charging is required, use 6 of them in series / parallel.

These inverters also charge up the 48V battery when back at base.

Part number is:
VT485500 - if 3 phase is required.
V485500 - if single phase only is required.

Batteries

This is a 48V (51.2V) 100Ah lithium iron phosphate battery. This stores 5.12kWh of capacity. Put simply, this delivers 5kW of power for 1 hour. These can be stacked in parallel to increase capacity and delivery performance. 2x would be 10kW of power over 1 hour or 5kW over 2 hours. Add additional for more power and capacity.

RB48100 - 48V 100Ah

DC DC Charger

The DC DC charger is a device that is connected between your starter battery / alternator and charges the 48V battery when the engine is running. The power of this device is 1500W. As a proportion of the power required to charge an EV, this is a trickle. However, it shall assist with charging up for the 48V batteries when the engine of the recovery vehicle is running. 12V output models are available for slower speed EV recovery systems.
Common models:
BB1248120 - 12V input and 48V output
BB12120 | **200** - 12V to 12V 120A | 200A output.

EV Charging

EV charger - this model is capable of doing 7kW single phase and up to 22kW three phase. Most on board EV chargers have a 11kW AC charger onboard.
EVC

DC 15-120kW superchargers.
High power requires more batteries, more inverters, more weight. However, much faster charging speeds
EVC15 | **EVC30** | **EVC120**

Battery Monitor

Battery monitor - this device measures:

- state of charge of battery | Ah
- current flow
- power
- battery voltage

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Examples POSSIBLE SYSTEMS

EV charge power / speed:
2.4kW - very slow - (5-12 miles / hour)

Required:

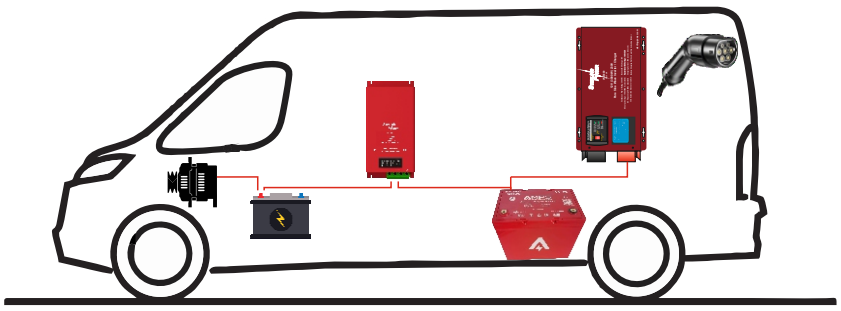
DC DC charger	**BB12120 | BB12200**
Large 12V battery	**AL12200+**
2.5kW Combi	**PCS122500**
'Granny' charger	

BM2 (optional)

12V Battery recharge rate from AC - 1kW

Approximate weight: 50kG

Approximate cost (excl. fitting / cabling) - exVAT: £2000+



Battery size
2.5kWh

EV charge power / speed:
5kW - slow (10-24 miles / hour)

Required:

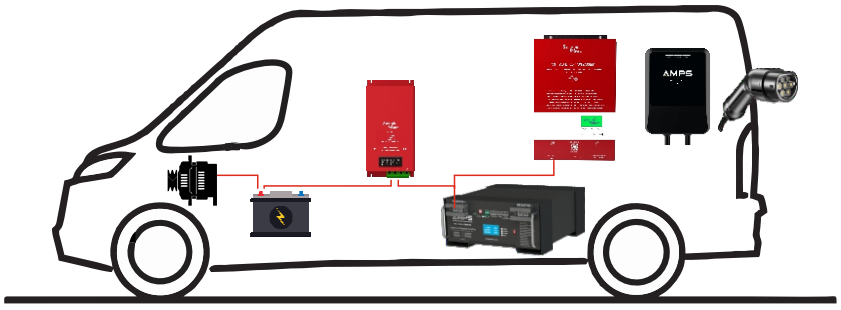
DC DC charger	**BB1248120**
48V 100Ah battery	**RB48100**
5.5kW Vulcan	**V485500**
3.7kW - 5kW EV charger	

BM2 (optional)

48V Battery recharge rate from AC - 3kW

Approximate weight: 65kG

Approximate cost (excl. fitting / cabling) - exVAT: £3000+



Battery size
5.1kWh

EV charge power / speed:
11kW - moderate (22-53 miles / hour)

Required:

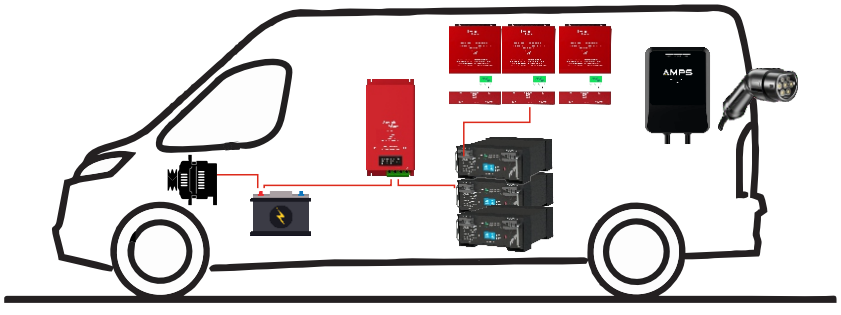
DC DC charger	**BB1248120**
48V 100Ah battery	**RB48100** x3
5.5kW Vulcan	**VT485500** x3
11kW EV charger	**EVC**

BM2 (optional)

48V Battery recharge rate from AC - 9kW

Approximate weight: 190kG

Approximate cost (excl. fitting / cabling) - exVAT: £6000+



Battery size
15.3kWh

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Examples POSSIBLE SYSTEMS

EV charge power / speed:
15kW - fast - (30-72 miles/hour)

Required:

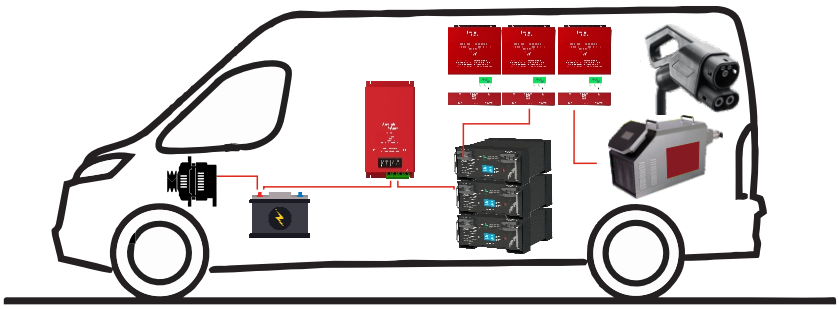
DC DC charger	**BB1248120**
48V 100Ah battery	**RB48100** x3
5.5kW Vulcan	**VT485500** x3
15kW EV DC charger	**EVC15**

BM2 (optional)

48V Battery recharge rate from AC - 9kW

Approximate weight: 200kG

Approximate cost (excl. fitting / cabling) - exVAT: £8000+



Battery size
15.3kWh

EV charge power / speed:
30kW - faster - (60-144 miles/hour)

Required:

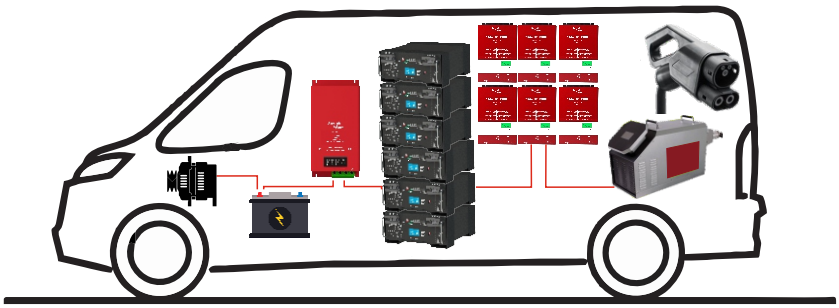
DC DC charger	**BB1248120**
48V 100Ah battery	**RB48100** x6
5.5kW Vulcan	**VT485500** x6
30kW EV DC charger	**EVC30**

BM2 (optional)

48V Battery recharge rate from AC - 18kW

Approximate weight: 380kG

Approximate cost (excl. fitting / cabling) - exVAT: £14,000+



Battery size
30.6kWh

EV charge power / speed:
11kW - moderate (22-53 miles / hour)

Required:

5.5kW Vulcan	**VT485500** x3
11kW EV charger	**EVC**

BM2 (optional)

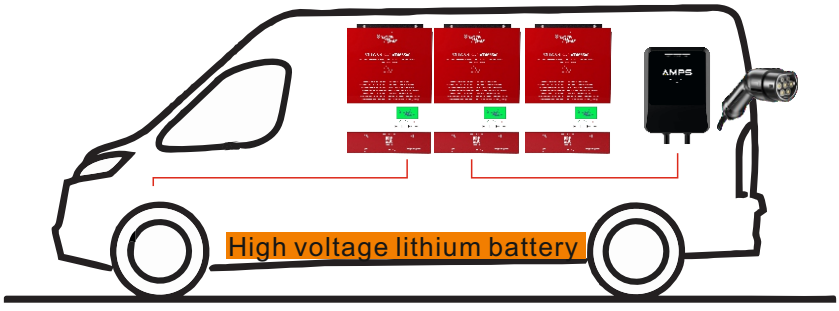
For this system to operate you require access to the high voltage DC of the EV. Feed this HVDC into the VT485500.

It is worth having a 48V battery onboard.

48V Battery recharge rate from AC - 9kW

Approximate weight: 35kG

Approximate cost (excl. fitting / cabling) - exVAT: £3000+



Electric Recovery Vehicle

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EV charge power / speed:
30kW - faster - (60-144 miles/hour)

Required:

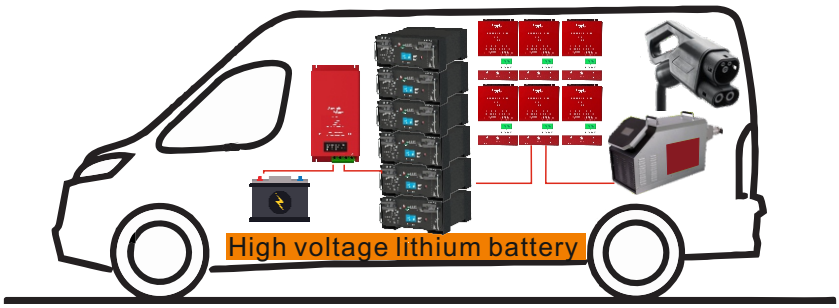
DC DC charger	**BB1248120**
48V 100Ah battery	**RB48100** x6
5.5kW Vulcan	**VT485500** x6
30kW EV DC charger	**EVC30**

BM2 (optional)

48V Battery recharge rate from AC - 9kW

Approximate weight: 380kG

Approximate cost (excl. fitting / cabling) - exVAT: £14,000+



Electric Recovery Vehicle

Battery size
30.6kWh

EV charge power / speed:
60kW - supercharge - (120-288 miles/hour)

Required:

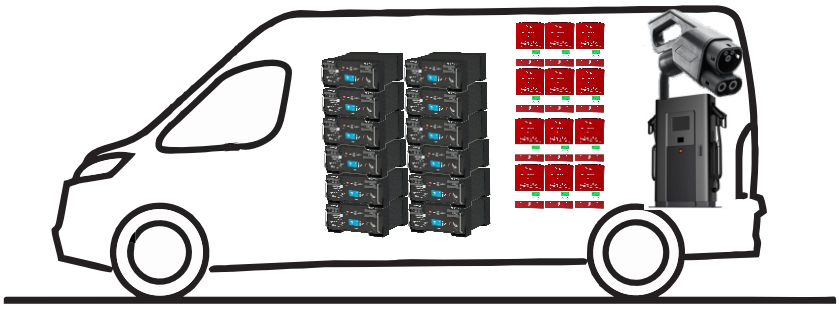
DC DC charger	**BB1248120**
48V 100Ah battery	**RB48100** x12
5.5kW Vulcan	**VT485500** x12
60kW EV DC charger	**EVC60**

BM2 (optional)

48V Battery recharge rate from AC - 36kW

Approximate weight: 850kG

Approximate cost (excl. fitting / cabling) - exVAT: £30,000+



Battery size
61.2kWh

EV charge power / speed:
120kW - supercharge - (240-576 miles/hour)

Required:

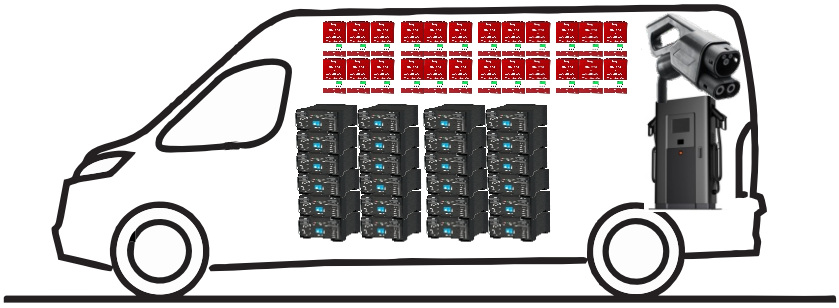
DC DC charger	**BB1248120**
48V 100Ah battery	**RB48100** x24
5.5kW Vulcan	**VT485500** x24
120kW EV DC charger	**EVC120**

BM2 (optional)

48V Battery recharge rate from AC - 72kW

Approximate weight: 1600kG

Approximate cost (excl. fitting / cabling) - exVAT: £60,000+



Battery size
122.4kWh

A working example

Battery size
10.24kWh

Specification

- 48V 200Ah (2x **RB48100**) Lithium Iron Phopshate Battery - 5.12kWh (16S) x2 - 10.24kWh
- 3x 48V 5500W Pure Sine Wave Inverter Chargers - 3 phase capable - provides 15kW **VT485500**
- 11kW EV Charger to charge EV 5m Type 2 cable. **EVC**
- 1x **BB1248120** - charges up the 48V battery from 12V input (alternator / starter)
- Battery Monitor - **BM2**
- Cabinet
- All wired up

Approximate weight: 160kG

Approximate cost (excl. fitting) - exVAT: £9,500+

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