

**Wildside charging - MUST READ FOR CARAVAN USERS. Massively improved charging by over 700% and get much more stored power. Fridge operation restored, giving you the freedom to roam the world.**

### ► The Problem

The electrical requirements onboard caravans have increased in the modern world (laptops / tablets / phones/microwaves/hairdryers / Caravan movers etc.). When at campsites this is no problem thanks to AC hookup. However, if touring is your forte and don't wish the extra cost and limitations at campsites, then this is the product for you.

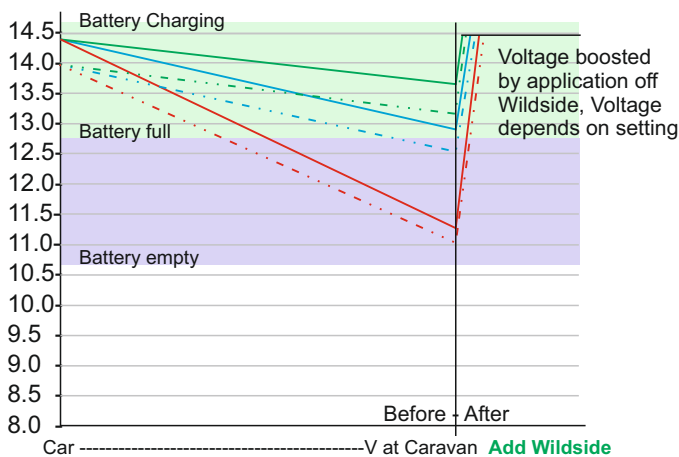
The existing charging off onboard caravans batteries from your main vehicle while in motion is historically terrible. This is because the onboard charging systems have not modernised by keeping up with onboard electrical demands **NOR** by dealing with the contemporary peculiarities associated with Euro 5 / Euro 6 + engines. A prime example being that some fridges simply do not work whilst towing your caravan and the ability to actually charge the onboard battery is simply out of the question. This is because the towing vehicle alternator's voltage is dropping below the enabling threshold of the fridge and below that required to charge a batteries. Refer to page 15 for Euro 6 / regenerative braking information. We use a van in the test - any modern SUV or car could have also been used. This also drastically effects the performance off the caravan mover rendering this expensive and useful product virtually useless

These problems are totally unnecessary when you consider that modern vehicles have such large alternators and surplus power - much more than their predecessors. Utilizing the alternator's potential to actually charge your caravan battery fast and fully + running your fridge could free you from constant visits to camp sites when the **Wildside** option could be enjoyed more and save a lot off money.

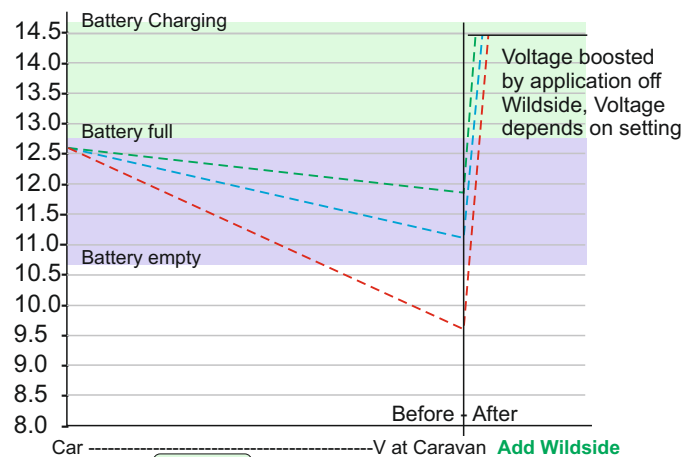
A full caravan battery means freedom to enjoy the **Wildside** experience and allow the installation of more power hungry products such as inverters . Increasing battery banks sizes extends this experience with the knowledge that during your next drive your battery will fully charge from your vehicle. This is something caravanners always assume their system was doing, yet it simply was not.

## Cable voltage drop associated with caravan towing

**2.5 mm2** 8m Pos and 8m Neg copper cable conventional vehicle at **14V or 14.V input**



**2.5 mm2** 8m Pos and 8m Neg copper cable input voltage **12.6V** ( lower euro 6+ engine volts )



**Red = 0.5 Ohm load approx 22A**  
**Blue = 1.0 Ohm load approx 12A**  
**Green = 2.0 Ohm load approx 6A**



**Green** Volts required to charge the caravan battery  
**Purple** Volts where you are discharging your battery

### Analysing the above information.

First of all I would like to make very clear that this is the absolute best performance you will get. Bear in mind, with this cable I have not added all the plugs, relays and poor connections associated with this circuit on your vehicle for the fridge etc. So, you could only expect lesser performance. Also, the neg was a copper neg return where a lot of people fit the neg to chassis which will make the figures even worse again. So, the above is the best case you can expect, not even the average. The 2 areas to note are the green and purple, the green is the voltage where you need to be to have any chance of charging your caravan battery. The higher up the green area the better your battery charge will be. The purple is your battery depletion, the lower down you are on this the more power you have used and so the more "empty" your battery will become.

The euro 6 + with re-gen braking vehicles are the most telling. When they are on their low voltage setting ( designed to deplete the engine starter battery about 20% ) they already start out in the battery discharge voltage ( it's meant to ). However, the voltage which ends up in the caravan under load is way below this due to the voltage drops in the cables. This means your fridge is receiving a very low voltages and it simply cannot operate in the voltage range.

The simple fact off the matter is that with a euro 6 tow vehicle on a caravan will not work the fridge or charge the battery rendering the caravan feed system not functional and totally useless, there is simply no point in having any connection at all .

**The solution:** the voltage drop down the cabling from the vehicle to the caravan is unavoidable. Also, with new tow vehicles (with euro 6 engines plus) this already poor performance is compounded by the fluctuations between the low 12.6V to high up in the 16V+ region ( highest so far is about 18 V ) .

You may be wondering why, when my fridge, which may be rated at 10A at 12V would be interested in the 12A or 22A graphs. The answer is in the maths. Your fridge may be rated at 10A at 12V = 10 x 14V = 140W. However, when your voltage has dropped to 8.5V (worst case as above) then the fridge power at 120W the maths changes - so 140 W = 16.5 A x 8.5V. Therefore, the amps required is now 16.5 A (also note your fridge would simply not run at this low voltage). What the Sterling Wildside does is to take the low input voltage and current but transform the power from low voltage useless power to much higher voltage useful power. The unit also as a build in 4 step digital constant current programable battery charging system as well as the fridge operation It also reduces the voltages in the event of the re-gen braking high voltage phase attempting to damage any equipment in the caravan. This allows not only your fridge to work but also very effectively charges your battery (better than even the conventional systems).

the above figures are based on a absorption fridge, where ever possible if you want to do a lot off wild side camping you must never use absorptions fridges as their power consumption is insanely higher than a compressor fridge, a typical absorption fridge would have a constant 14 amp draw where as a compressor fridge would average 2 amps hrs

The Sterling system can no longer to be seen as a luxury for increasing the performance of your caravan electrical system but for Euro 6 Plus engines it has now slipped into the category of no Sterling no fridge or Caravan off-site.

### ► The Solution

The solution needs to overcome the following problems:

- 1) Deal with the massive voltage drop down the cables / plugs between the car and the caravan by boosting the low voltage to the correct voltage expected to charge the batteries. Also, reducing the voltage during the voltage highs associated with the new euro 5-6+ engines to prevent damage to equipment.
- 2) Utilize as much of the standard plug and wiring system as possible to avoid changing the basic system - for the sake of ease of installation.
- 3) Enable the fridge to operate ( 12V aspect ), in transit, or remain ( optional setting ) in operation if not connected to 230V.
- 4) Charge the onboard batteries fast using a 4 stage charging profile + 9 battery type programmes available. This ensures the battery is fully charged. Plus, a custom set option allowing the unit to be set up to any customer's personal choice. This ensures your electric caravan mover works when you arrive at your destination.

- 5) Present the owner with a financial 'payback' from the product's installation. Campsite savings + battery longevity.
- 6) Supply easy option modes to cover DC fridges, touring or site modes.
- 7) Add extra safety features, such as: Low battery fridge disconnect to allow lights to work after fridge has been disconnected in the event of battery discharge.

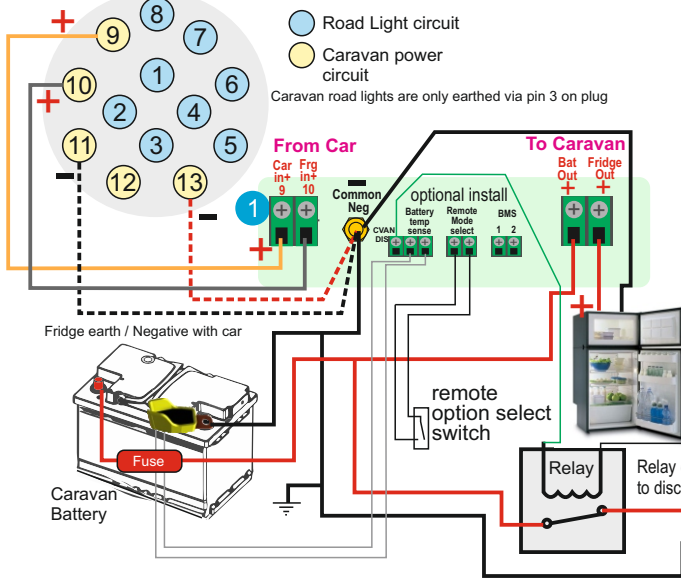
1) A clean and simple install in the main charging cable via the conventional socket. The conventional socket is rated to about 20A, however, it is more like 2-3A. The addition of the 20A battery to battery charger (BBC1220) will dramatically increase that charge rate and shall also compensate for all the problems associated with euro 5-6+ engines. Likewise, if you don't have Euro 5-6+ you will still enjoy at least a 500-700% faster charge rate and double your useful battery storage capacity. This constant current charger also enables the battery plates to stay much cleaner and last longer.

Mode select options for 12V / 230V fridges and 12V only fridge.

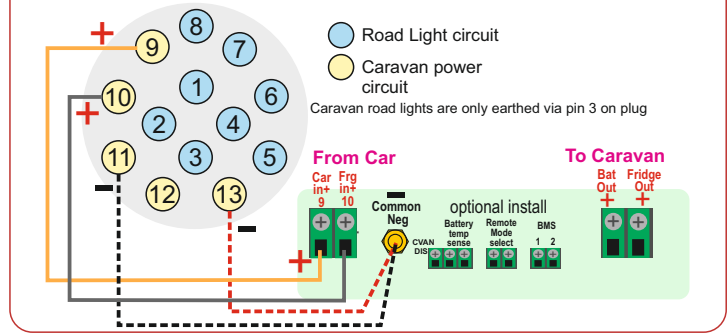
**Wildside mode** (AC 230V not available) allows the 12V aspect of the fridge to be engaged directly to the battery when the car has been stopped. This allows the fridge to run directly from the caravan battery on 12V. This obviously increases the battery consumption, however, the battery should be good for a day or so depending on the efficiency of the fridge. A larger battery bank can be installed in the caravan but watch chassis weight restrictions. A low voltage battery trip will disengage the fridge when the caravan battery is low, at approx. 11V.

**Camp site mode** (AC 230VAC available), this only allows the 12V fridge to operate during transit and will automatically isolate the fridge from the caravan battery when the journey is completed. The fridge should then be connected to the 230V campsite power, to which it can receive its power from. By increasing your battery capacity and charging rate you can then start looking at inverters. These enable use of phone / tablet charging, microwaves, hair dryers, hair straighteners, tools etc. Please look at our new Pro Combi S+ 1600 pure sine wave inverter / charger. Ideal for adding that next level of comfort to your caravanning experience.

### Full Installation wiring caravan only including already installed circuits



### Summary of key wiring modifications



- Fridge circuit optional
- 1) Only live when connected to vehicle and engine running ( default )
  - 2) Live when engine running or engine off ( optional )

Relay (Normally Closed) if installed. to disconnect caravan power when towing

12V+ to other caravan equipment/ distribution panel

Ground (neg) to other caravan equipment

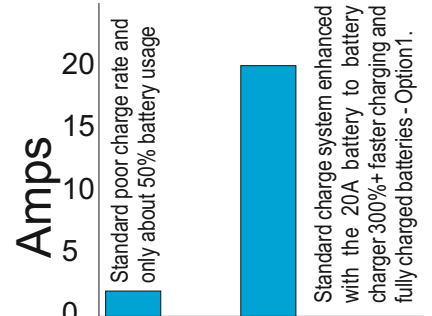
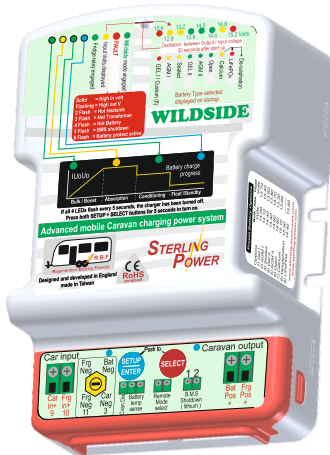
Optional battery temperature sensor

## The Product

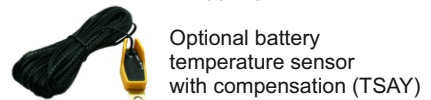
### Battery to Battery Charger Pro Batt Ultra - caravan spec.

#### Specification:

- 25A or 40A ( model dependent ) input DC Amps.
- 80A fridge engage relay.
- Automatic operation.
- OEM lock, to prevent customers adjusting after installation
- 16 LED information and alarm panel.
- Optional battery temperature compensation.
- Remote touring or **Wildside** mode operation select.
- Thermostatically controlled fan cooling.
- High grade fire retardant plastic case.
- Refer to Battery to Battery Charger for additional info.



There are videos about this on our YouTube channel:  
<https://www.youtube.com/watch?v=EEhmWVd6Evs>



Option 1: Advanced charging using your standard plug and socket arrangement. Up to 20A ideal for Euro 5/6+ ve hicles and standard vehicles.

Battery to battery charger up to 25A ideal for 60A - 100Ah battery, fits in line with the standard system the 40 amp model for larger battery banks and faster recharge times ideal for lithium

www.sterling-power.com  
 Unit 8, Wassage way  
 Hampton Lovett Ind Est  
 Droitwich, WR9 0NX  
 Tel (44) 01905771771  
 Fax (44) 01905779434  
 e-mail: help@sterling-power.com

Release date  
 May 2017

DC V (in)	DC V (out)	Current (A)	Weight (Kg)	L x W x D mm	Code
12V	12V	25A input	0.9	160 x 96 x 55	BBC1225
12V	12V	40A input	1.2	190 x 160 x 50	BBC1240