X6-ELECTROMOD©

160AH 1.5KW Electrical Power Generator for the BMW X6

Exclusive to the BMW

X6

Installation Manual

HALLON POWER®

Green power on the go!

Contents

System Installation

Prerequisites

A. Prepare the car:

Before fitting the System Panel in the car,

1. The Luggage Compartment Pan (A) (part no. 51476981061) and the Battery Cover (B) (part no. 51476981050) will have to be removed to make room for the installation.
2. The X6 Interior-Rear-Storage Compartment Right (C) (part no. 51476981048) sits right underneath the Right Flap (D). An 8cm hole will need to be opened on the front side of this Storage Compartment, large enough for the connecting Powerpole plugs to pass through it.

B. Prepare the PM panel (see The Power Management Area):

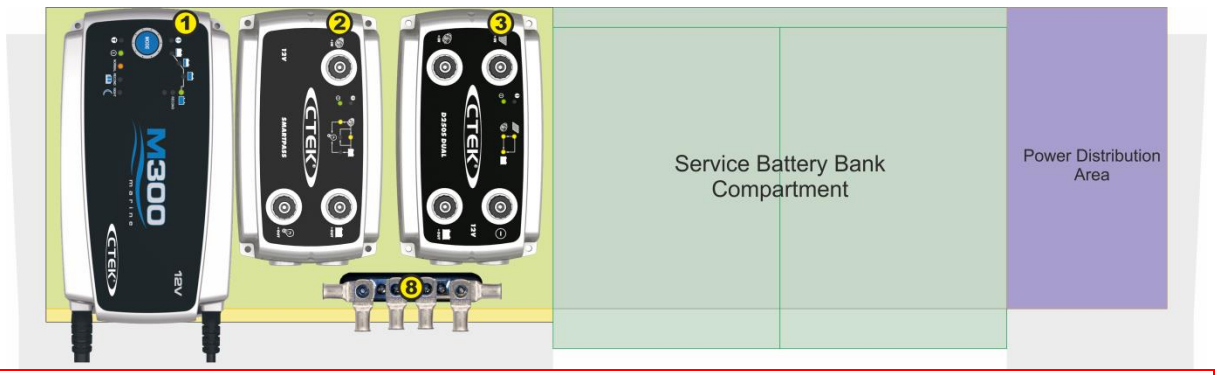
The Power Management Panel houses 3 components from CTEK and a Grounding Bus Bar (GBB).

- CTEK M300 charger #1.
- CTEK Smartpass #2.
- CTEK D250S Dual #3.
- Grounding Bus Bar #8 (GBB).

1. Attach all the PM components (D250S, Smartpass, M300 and Grounding Bus Bar).
2. Now connect all cables to each PM component (LOOM1 & LOOM2) (see Appendix A).

D. Prepare the SP by making sure:

1. All 3 base brackets are attached and
2. Both side brackets are not attached so as not to interfere with the installation (we will add them later on).
3. The 2 bottom Inverter screws are screwed onto the SP to allow easy Inverter fastening.
4. Attach the PM panel to the SP and
5. Take the SP & the 3 other panels to the car for installation (see Installation procedure).

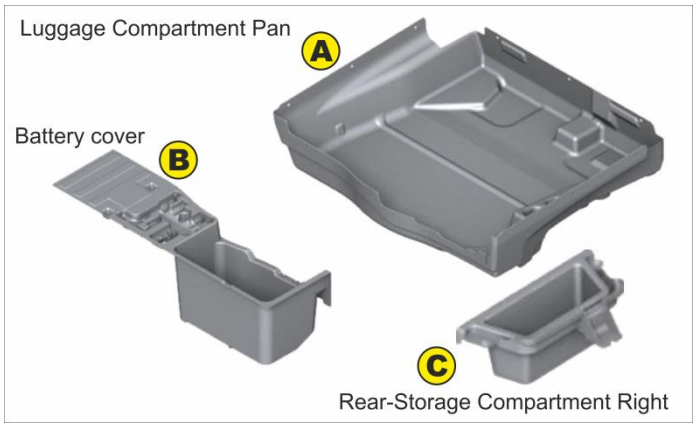


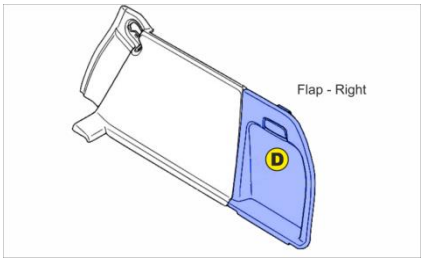
CAUTION: Please arrange for adequate protection of your rear bumper during installation to protect it from scratches.

Fitting the System Panel into an BMW X6 E71

The solution is housed on a single plywood panel that fits snugly and discretely underneath the trunk floor in the luggage compartment of your BMW X6 (also called the Trunk Floor Compartment).

Before fitting the System Panel, the Luggage Compartment Pan (A) (part no. 51476981061) and the Battery Cover (B) (part no. 51476981050) will have to be removed to make room for the installation. These parts are found under the trunk floor. Place these items in storage as they will no longer be needed.



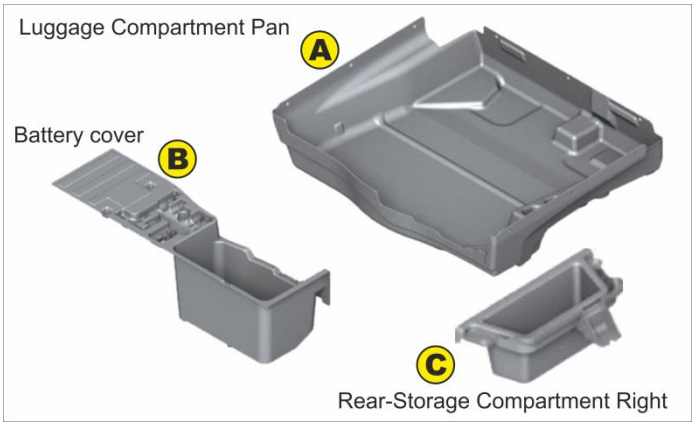


A System Control Panel (SCP) is also included in the solution which is housed on the right hand side of the trunk of the BMW X6, also discretely and seamlessly blended into the Right Flap (D) found in the trunk.

The X6 Interior-Rear-Storage Compartment Right (C) (part no. *51476981048)* sits right underneath the Right Flap (D). All wiring from the Trunk Floor Luggage Compartment, where the solution is installed, will have to pass through this Storage Compartment (C) in order to connect to the SCP (see section about the System Control Panel).

For this reason a hole will need to be opened on the front side of the Storage Compartment (C), large enough (about 8cm) for the connecting Powerpole plugs to pass through (the hole will be out of sight, hidden below the trunk floor level and completely covered by the SCP which will be sitting over it).

Battery base leveling



After removing the Battery Cover (B) from the luggage compartment below the trunk floor of the X6, you will notice that the floor is quite uneven.

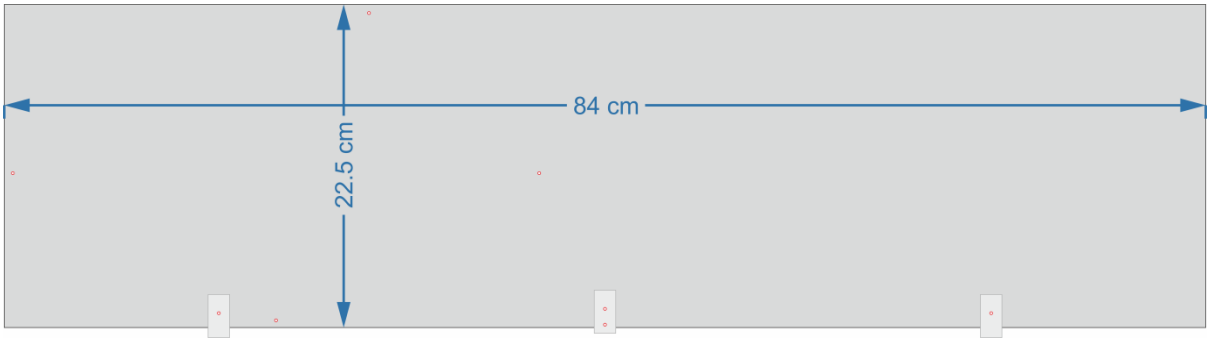
For this reason a suitable floor leveling material will be required in order for the batteries to sit level.

You could try using several small pieces of fitted carpeting, layered on top of each other to fill in the gaps and grooves. Finally, once you have established a level base, you can top it off with a single larger piece of carpeting to form the base where the batteries will sit.

Do not make this base too thick otherwise you may have trouble closing the trunk floor after you install the batteries.

System Panel Fastening onto the car body

The System Panel is attached to the base of the trunk of the X6 by 3 L-shaped brackets that slot into existing floor grooves.



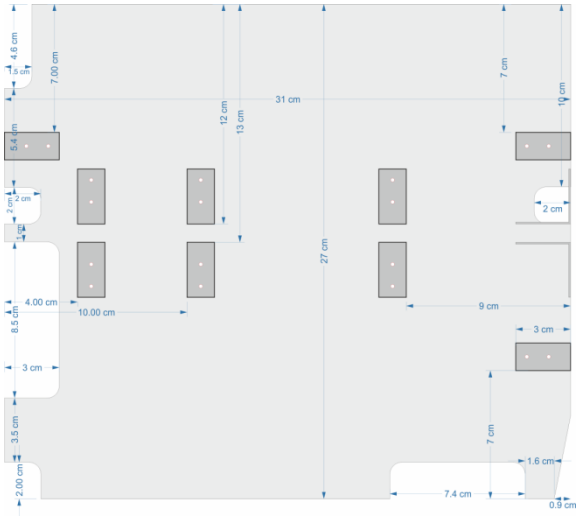
These are not meant to fasten the panel in position with screws but are rather meant to restrict its movements both vertically and horizontally, keeping it aligned and steady.

Two side brackets are actually screwed onto the sides of the trunk. These are actually what really hold the System Panel in position. So once you lower the panel into the luggage compartment, slide the 3 bottom brackets all the way into the floor slots.

Wait until the Power Distribution Vertical Panel has been placed into position and then using two screws, fasten these side brackets onto the sides of the trunk.

Power Distribution Vertical Panel

This panel separates the Power Distribution area from the Service Battery Bank compartment. It is used to fasten the PD area components and helps to keep the batteries in place.



It will require a screw to hold it in position against the rear wall of the trunk floor compartment.

Please follow the detailed installation instructions in the 'Installation procedure' section.

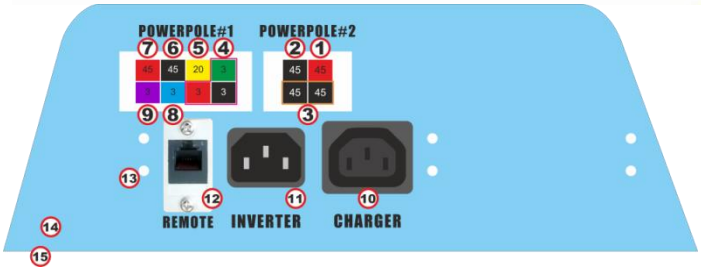
There are a total of 3 screws that will ever be drilled into any part of the car in this solution. We tried to keep any invasive means to an absolute minimum. This is why we have employed the L-shaped brackets to provide us with the necessary stability without using any screws, which also makes removing the panel a breeze.

Important Cable Considerations before Installation

M300 Charger cable modifications

Both the AC cable of the charger and the DC out cables have to be modified to connect to the rest of the system.

1. The **M300 AC cable** must have a plug change. Allow enough cable to be able to reach the SCP. Remove the mains plug from the cable and replace it with a C14 plug as shown. This will be able to connect to the bottom of the SCP and receive AC current from there.



2. The **M300 DC Out cable** needs to also have its plug changed (not shown here). Allow enough cable to be able to reach the SCP. Remove the DC plug from the cable and replace it with 2x Anderson Powerpoles. Make sure the positive red cable is fitted with a red Powerpole and the negative black cable is fitted with a black Powerpole. These will be able to connect to the colour matching Powerpoles on a long cable coming out of LOOM 2 (shown above).

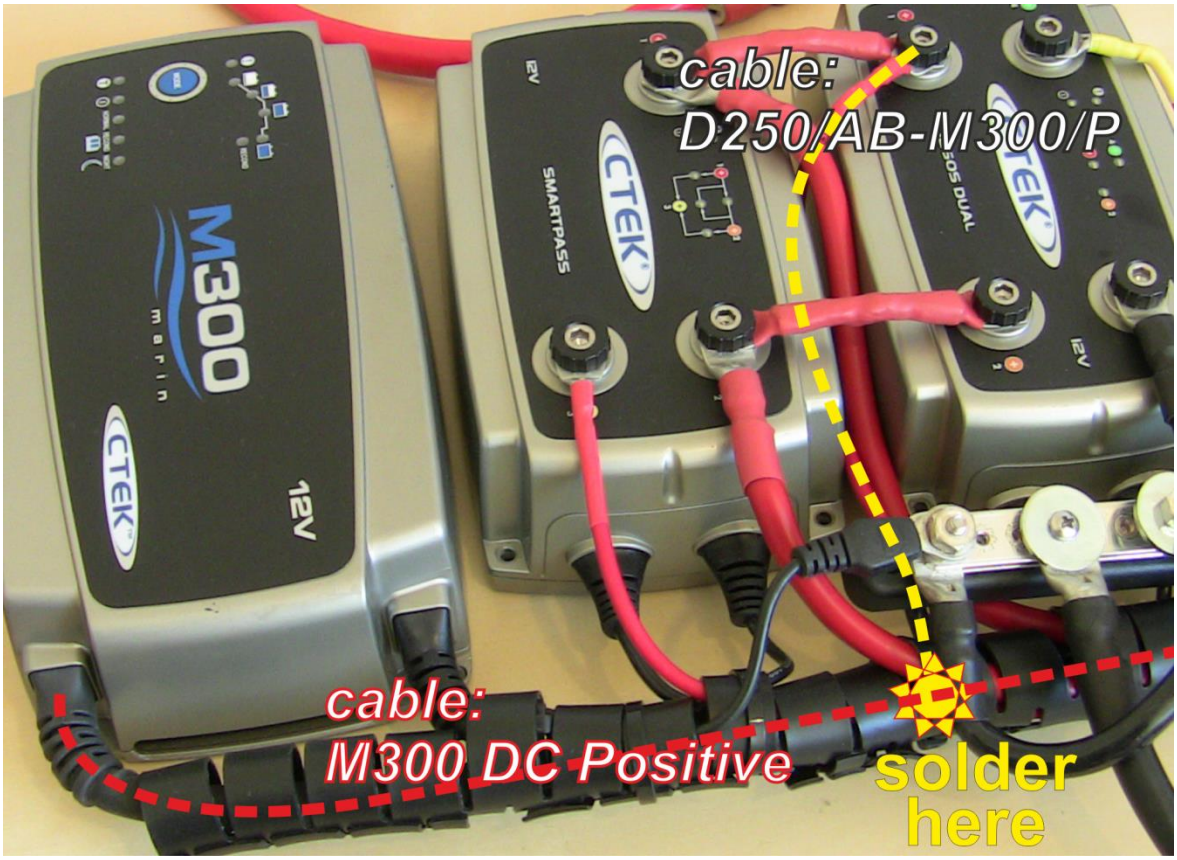
When connecting the M300 Powerpoles to the LOOM2 matching Powerpoles, zip-tie them together so that they do not get disconnected during installation. If you find that the M300 is not charging your batteries, it is probably because these connectors were disconnected. To avoid the inconvenience of removing cables and batteries to get to this joint, **make sure you tie them up pretty well**!

WARNING!

Connect the M300 only to LOOM2 colour matching Powerpoles (red&black)!

Do not connect to loom1 Powerpoles (white&black) which are designed to output DC current. Connecting here may damage your charger.

3. The **D250/AB-M300/P cable** (shown in yellow) has to be soldered directly onto the DC +ve output cable of the M300 charger (shown red), at the point where it passes right below the D250S module. **The M300 +ve cable must not be severed** here.



Instead it must just be striped locally to allow the soldering of the 2 cables to take place. Please insulate the joint properly.

The rest of the cable is allowed to continue until it attaches to the System Control Panel via the 2 Anderson Powerpoles mentioned above.

The rest of cabling should be done in accordance with Appendix A and specifically with the help of 'Table of Connections' or 'Connections by Type'.

Do not be intimidated by the long listings. There are actually only 21 single cables that must be connected and another 10 connections involving the SCP baseplate and the LOOMs.

You will find particularly useful the 'Connections by Type' table, since it lists each module and every connection going to it.

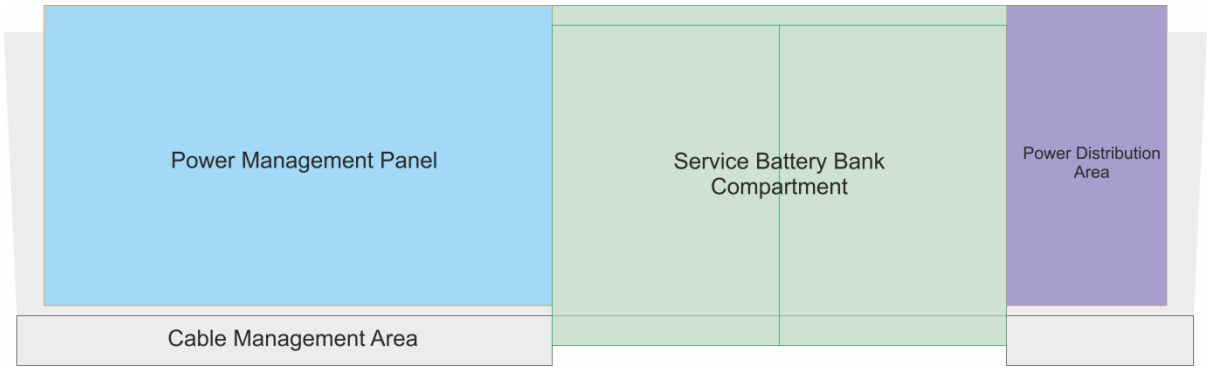
The next section will walk you through the whole process

Familiarization with the System

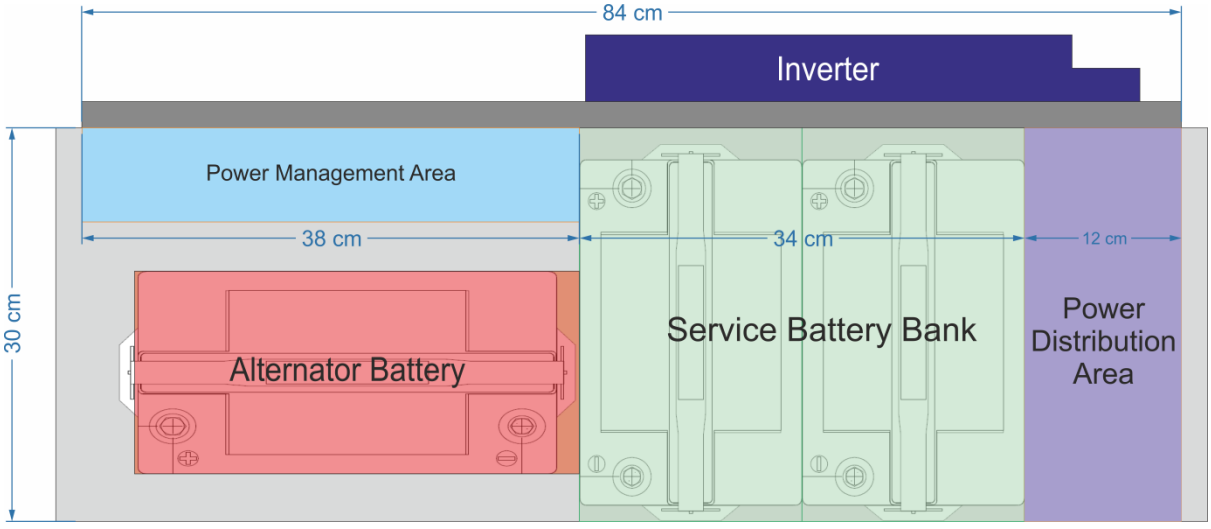
The solution is split into 6 main sections.

1. The Power Management Area that houses the Power Management Panel.
2. The Service Battery Bank Compartment.
3. The Power Distribution Area.
4. The Inverter Area (on the rear of the System Panel - not shown above).
5. The System Control Panel (SCP) (not shown below).
6. The Cable Management Area (for wiring see Appendix A).

Side view

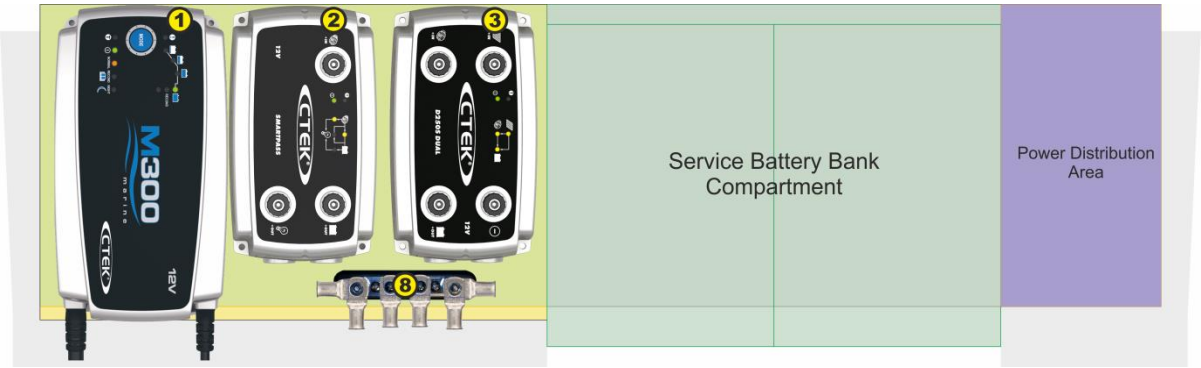


Top-down View



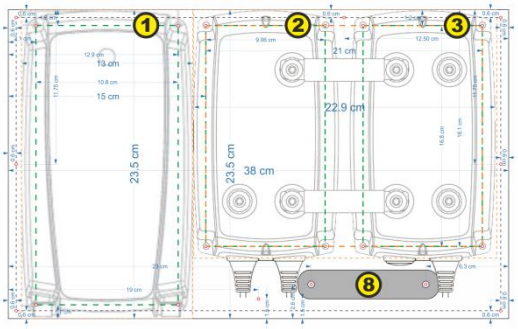
1. The Power Management Area

The Power Management Panel houses 3 components from CTEK and a Grounding Bus Bar (GBB).



1. CTEK M300 charger #1.
2. CTEK Smartpass #2.
3. CTEK D250S Dual #3.
4. Grounding Bus Bar #8 (GBB).

Each component has to be screwed into place on the Power Management Area Panel.

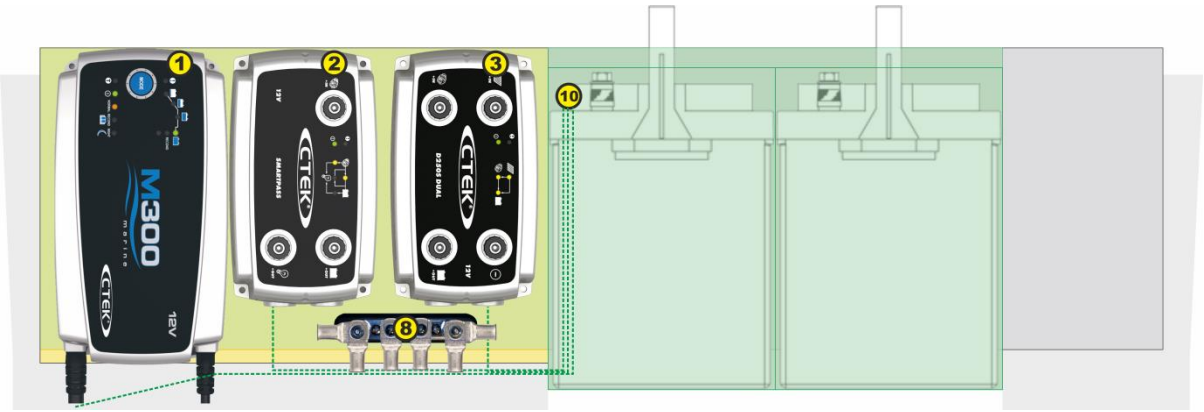


Once this is done, the Power Management Area Panel in turn should be taken and fastened onto the front of the System Panel using the four fastening holes provided on the System Panel.

All wires should be fastened securely and threaded to their relevant destination according to the wiring diagram (see wiring section). When finished, it should look something like this.

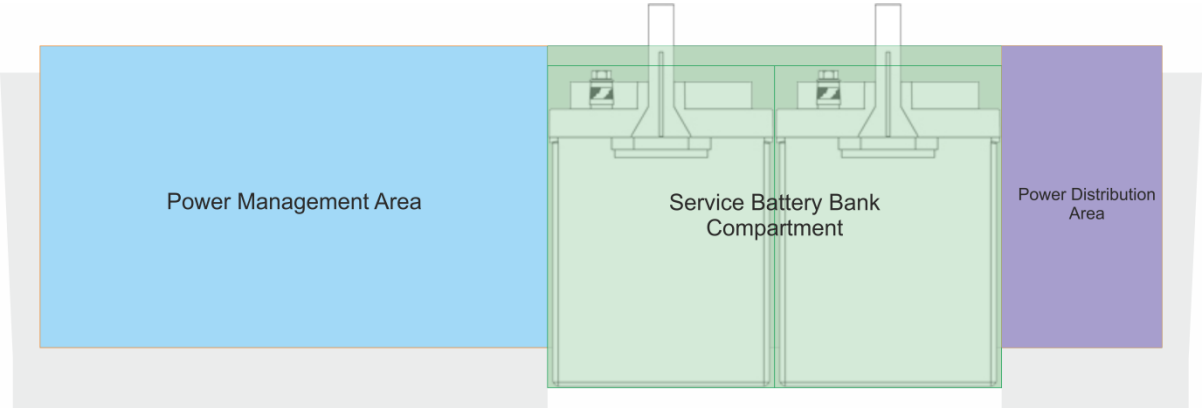
Thermal Sensors

The M300, Smartpass and D250S each come with a thermal sensor cable (#10) attached to the device. These should be attached on the top surface of one of the batteries in the Service Battery Bank, preferably near the positive pole.



2. The Service Battery Bank Compartment

The area houses the Service Battery Bank.



If choosing your own batteries, please make sure the model you choose will be smaller than the space specified below. Between 1 or 2 large capacity batteries can fit in this space, depending on their dimensions and protrusions.

WARNING!

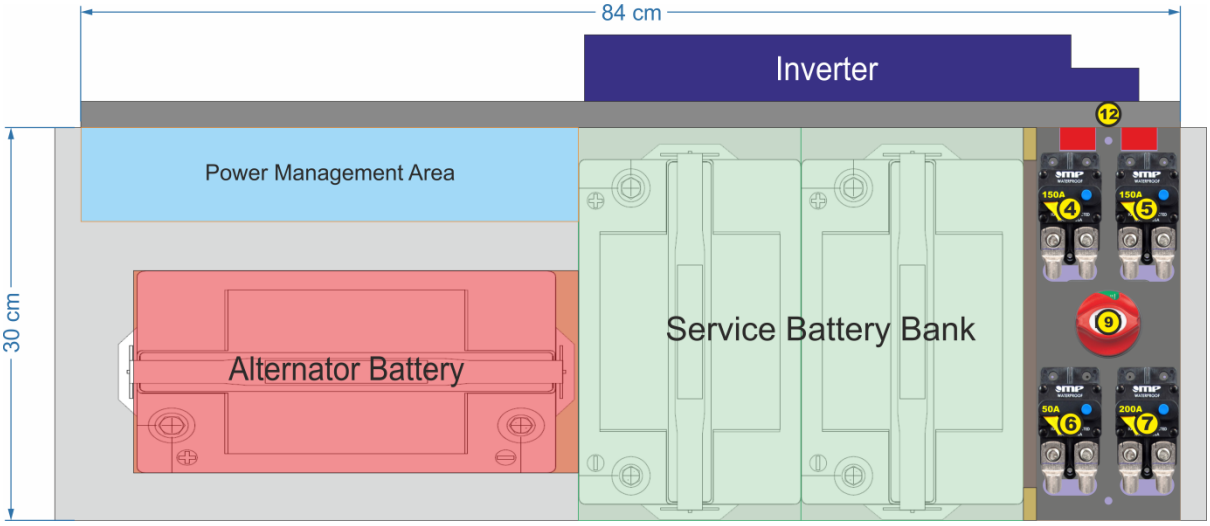
Both batteries must fit in this space: ***Length 11.13in (283mm) x Width 13.2in (336mm) x Height 9.25in (235mm).*** *Not even a millimetre larger! You may have to remove the battery holding straps after inserting the batteries into the Service Battery Bank compartment. Store these in a safe place for when you will need to replace the batteries or in case you may need to service the system.*

Battery Fastening

On the left side of the Service Battery Bank, we have the main Alternator Battery and on the right side, the Power Distribution Vertical Panel holding the batteries from moving in either direction. If required, a battery fastener can be used to hold the batteries down onto the trunk floor. In our case we found that this is not necessary.

3. The Power Distribution Area

This hosts 4 CBs and a motorized switch (BEP 701MD).

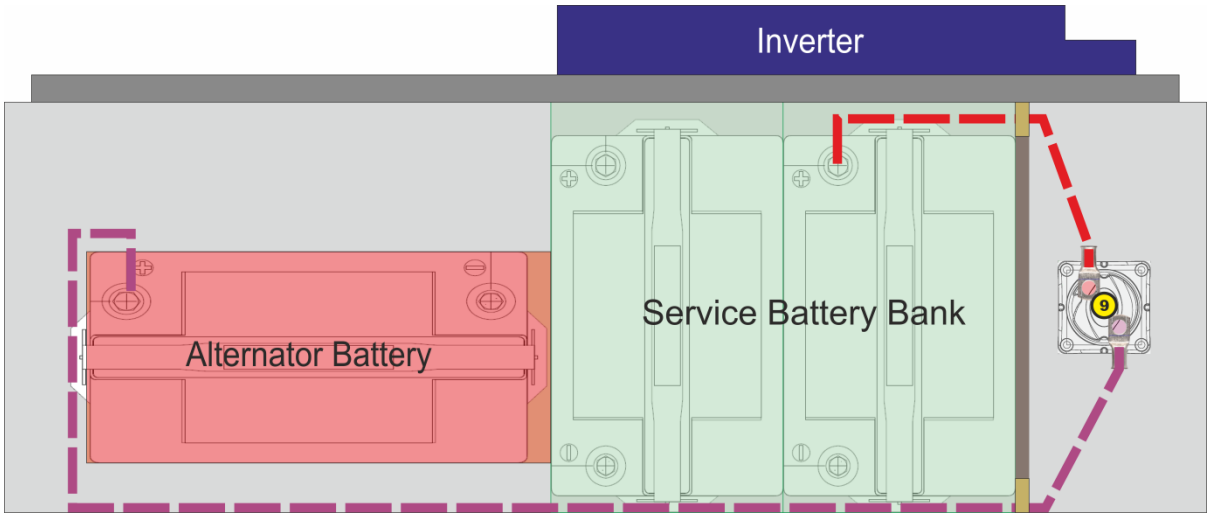


The BEP 701-MD's main functionality is to provide a 'Parallel Battery Mode' for the system.

WARNING!

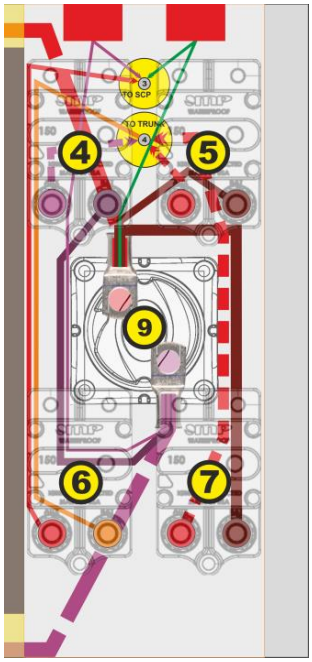
For normal system operation, make sure that Parallel Mode is OFF.

Engage Parallel Mode only in emergencies,
when the Alternator Battery cannot start the engine.



The BEP 701-MD's secondary functionality is to of course distribute power to the system, via the CBs. As we have already seen, the switch is connected directly to each battery bank.

From here various cables connect to CB#4, CB#5 and CB#7 which are responsible for protecting, switching and distributing power over those lines.



All power flowing to each part of the system passes through this switch, up to 275A continuous (see 'Wiring' section for more information).

CB#4&#5 feed the Smartpass with power from each battery bank. CB#4 feeds power from the Alternator Battery, while CB#5 feeds power from the Service Battery Bank (see 'Wiring' section for details). The power cables feeding these CBs come from the BEP-701MD switch directly, which is capable of either delivering the power separate or after bridging the battery banks (parallel mode).

CB#4&#5, rated at 150A, protect the D250S & Smartpass according to the manufacturer's guidelines, instead of a 150A fuse, meanwhile providing a way for the user to easily switch these modules ON or OFF.

CB#6, rated at 50A, is used to protect the Non-Critical Consumers 12V DC output of the Smartpass as well as providing a way for the user to easily switch this output ON or OFF.

Finally CB#7, rated at 200A, is responsible for feeding power into the SINERGEX Puresine2 1500W Inverter, while at the same time protecting the unit according to the manufacturer's guidelines, in place of a 200A fuse.

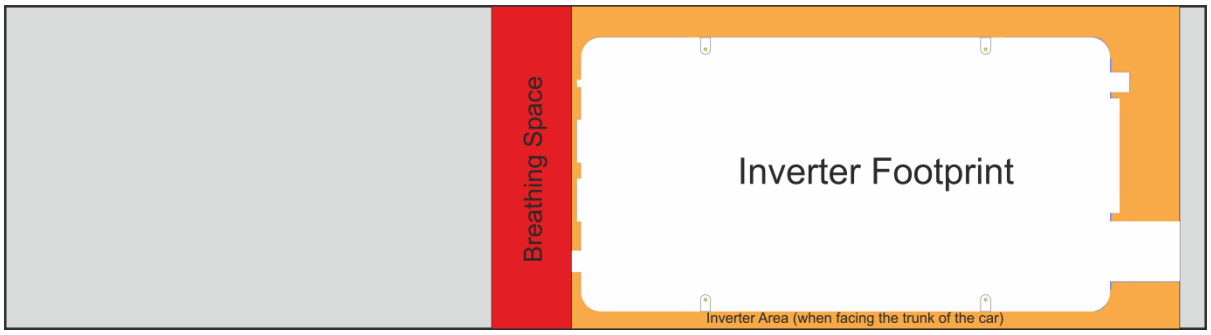
CB#7 also provides a convenient way to switch the inverter ON and OFF without having to fiddle around to find its 3-way switch behind the System Panel. It is recommended to place this switch in the II position at installation, which places the inverter in remote control mode. Thus when CB#7 is also switched to the ON position, the inverter can easily be turned ON or OFF directly from the SCP.

PLEASE NOTE:

It is recommended to place CB#7 to the OFF position when you no longer require use of the inverter to avoid anybody turning it on or even leaving it on accidentally.

4. The Inverter Area

The System Panel also houses a Power Inverter, installed on its rear side, for the generation of 240V AC power on the go.



WARNING!

Whatever inverter you may choose, the most important consideration is its width which must be less than 22cm otherwise it will not fit on the back of the System Panel. Its length and height can be anything you want.

WARNING!

The second most important consideration is that its continuous power output does not exceed 3000W. The system is designed to handle continuous currents of up to 275A (limited only by the bridging switch) to any Inverter and therefore a 3KW device would be the limit.

The other important consideration is the remote control unit. This has to be able to fit in the slot on the System Control Panel. The slot has a hole of 96mm x 86mm and was designed for remote controls of 130mm x 120mm dimensions.
Of course any other remote can be fitted, but you would have to cut a custom size hole on a 130mmx120mm aluminium cover which we can provide.

Every possible measure has been taken to ensure that the positioning of the inverter follows the manufacturer's guidelines. Placing the inverter on the reverse side of the System Panel separates it from any contact with the batteries. Make sure you adhere to these guidelines while in operation.

ON / OFF/ REMOTE (Main) switch:

a. Before installing the inverter, make sure the main switch must be "OFF".

b. Before using the remote unit, make sure the main switch must be "REMOTE".

Installation:

Where to install:

The power inverter should be installed in a location that meets the following requirements:

- Dry – Do not allow water to drip or splash on the inverter.
- Cool – Ambient air temperature should be between 0 and 40 , the cooler the better.
- Safe – Do not install in a battery compartment or other areas where flammable fumes may exist, such as fuel storage areas or engine compartments.
- Ventilated – Allow at least one inch of clearance around the inverter for air flow. Ensure the ventilation openings on the rear and front of the unit are not obstructed.
- Dust – Do not install the Inverter in a dusty environments where are dust, wood particles or other filings/shavings are present. This dust can be pulled into the unit when the cooling fan is operating.
- Avoid excessive cable lengths but do not install the Inverter in the same compartment as batteries.
  Use the recommended wire lengths and sizes (see section 3-5). Also do not mount the Inverter where it will be exposed to the gases produced by the battery. These gases are very corrosive and prolonged exposure also will damage the Inverter.

DC Input Terminals

Model	DC Input Voltage	
	Minimum	Maximum
12 V	10.5	15

WARNING!

Connect to 12V battery ONLY! (+) is positive, (-) is negative.

WARNING!

Reverse polarity connection will blow internal fuse and may damage inverter permanently.

WARNING! Shock Hazard.

Before proceeding further, carefully check that the Inverter is NOT connected to any batteries, and that all wiring is disconnected from any electrical sources. Do not connect the output terminals of the Inverter to an incoming AC source.

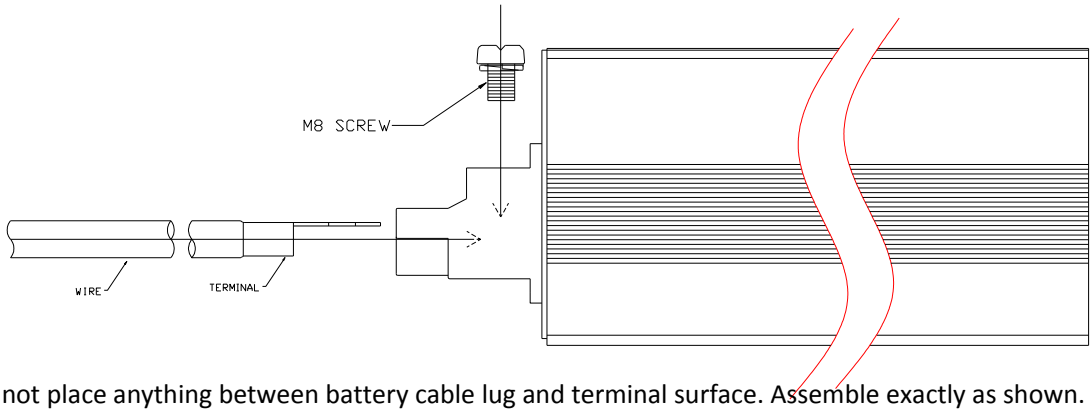
The X6-Electrmod bests the manufacturer recommendations for wiring and our solution provides a 200A CB in place of the 200A fuse recommended.

Connect the cables to the power input terminals on the rear panel of the inverter. The red terminal is positive (+) and black terminal is negative (-). Insert the cables into the terminals and tighten screw to clamp the wires securely.

WARNING!

Make sure all the DC connections are tight (torque to 9 – 10 ft-lbs, 11.7 – 13 Nm). Loose connections could result overheat in a potential hazard.

Battery to inverter cable connection



Do not place anything between battery cable lug and terminal surface. Assemble exactly as shown.

AC Safety Grounding:

PLEASE NOTE:

The AC output ground wire should go to the grounding point for your loads (for example, a distribution panel ground bus).
This is taken care of internally in the SCP.

PLEASE NOTE:

What we have included here are some of the most important points regarding the installation and operation of this inverter, making it relevant to this manual.

Please consult the Inverter user manual for more details and information.

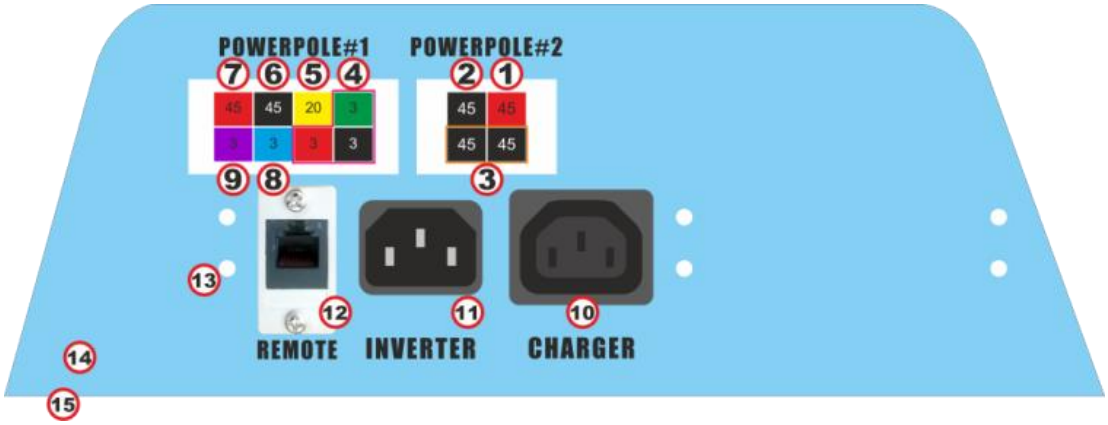
5. The System Control Panel (SCP)

The SCP is installed in the right trunk flap of the X6 and makes use of the depression in the flap to house its various components.

SCP Baseplate

Input & Output connectors of the SCP baseplate

External View



System Cable Harness

The SCP is making use of Anderson Powerpole connectors for their ease of use, rigidity, flexibility and high current capability of 30A or 45A.

The cable harness comprises of 3 plugs and terminates onto the baseplate of the SCP.

1. Anderson Powepole 8x pole plug (LOOM1).
2. Anderson Powepole 4x pole plug (LOOM2).
3. C14 male plug (M300 AC plug replacement).

Cable Loom #1

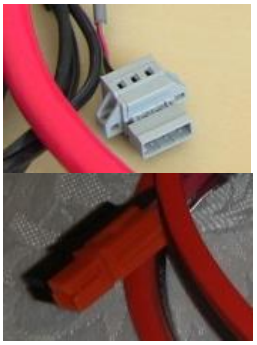
Cable Loom for the Powerpole#1 socket on the System Control Panel...

Cable Loom #2

Cable Loom for the Powerpole#2 socket on the System Control Panel...

Additionally you should have the following:

1. Cable with 3 wires onto 1x WAGO plug (coming out of LOOM1)
2. Cable with 2 wires onto 2x Powerpoles (white&black)
   (out of LOOM1 - DC Out for internal devices)
3. Cable with 2 wires onto 2x Powerpoles (red&black)
   (out of LOOM2 – connects to DC Out of M300 charger)



PLEASE NOTE:

- *The M300 charger has to have its DC output plugs replaced with 2x Anderson Powerpoles in order to connect to LOOM2 (#1 & #2 on baseplate).*
- *The 3 wires on LOOM1 (#4 red/green/black on baseplate) are coming from the BEP 701-MD switch and connect to LOOM1 with a WAGO plug.*
- *The -ve ground cable on LOOM2 (#3 on baseplate,#6 right) is taking up 2 Powerpole slots.*

Notes & warnings

1. 12V DC OUT (#7) can sustain 80A from the CTEK SMARTPASS module. However this output is limited to 50A continuous (and 100A intermittent) by the LCD Power Meters/Analyzers and further limited down to a rating of 15A (even with the engine off) by each of the 2 DC out receptacles on the SCP faceplate.
   Therefore the maximum amp rating for this line should be 2x15A=30A max, for a maximum power rating of 12x30A=360W continuous for both outputs (180W max each).

WARNING!

Do NOT connect devices exceeding 180W on any of the 2 DC receptacles.
This will probably damage the receptacles. If you require additional DC power, you can use the interior Anderson plugs (see below).

2. DC OUT metered (#6) is essentially another DC socket in Anderson connector format, in addition to the 2 already found on the face of the SCP.
   This allows easy and continuous access (even with the engine off) to DC power from anywhere inside the luggage compartment underneath the trunk floor of your car (such as LED lights to light up the luggage compartment).
   Anderson plugs have a 45A rating therefore the 12V DC OUT line is protected by a 50A CB (CB#6) for a maximum output of 600W.
3. 12V SOLAR IN (#5) is limited to 50A continuous by the LCD Power Meters/Analyzers and to a maximum of 23V and/or 300W by the CTEK D250S. The CTEK D250S can protect itself from over current situations, but its manual warns about the solar panel voltage.

WARNING!

Do NOT connect 2 panels in series.

Do not exceed 23V input. Do not exceed 300W input.

4. AC Input (#10) is powering the CTEK M300 300W AC charger. This input is protected with a 10A 240V fuse in the UK plug on the charging cable that connects to the SCP faceplate.

The 'AC Charging' Digital LCD Power Meter/Analyzer is metering the charger's DC output (#1) into the battery bank and not its own AC input.

5. AC OUT (#11) is using the SINERGEX Puresine2 1500W Inverter. The Inverter is quite capable of dealing with all extreme scenarios. Even so, this output is protected with a 10A 240V fuse in the UK plug on the cable that connects to the inverter. Equipment drawing in excess of 10A@240V AC are not recommended as they will be stressing the Inverter and the system in general and subsequently blowing this fuse.

Installation procedure

Installation comprises of 10 sections. Follow the instructions closely for each section in sequence.

A. System Panel (SP)
B. Inverter
C. Cable Harness
D. Chassis GND
E. Power Distribution Vertical Panel
F. Power Distribution Bottom Panel
G. Power Distribution Top Panel & CBs
H. The Batteries
I. System Control Panel (SCP)

A. System Panel (SP)

1. With the help of the SP rear handles, lower the SP carefully into the trunk compartment.

Please note: Slide all 3 Inverter cables (Green color coded - INV/P-CB7, INV/N-SBB/N, INV/GND-BB) past the right hand side of the SP before securing it.

2. The base brackets of the SP will help it to stand upright. These should line up perfectly with ridges found on the floor of the trunk compartment. Carefully move the SP towards you until these brackets can be inserted into these floor ridges, thus holding it in place.

CAUTION: Do not place too much force or you can break the brackets off the panel. Once the brackets are aligned and level, they should easily be pushed into the ridges by slightly tapping on the lower middle part of the SP with your palm.

Please note: Before you proceed, make sure your trunk floor door can be closed properly. If you find that the trunk floor door needs a lot of effort to close properly, then you need to recheck your installation for problems. If you have followed closely the above steps, there should be no problems closing the floor door.

3. Screw the side brackets onto the SP. Then drill 2 holes on each side of the trunk compartment and screw the brackets into position. The SP is now secured.

B. Inverter

1. Take your inverter and lower it behind the SP without fastening it. Now take each Inverter cable and secure it in its proper place on the Inverter.

Please note: You may want to place the Inverter on a soft rug to avoid scratching it on the trunk floor.

2. Now, secure the Inverter on the back of the SP.
3. Attach the Inverter power output cable and the remote cable to the Inverter.
4. Remove the Interior-Rear-Storage Compartment Right (C).
5. Pass the Inverter's power cable and remote cable past the right side of the SP and into the area where the Interior-Rear-Storage Compartment Right (C) used to sit. Leave them loose there for now.

C. Cable Harness

1. Pass the cable harness (LOOM1, LOOM2, C14) under the trunk floor and into the area where the Interior-Rear-Storage Compartment Right (C) used to sit.
2. Take the Interior-Rear-Storage Compartment Right (C) and pass each cable through the hole we opened on its front. When all cables (Inverter power cable, Inverter remote cable, LOOM1, LOOM2, C14) have been inserted, lower the Interior-Rear-Storage Compartment Right (C) back into position. Leave the cables loose there for now.

D. Chassis GND

1. Find the car's grounding bolt on the rear wall of the trunk floor compartment and unscrew it.

CAUTION: Do not remove the cables connected, or your car will reset. This is not a big deal if it happens though. You may just have to re-set some of your settings like the time etc.

2. Take the chassis grounding cable from the Grounding Bus Bar (BB-CHA/GND) and the SBB -ve cable (SBB/N-CHA/GND - 19cm 2AWG black) and bolt them on top of any cables already present here.

E. Power Distribution Vertical Panel

1. Make sure all cables are collected to the right side of the trunk floor compartment and then, take the Power Distribution Vertical Panel, with all its brackets already attached, lower it into position and fasten it temporarily with a couple of screws.

Please note: Before you proceed, make sure your trunk floor door can be closed properly. If you find that the trunk floor door needs a lot of effort to close properly, then you need to recheck your installation for problems. If you have followed closely the above steps, there should be no problems closing the floor door.

2. If all is well, take a marker and mark a spot on the rear wall of the trunk floor, where a hole should be drilled to fasten the rear bracket of the Power Distribution Vertical Panel. Apply enough force onto the top part of the Power Distribution Vertical Panel until it sits at its lowest level. (You may need to remove the Power Distribution Vertical Panel in order to drill the hole, otherwise go ahead).
3. Once the hole is drilled finish fastening the Power Distribution Vertical Panel to the SP and the rear of the trunk floor compartment wall.

Please note: Recheck and make sure your trunk floor door can be closed properly.

F. Power Distribution Bottom Panel

1. Then take the Power Distribution Bottom Panel, and lower it into position, underneath the brackets protruding from the sides of the Power Distribution Vertical Panel. It should slide with minimal effort into the grooves of the SP and the Power Distribution Vertical Panel.

> *Please note: Make sure that you lift the cables up through the large holes cut onto the Power Distribution Bottom Panel before you place it into position. If required, use masking tape to prevent them from dropping back down.*

2. Fasten the Power Distribution Bottom Panel onto the surrounding panels.
3. Now fasten the back plates of the fuse boxes onto the SP (do not add the fuse boxes yet).
4. Pass the thick black Inverter -ve cable (INV/N-SBB/N) through the rear opening of the Power Distribution Vertical Panel.
5. Hold the BEP701MD (octopus) with all attached cables, making sure that most cables are facing forward (Only 3 cables should be facing the rear of the car).
6. Start by passing the longest thick red cable (blue colour-coded - BEP/AB-AB coming out of the back of the octopus) through the rear opening of the Power Distribution Vertical Panel. Slide it all the way to the main car battery (Alternator Battery) and fasten it onto the supplied bolt (you will need to cut a small opening on the plastic cover and a couple of washers for the lug to sit properly).
7. Then pass the other thickest red wire (red colour-coded - BEP/SBB-SBB coming out of the front of the octopus) through the front opening on the Power Distribution Vertical Panel.
8. Take the WAGO plug coming out of the octopus and pass it under the floor compartment and into the Interior-Rear-Storage Compartment Right (C) through the hole on its front.
9. Now you can fasten the BEP701 onto the Power Distribution Bottom Panel.
10. Take the fuse boxes and remove the fuses from inside them. Connect one fuse box to each one of the thinnest cables coming from the BEP. Connect the remaining empty slot of each fuse box with the thinnest cables on LOOM1, making sure the colours match for both cables connected to each fuse box (the order of the cables on each fuse box does not matter).
11. Place the fuse box with the blue colour-coded cables (AB) and slot it in place on the left-most slot, while the other one with the red colour-coded cables (SBB) should be slotted on the right hand slot.

> *Please note: It really makes no difference where you slot the fuse boxes, but let's keep AB on the left and SBB on the right to keep things organized.*

12. Now, place one 2cm washer on each of the 2 spacer bolts attached to the Power Distribution Bottom Panel.

G. Power Distribution Top Panel & CBs

How to pair the cables for each CB:

There are a total of 8 cables that need to be matched. They are colour-coded so this should be pretty easy.

The 2 thinnest cables go to the bottom left slots (DC out cables - CB#6 - White) while the 2 thickest cables go to the bottom right slots (Inverter cables - CB#7 - Green).
All other cables go to the topmost slots (AB – CB#4 - Blue - Left, SBB – CB#5 - Red - Right).

Each circuit breaker has an indication on each pole – AUX (left) & BAT (right), (translated as OUT & IN respectively).

Also half of the cables have a black dot indication mark on their lugs to indicate an IN cable. IN cables should always be placed in the right-most slots of each pair of slots.

1. Take the Power Distribution Top Panel and start passing each of the 8 remaining cables through the holes provided.
   Place the white colour-coded cables in the bottom-left pair of slots (CB#6), making sure the IN cable is placed in the right-most position of this slot.

IN cable coming from the Smartpass. OUT cable going to the SCP.

2. Place the green colour-coded cable (coming out of the front of the octopus) to the right-most slot of the bottom-right pair of slots (CB#7). Place the other green colour-coded cable in the adjacent position of this slot.

IN cable coming from the front of the octopus. OUT cable going to the Inverter.

3. Place the blue colour-coded cable (coming out of the rear of the octopus) to the right-most position of the top-left pair of slots (CB#4). Fill the adjacent slot with the matching colour-coded cable.

IN cable coming from the back of the octopus. OUT cable going to the Smartpass.

4. Place the red colour-coded cable (coming out of the front of the octopus) to the right-most position of the top-right pair of slots (CB#5). Fill the adjacent slot with the matching colour-coded cable.

IN cable coming from the back of the octopus. OUT cable going to the Smartpass.

5. When all cables have been slotted in, carefully lower the Power Distribution Top Panel into position. No force is required here. Just make sure you clear the 2 fuseboxes which should be perfectly straight if the panel is going to sit properly. Start lowering the panel backside-first to clear any obstruction from the rear trunk wall.
6. Once in position, fasten the panel with the 2 hex nuts using an Allen key.

Please note: you may need to use a thin screwdriver to position the bolt in the middle of the hole where the hex nut is going to sit so that it can catch onto it.

7. Now take each of the 4 CBs and start attaching the cables to them, bolting them down.

WARNING: Do not overtighten!

2x 150A CBs go to the top-most slots (CB#4 & CB#5), 1x 50A to the bottom left slot (CB#6) and 1x 200A to the bottom right slot (CB#7).

You will probably need to put some pressure on the CBs in order for them to sit down properly, so please make sure that they are nearly flat on the panel before you start screwing them down.

CAUTION: make sure you attach the right CB to the right slot. Failure to do so will result in malfunction of the system or even damage.

H. The Batteries

1. Make sure you have levelled the Service Battery Bank (SBB) area where the batteries will sit.

Please Note: A few strips of fitted carpeting should do it, in order to fill in the grooves on the trunk compartment floor.

2. Move all cables out of the way and lower the first battery. After the first battery sits flat, push it all the way towards the PD Vertical Panel and make sure it lays flat against it without any space between them.

Please Note: +ve poles should be facing away from you towards the SP.
-ve poles should be facing the rear wall of the trunk compartment.

3. Take the 2 ground cables (SBB/N-CHA/GND and INV/N-SBB/N) left loose near the rear wall of the trunk compartment and connect them to the -ve pole of this battery.
4. Bring the second battery and lower it into the SBB area making sure it is sitting down flat.

Please Note: Make sure the grounding cable leading to the Grounding Bus Bar does not obstruct lowering the battery. You could try using masking tape to hold it out of the way.

5. Tidy up the temperature sensor cable and place the sensors near the second battery's +ve pole.
6. Take the 2 short jumper cables (red - SBB/P-JUMP & black - SBB/N-JUMP) and connect the 2 batteries together (Red to the +ve poles and Black to the -ve poles).

7. CAUTION: Before proceeding make sure all CBs are in the OFF position.
Press the blue button on each CB to disconnect it.

8. Lastly, connect the thick red colour-coded cable (BEP/SBB-SBB) coming out of the side of the PD Vertical Panel to the first battery's +ve pole.

Close the trunk floor door. You are now done with the trunk
and can move onto connecting the SCP!

I. System Control Panel (SCP)

1. Take the SCP and lay it down flat on the trunk floor door.
2. Take each of the cables we left in the Interior-Rear-Storage Compartment Right (C) and connect them to the SCP.

CAUTION: No force is needed - may be some jiggling but no force.

Please Note: The only thing that should be operating at this time is the SCP parallel switch which takes it power directly from the BEP remote control wire.
This is indicated by an illuminated red colored LED in the SCP parallel switch.

3. Push the excess cables down into the trunk floor through the hole on the Interior-Rear-Storage Compartment Right (C).
4. Stand the SCP up straight and sit it inside the Interior-Rear-Storage Compartment Right (C) - again no force required (if need be, open the trunk floor and pull the cables down slightly).
5. Open the trunk floor door and place each of the two 3A Fuses in their fuse boxes and then attach their covers.

Please Note: Inserting the left fuse will activate the voltage gauge of the main car battery.

Inserting the right fuse will activate the Smartgauge and the SCP LED light which can be turned on via the light switch on the SCP.

When the Smartgauge first turns on it will need to be configured for first time use specifically for your SBB.
Also an error message may be displayed. This is normal. Press any button to dismiss any errors and proceed to configure the module.
Refer to the Smartgauge user's manual on how to configure it.

You can test the motorized switch parallel function by pressing the 'Parallel' button on the SCP. It is recommended to leave the BEP701MD switch in the 'automatic OFF' position. Please refer to the BEP701MD user's manual for more.

Congratulations!

You have completed the installation of the X6-Electromod!

You can now proceed to do some tests to ensure your installation is functioning properly.

Powering ON & Systems Check

CAUTION: To proceed with this section, the previous section must have first been completed.

1. Make sure the car engine is switched OFF and all CBs are OFF.

2. Start Battery Voltage meter:
   - **a.** Check the SCP and make sure the Start Battery Voltage meter is reading the main Alternator Battery.

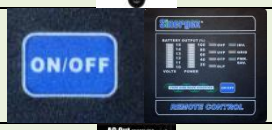
3. Smartgauge:
   - **a.** Check the Smartgauge and make sure you can read both main and service batteries.

4. LED Switch
   - **a.** Pushing the LED button on the SCP switches ON/OFF the illuminating LED in the handle of the flap, as well as the LED in the Start Battery Voltage meter.

5. Inverter (Critical Consumers):
   - **a.** Make sure the 3-way switch on the back of the inverter is in the 'REMOTE' position.

   - **b.** Switch ON CB#7 for the inverter.

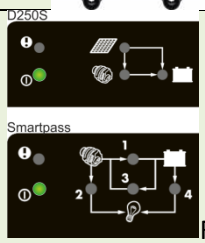
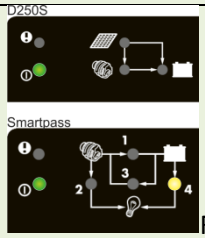
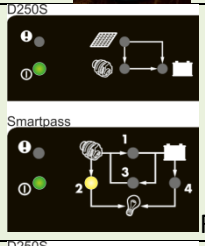
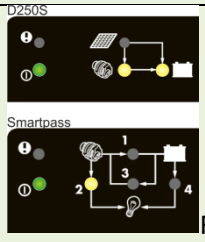
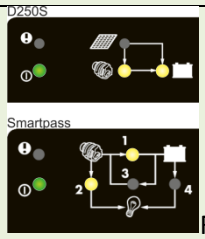
   - **c.** On the SCP, press the ON/OFF switch on the CR-6 inverter remote. You should see the remote indicate that the inverter has been turned ON.



   - **d.** Try plugging a device in the AC outlet and see if it works. The AC outlet should provide information on the amount of power consumed.

   - **e.** When satisfied, press the ON/OFF switch on the CR-6 inverter remote again, to turn the inverter OFF.

   - **f.** Finally Switch OFF CB#7.

6. D250S & Smartpass:	
a. Switch ON CB#4 & CB#5.	
b. The D250S & Smartpass indicate they are switched ON.	 Fig.1
c. Switch ON CB#6.	
d. On the SCP connect a 12V device in one of the two DC-out sockets and start it.	
e. The Smartpass indicates power going out to a DC consumer.	 Fig.2
f. Start the car engine.	
g. In about 5 seconds you should see that the car alternator is bypassing the Service Battery Bank and is solely supplying your DC-out sockets.	 Fig.3
h. You should also notice that the Service Battery Bank is now being charged by the alternator through the D250S (Indicates up to 20A charging).	 Fig.4
i. If the service battery can accept current over the 20A that the D250S can provide then the extra power (up to an additional 80A) is channelled through the Smartpass (Indicates up to 60A charging).	 Fig.5

j. If the service battery is pulling over 60A while being charged, then an extra LED lights up to indicate this (Indicates up to 100A charging).

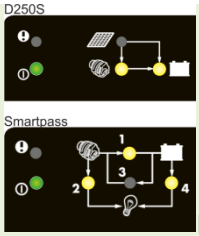


Fig.6

k. When the Service Battery Bank is nearing full capacity when being charged by the alternator you should see that the Smartpass LED#1 switches off. This indicates that less than 20A are needed to charge the service batteries (see Fig.4).
However when the Service Battery Bank is completely full, the D250S enters Float/Pulse maintenance mode where the Service Battery Bank light starts flashing.

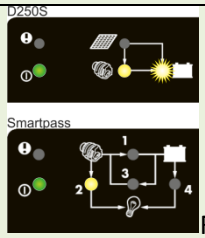


Fig.7

l. Switch off the engine.

m. Charging turns off and the loads are again powered by the Service Battery Bank (see Fig.2).

n. When the Service Battery Bank is discharged to below 11.5V, Smartpass disconnects the DC out line with a steady ERROR-LED & flashing LED#4 indications.
When you see this indication, you should immediately start your engine or connect your solar panels or connect to an AC power outlet. DC output is reconnected automatically when the Service Battery Bank is charged to over 12V (see Fig.2).
NOTE: This indication can also mean that there is too much current draw/high temperature, by your consumers on the DC-out line. Therefore, check your Service Battery Bank voltage before you take any action.

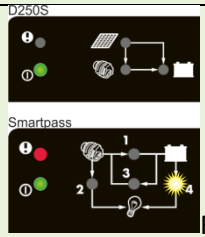


Fig 8

o. If your Service Battery Bank voltage is higher than the Alternator Battery then the Smartpass will pulse charge the later.

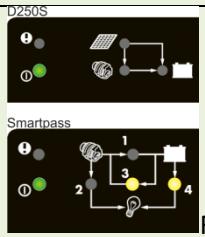
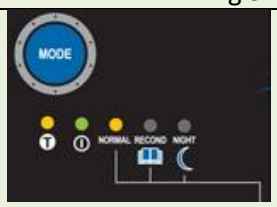
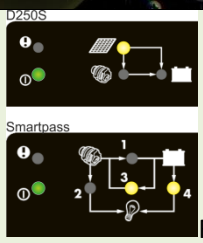


Fig.9

p. Connect AC power to the SCP. This should start the M300 charger. On the M300 top face, choose 'NORMAL' mode. The same indication as before is seen on the Smartpass (see Fig.9).
However the AC Input meter on the SCP should be showing you exactly how much power is going into both battery banks. Check the voltage on each bank using the Smartgauge or the Start Battery Voltage meter– it should now be much higher than before and close to 14.4V.
When satisfied, switch off power to the AC input socket and remove it from the SCP.
The next time you charge your system, the M300 will start in 'NORMAL' mode automatically. Charge your system regularly, every 3 months or so, and also immediately after a workout.



q. Connect a solar panel to the Solar Input socket on the SCP and place the panel in the sun.	
r. The same indication remains on the Smartpass as before while an additional indication is seen on the D250S.	 Fig.10
7. Parallel Switch	
a. Make sure the engine is off and that the BEP 701-MD is set in automatic mode.	
b. Check the voltages for each battery bank on the Smartpass. You should see 2 different voltages displayed.	
c. Push the Parallel button on the SCP. This should switch ON 'Battery Parallel Mode' via the BEP 701-MD Motorized Battery Switch. Check to verify that the BEP 701-MD has turned to Auto ON mode.	
d. Check the voltages for each battery bank on the Smartpass. Allow up to 10 seconds for the charge to equalize. You should see the same voltage displayed for both banks.	
e. Push the Parallel button on the SCP. This should switch OFF 'Battery Parallel Mode' via the BEP 701-MD Motorized Battery Switch. Check to verify that the BEP 701-MD has turned to Auto OFF mode.	
f. If you have a wireless remote control for your X6-Electromod, repeat the above steps using it.	

The M300, Smartpass, D250S, PureSine1500, Smartgauge and LED meters have a number of error codes that may be indicated at times on their equipment. For a complete list of these as well as more detailed information on these devices please refer to their respective manual.

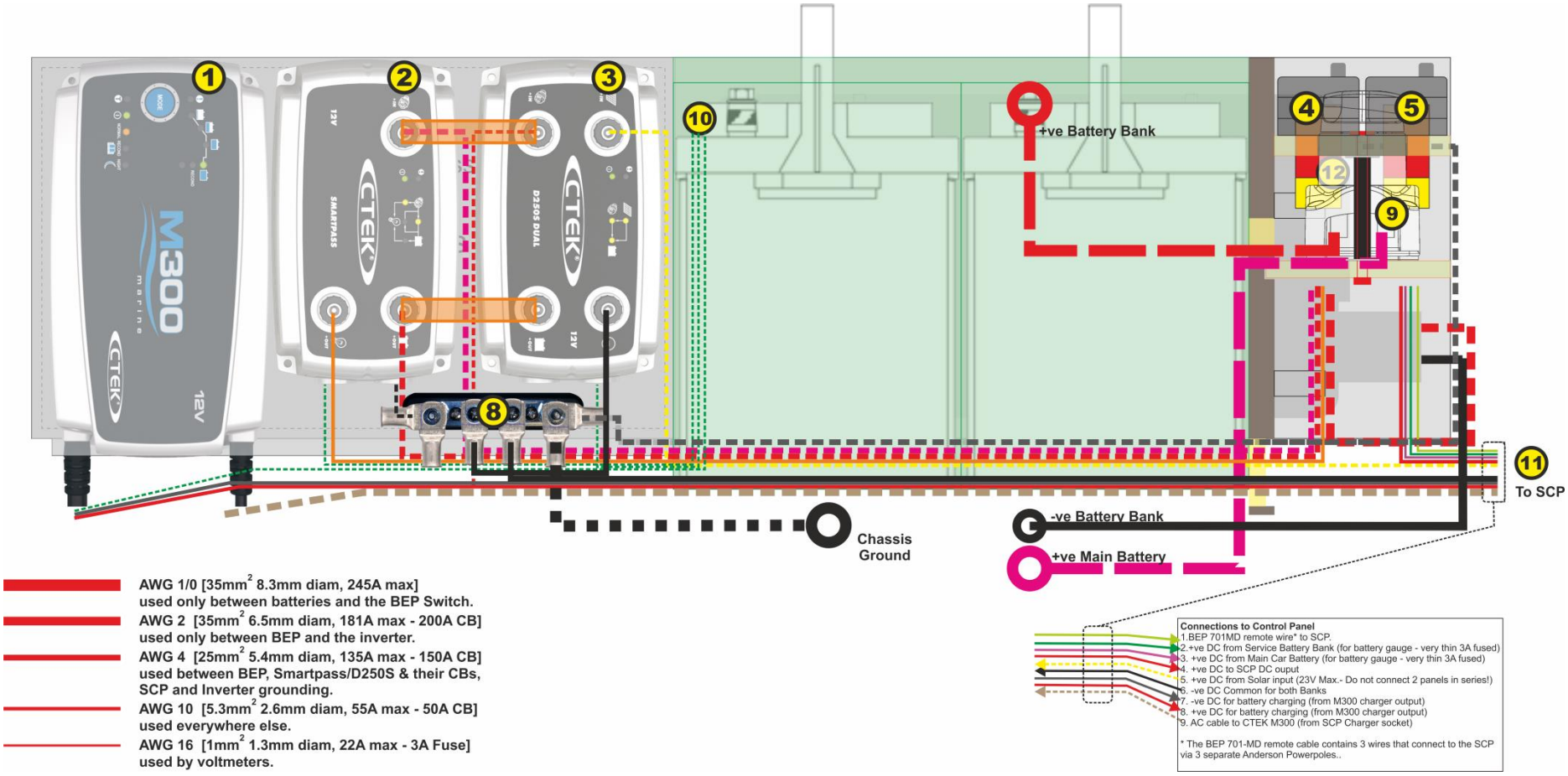
To ensure that your AGM batteries enjoy a long productive life, make sure you keep them fully charged at all times, especially after a good workout.
Every 3 months or so you should also perform an equalizing charge to remove any sulphate build up on the plates.

For more detailed information on each individual module, please refer to their respective manual.

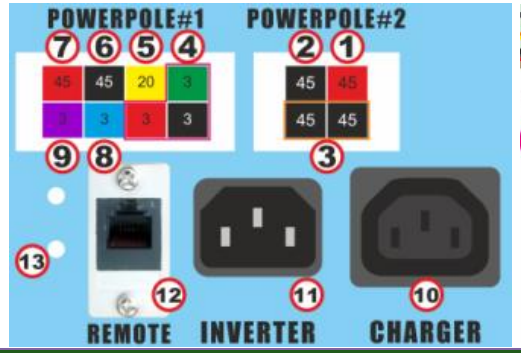
Congratulations! The X6-Electromod is now fully operational!

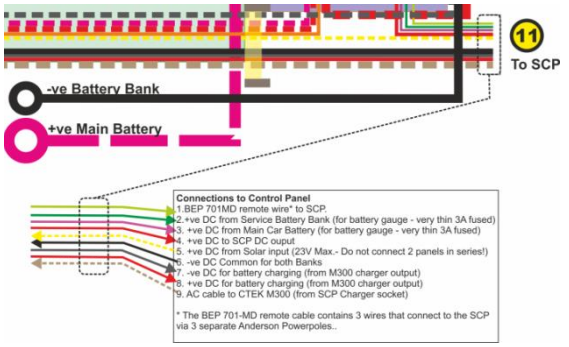
APPENDIX A

Cables & Connections



System Cable Harness Details (see also Table of Connections 22-39)





#	Powerpole type	Description
1.	45A	M300 +ve DC output to Digital LCD Power Meter/Analyser.
2.	45A	M300 -ve DC output to Digital LCD Power Meter/Analyser.
3.	45A	Service Battery Bank –ve taking up 2 45A Powerpoles in order to be able to handle up to 90A.
4.	30A	Red, Green, Black Powerpoles used for the BEP 701-MD remote switch.
5.	45A	SOLAR Input – takes power from the front of the SCP faceplate Solar input, to the Digital LCD Power Meter/Analyser and relays it from here to the CTEK D250S.
6.	45A	12V DC GND for internal devices via 45A Anderson Powerpoles. Combined with #7 below this was introduced to allow extra power if required for any internal devices. Connect your devices here.
7.	45A	12V DC +ve from Smartpass to Digital LCD Power Meter/Analyzer and then to the 2x DC Output sockets at the front of the SCP faceplate. These sockets are limited to 15A draw. This is why you will also find here a short, 2xPowepole cable, white & black, left loose. This was introduced to allow extra power if required. Connect your devices here.
8.	30A	DC IN from Alternator Battery to the Start Battery Voltmeter. (12V DC 3A fused).
9.	30A	DC IN from Service Battery Bank to Merlin Smart Gauge battery monitor (12V DC 3A fused).
10.		C14 AC power outlet –takes AC power from the front of the SCP faceplate (AC IN), and relays it to the M300 charger. The M300 then outputs DC to #1.
11.		C13 AC power inlet – takes power from inerter output to the “Plug-In Power and Energy Monitor Socket” on the SCP faceplate (AC Out).
12.		Inverter remote control connection (RJ11)

Table of Connections

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR				From	Length	To	CONNECTOR				Product Code		SCP PLUG			
					type	diam	angle	color		(cm)		type	diam	angle	color			name	#	type	color
1	55	10	R	W	LUG	8	S		Smartpass DC Out	113	CB#6	LUG	10	A		SP-CB6	WIRES				
2	135	4	R	R	LUG	8	S		Smartpass SBB +ve	93	CB#5	LUG	10	A		SP/SBB-CB5					
3	135	4	R	BL	LUG	8	S		Smartpass AB +ve	89	CB#4	LUG	10	A		SP/AB-CB4					
4	135	4	B	B	LUG	8	S		D250S GND	21	GND Bus Bar	LUG	8	S		D250/GND-BB					
5	181	2	B	B	LUG	8	S		GND Bus Bar	59	Chassis GND	LUG	8	S		BB-CHA/GND					
6	135	4	R	BL	LUG	10	S		BEP AB +ve	24	CB#4	LUG	10	A		BEP/AB-CB4					
7	181	2	R	G	LUG	10	S		BEP SBB +ve	37	CB#7	LUG	10	A		BEP/SBB-CB7					
8	135	4	R	R	LUG	10	S		BEP SBB +ve	15	CB#5	LUG	10	A		BEP/SBB-CB5					
9	181	2	R	G	LUG	8	S		Inverter +ve	53	CB#7	LUG	10	A		INV/P-CB7					
10	181	2	B	B	LUG	8	S		Inverter -ve	58	SBB -ve	LUG	8	S		INV/N-SBB/N					
11	135	4	B	B					Inverter GND	76	GND Bus Bar	LUG	8	S		INV/GND-BB					
12	245	0	R	R	LUG	10	S		BEP SBB +ve	31	SBB +ve	LUG	10	S		BEP/SBB-SBB					
13	245	0	R	BL	LUG	10	S		BEP AB +ve	110	AB +ve	LUG	10	S		BEP/AB-AB					
14	181	2	B	B	LUG	8	S		SBB -ve	19	Chassis GND	LUG	8	S		SBB/N-CHA/GND					
15	245	0	B	B					SBB -ve	20	SBB -ve					SBB/N-JUMP					
16	245	0	R	R					SBB +ve	20	SBB +ve					SBB/P-JUMP					
17	135	4	R	R	LUG	8	S		Smartpass AB +ve	5.5	D250S AB +ve	LUG	8	S		SP/D250-JUMP					
18	135	4	R	R	LUG	8	S		Smartpass SBB +ve	5.5	D250S SBB +ve	LUG	8	S		SP/D250-JUMP					
19	22	16	R	R	LUG	10	S		BEP SBB+ve	15	FUSE#2	PF				BEP/SBB-FUSE2					
20	22	16	R	BL	LUG	10	S		BEP AB+ve	25	FUSE#1	PF				BEP/AB-FUSE1					
21	55	10	R	R	LUG	8	S		D250 AB +ve	25	M300 +ve	S				D250/AB-M300/P					

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR				From	Length	To	CONNECTOR				Product Code		SCP PLUG			
					type	diam	angle	color		(cm)		type	diam	angle	color			name	#	type	color
22	55	10	R	R					M300 +ve	0	LOOM2#1 Charger DC	PP			R	Plug Change					
23	55	10	B	B					M300 -ve	0	LOOM2#2 Charger DC	PP			B	Plug Change					
24	55	10	R	R	PP			R	LOOM2#1 Charger DC	15	LOOM2#1 Charger DC	PP			R	M300/P-SCP	SCP BACKPLATE	SCP PP-2	1	PP	R
25	55	10	B	B	PP			B	LOOM2#2 Charger DC	15	LOOM2#2 Charger DC	PP			B	M300/N-SCP			2	PP	B
26	55	10	B	B	LUG	8	S		GND Bus Bar	103	LOOM2#3 GND	PP			B	BB-SCP/GND			3	PP	B
27	55	10	B	B					GND Bus Bar	103	LOOM2#3 GND	PP			B				3	PP	B
28	22	16	B	B	WAGO				BEP Remote	15	LOOM1#4B Remote	PP			B	BEP/REM/B		SCP PP-1	4	PP	B
29	22	16	R	R	WAGO				BEP Remote	15	LOOM1#4R Remote	PP			R	BEP/REM/R			4	PP	R
30	22	16	G	G	WAGO				BEP Remote	15	LOOM1#4G Remote	PP			G	BEP/REM/G			4	PP	G
31	55	10	R	Y	LUG	8	S		D250S Solar	120	LOOM1#5 (Solar)	PP			Y	D250/SO-SCP/SO			5	PP	Y
32	55	10	B	-	PP			B	LOOM1#6 GND	15	LOOM1#6 GND	PP			B	SCP/DCO/N			6	PP	B
33	55	10	R	-	PP			W	LOOM1#7 (DC Out)	15	LOOM1#7 (DC Out)	PP			R	SCP/DCO/P			7	PP	R
34	55	10	R	W	LUG	10	A		CB#6	85	LOOM1#7 (DC Out)					CB6-SCP/DCO					
35	22	16	R	BL	PF				FUSE#1	68	LOOM1#8 (voltmeter)	PP			BL	FUSE1-SCP/VM			8	PP	BL
36	22	16	R	R	PF				FUSE#2	54	LOOM1#9 (smartgauge)	PP			P	FUSE2-SCP/SG			9	PP	P
37	-	AC			-				M300 AC	0		C14P				Plug Change		SCP CHARGER	10	C13S	
38	0								Inverter AC Out									SCP INVERTER	11	C14S	
39	0								Inverter Remote									SCP REMOTE	12	RJ45S	

Connections by Type

Alternator Battery +ve

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR				From	Length	To	CONNECTOR				Product Code	SCP PLUG			
					type	diam	angle	color		(cm)		type	diam	angle	color		name	#	type	color
13	245	0	R	BL	LUG	10	S		BEP AB +ve	110	AB +ve	LUG	10	S		BEP/AB-AB				

Service Battery Bank +ve

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR				From	Length	To	CONNECTOR				Product Code	SCP PLUG			
					type	diam	angle	color		(cm)		type	diam	angle	color		name	#	type	color
12	245	0	R	R	LUG	10	S		BEP SBB +ve	31	SBB +ve	LUG	10	S		BEP/SBB-SBB				
16	245	0	R	R					SBB +ve	20	SBB +ve					SBB/P-JUMP				

Service Battery Bank -ve

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR				From	Length	To	CONNECTOR				Product Code	SCP PLUG			
					type	diam	angle	color		(cm)		type	diam	angle	color		name	#	type	color
10	181	2	B	G	LUG	8	S		Inverter -ve	58	SBB -ve	LUG	8	S		INV/N-SBB/N				
14	181	2	B	B	LUG	8	S		SBB -ve	19	Chassis GND	LUG	8	S		SBB/N-CHA/GND				
15	245	0	B	B					SBB -ve	20	SBB -ve					SBB/N-JUMP				

GND Bus Bar

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR				From	Length	To	CONNECTOR				Product Code	SCP PLUG			
					type	diam	angle	color		(cm)		type	diam	angle	color		name	#	type	color
4	135	4	B	B	LUG	8	S		D250S GND	21	GND Bus Bar	LUG	8	S		D250/GND-BB				
5	181	2	B	B	LUG	8	S		GND Bus Bar	59	Chassis GND	LUG	8	S		BB-CHA/GND				
11	135	4	B	G					Inverter GND	76	GND Bus Bar	LUG	8	S		INV/GND-BB				
26	55	10	B	B	LUG	8	S		GND Bus Bar	103	LOOM2#3 GND	PP			B	BB-SCP/GND	SCP PP-2	3	PP	B
27	55	10	B	B					GND Bus Bar	103	LOOM2#3 GND	PP			B		SCP PP-2	3	PP	B

Chassis GND

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	From	Length (cm)	To	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	Product Code	SCP PLUG name	SCP PLUG #	SCP PLUG type	SCP PLUG color
5	181	2	B	B	LUG	8	S		GND Bus Bar	59	Chassis GND	LUG	8	S		BB-CHA/GND				
14	181	2	B	B	LUG	8	S		SBB -ve	19	Chassis GND	LUG	8	S		SBB/N-CHA/GND				

D250S

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	From	Length (cm)	To	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	Product Code	SCP PLUG name	SCP PLUG #	SCP PLUG type	SCP PLUG color
4	135	4	B	B	LUG	8	S		D250S GND	21	GND Bus Bar	LUG	8	S		D250/GND-BB				
17	135	4	R	R	LUG	8	S		Smartpass AB +ve	5.5	D250S AB +ve	LUG	8	S		SP/D250-JUMP				
18	135	4	R	R	LUG	8	S		Smartpass SBB +ve	5.5	D250S SBB +ve	LUG	8	S		SP/D250-JUMP				
21	55	10	R	R	LUG	8	S		D250 AB +ve	25	M300 +ve	S				D250/AB-M300/P				
31	55	10	R	Y	LUG	8	S		D250S Solar	120	LOOM1#5 (Solar)	PP			Y	D250/SO-SCP/SO	SCP PP-1	5	PP	Y

Smartpass

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	From	Length (cm)	To	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	Product Code	SCP PLUG name	SCP PLUG #	SCP PLUG type	SCP PLUG color
1	55	10	R	W	LUG	8	S		Smartpass DC Out	113	CB#6	LUG	10	A		SP-CB6				
2	135	4	R	R	LUG	8	S		Smartpass SBB +ve	93	CB#5	LUG	10	A		SP/SBB-CB5				
3	135	4	R	BL	LUG	8	S		Smartpass AB +ve	89	CB#4	LUG	10	A		SP/AB-CB4				
17	135	4	R	R	LUG	8	S		Smartpass AB +ve	5.5	D250S AB +ve	LUG	8	S		SP/D250-JUMP				
18	135	4	R	R	LUG	8	S		Smartpass SBB +ve	5.5	D250S SBB +ve	LUG	8	S		SP/D250-JUMP				

M300

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	From	Length (cm)	To	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	Product Code	SCP PLUG name	SCP PLUG #	SCP PLUG type	SCP PLUG color
21	55	10	R	R	LUG	8	S		D250 AB +ve	25	M300 +ve	S				D250/AB-M300/P				
22	55	10	R	R					M300 +ve	0	LOOM2#1 Charger DC	PP			R	Plug Change				
23	55	10	B	B					M300 -ve	0	LOOM2#2 Charger DC	PP			B	Plug Change				
37	-	AC			-				M300 AC	0		C14P				Plug Change	SCP CHARGER	10	C13S	

BEP 701 (Motorized Switch)

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR				From	Length	To	CONNECTOR				Product Code	SCP PLUG			
					type	diam	angle	color		(cm)		type	diam	angle	color		name	#	type	color
6	135	4	R	BL	LUG	10	S		BEP AB +ve	24	CB#4	LUG	10	A		BEP/AB-CB4				
7	181	2	R	G	LUG	10	S		BEP SBB +ve	37	CB#7	LUG	10	A		BEP/SBB-CB7				
8	135	4	R	R	LUG	10	S		BEP SBB +ve	15	CB#5	LUG	10	A		BEP/SBB-CB5				
12	245	0	R	R	LUG	10	S		BEP SBB +ve	31	SBB +ve	LUG	10	S		BEP/SBB-SBB				
13	245	0	R	BL	LUG	10	S		BEP AB +ve	110	AB +ve	LUG	10	S		BEP/AB-AB				
19	22	16	R	R	LUG	10	S		BEP SBB+ve	15	FUSE#2	PF				BEP/SBB-FUSE2				
20	22	16	R	BL	LUG	10	S		BEP AB+ve	25	FUSE#1	PF				BEP/AB-FUSE1				
28	22	16	B	B	WAGO				BEP Remote	15	LOOM1#4B Remote	PP			B	BEP/REM/B	SCP PP-1	4	PP	B
29	22	16	R	R	WAGO				BEP Remote	15	LOOM1#4R Remote	PP			R	BEP/REM/R	SCP PP-1	4	PP	R
30	22	16	G	G	WAGO				BEP Remote	15	LOOM1#4G Remote	PP			G	BEP/REM/G	SCP PP-1	4	PP	G

Circuit Breakers

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR				From	Length	To	CONNECTOR				Product Code	SCP PLUG			
					type	diam	angle	color		(cm)		type	diam	angle	color		name	#	type	color
1	55	10	R	W	LUG	8	S		Smartpass DC Out	113	CB#6	LUG	10	A		SP-CB6				
2	135	4	R	R	LUG	8	S		Smartpass SBB +ve	93	CB#5	LUG	10	A		SP/SBB-CB5				
3	135	4	R	BL	LUG	8	S		Smartpass AB +ve	89	CB#4	LUG	10	A		SP/AB-CB4				
6	135	4	R	BL	LUG	10	S		BEP AB +ve	24	CB#4	LUG	10	A		BEP/AB-CB4				
7	181	2	R	G	LUG	10	S		BEP SBB +ve	37	CB#7	LUG	10	A		BEP/SBB-CB7				
8	135	4	R	R	LUG	10	S		BEP SBB +ve	15	CB#5	LUG	10	A		BEP/SBB-CB5				
9	181	2	R	G	LUG	8	S		Inverter +ve	53	CB#7	LUG	10	A		INV/P-CB7				
34	55	10	R	W	LUG	10	A		CB#6	85	LOOM1#7 (DC Out)	PP			R	CB6-SCP/DCO	SCP PP-1	7	PP	R

Fuseboxes

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR				From	Length	To	CONNECTOR				Product Code	SCP PLUG			
					type	diam	angle	color		(cm)		type	diam	angle	color		name	#	type	color
19	22	16	R	R	LUG	10	S		BEP SBB+ve	15	FUSE#2	PF				BEP/SBB-FUSE2				
20	22	16	R	BL	LUG	10	S		BEP AB+ve	25	FUSE#1	PF				BEP/AB-FUSE1				
35	22	16	R	BL	PF				FUSE#1	68	LOOM1#8 (voltmeter)	PP			BL	FUSE1-SCP/VM	SCP PP-1	8	PP	BL
36	22	16	R	R	PF				FUSE#2	54	LOOM1#9 (smartgauge)	PP			P	FUSE2-SCP/SG	SCP PP-1	9	PP	P

Inverter

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	From	Length (cm)	To	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	Product Code	SCP PLUG name	SCP PLUG #	SCP PLUG type	SCP PLUG color
9	181	2	R	G	LUG	8	S		Inverter +ve	53	CB#7	LUG	10	A		INV/P-CB7				
10	181	2	B	G	LUG	8	S		Inverter -ve	58	SBB -ve	LUG	8	S		INV/N-SBB/N				
11	135	4	B	G					Inverter GND	76	GND Bus Bar	LUG	8	S		INV/GND-BB				
38	0								Inverter AC Out								SCP INVERTER	11	C14S	
39	0								Inverter Remote								SCP REMOTE	12	RJ45S	

LOOM1

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	From	Length (cm)	To	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	Product Code	SCP PLUG name	SCP PLUG #	SCP PLUG type	SCP PLUG color
29	22	16	R	R	WAGO				BEP Remote	15	LOOM1#4R Remote	PP			R	BEP/REM/R	SCP PP-1	4	PP	R
28	22	16	B	B	WAGO				BEP Remote	15	LOOM1#4B Remote	PP			B	BEP/REM/B	SCP PP-1	4	PP	B
30	22	16	G	G	WAGO				BEP Remote	15	LOOM1#4G Remote	PP			G	BEP/REM/G	SCP PP-1	4	PP	G
31	55	10	R	Y	LUG	8	S		D250S Solar	120	LOOM1#5 (Solar)	PP			Y	D250/SO-SCP/SO	SCP PP-1	5	PP	Y
32	55	10	B	-	PP			B	LOOM1#6 GND	15	LOOM1#6 GND	PP			B	SCP/DCO/N	SCP PP-1	6	PP	B
33	55	10	R	-	PP			W	LOOM1#7 (DC Out)	15	LOOM1#7 (DC Out)	PP			R	SCP/DCO/P	SCP PP-1	7	PP	R
34	55	10	R	W	LUG	10	A		CB#6	85	LOOM1#7 (DC Out)					CB6-SCP/DCO	SCP PP-1			
35	22	16	R	BL	PF				FUSE#1	68	LOOM1#8 (voltmeter)	PP			BL	FUSE1-SCP/VM	SCP PP-1	8	PP	BL
36	22	16	R	R	PF				FUSE#2	54	LOOM1#9 (smartgauge)	PP			P	FUSE2-SCP/SG	SCP PP-1	9	PP	P

LOOM2

	Amps max.	Gauge	Cable Color	Tubing Color	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	From	Length (cm)	To	CONNECTOR type	CONNECTOR diam	CONNECTOR angle	CONNECTOR color	Product Code	SCP PLUG name	SCP PLUG #	SCP PLUG type	SCP PLUG color
22	55	10	R	R					M300 +ve	0	LOOM2#1 Charger DC	PP			R	Plug Change				
23	55	10	B	B					M300 -ve	0	LOOM2#2 Charger DC	PP			B	Plug Change				
24	55	10	R	R	PP			R	LOOM2#1 Charger DC	15	LOOM2#1 Charger DC	PP			R	M300/P-SCP	SCP PP-2	1	PP	R
25	55	10	B	B	PP			B	LOOM2#2 Charger DC	15	LOOM2#2 Charger DC	PP			B	M300/N-SCP	SCP PP-2	2	PP	B
26	55	10	B	B	LUG	8	S		GND Bus Bar	103	LOOM2#3 GND	PP			B	BB-SCP/GND	SCP PP-2	3	PP	B
27	55	10	B	B					GND Bus Bar	103	LOOM2#3 GND	PP			B		SCP PP-2	3	PP	B

Cable List

Cable Loom #1

Cable Loom for the Powerpole#1 socket on the System Control Panel...

Cable Loom #2

Cable Loom for the Powerpole#2 socket on the System Control Panel...

BB-CHA/GND

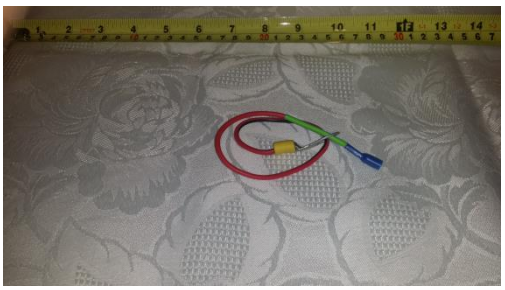
Cable connector between:GND Bus Bar & Chassis GND..

BEP/AB-AB

Cable connector between:BEP AB +ve & AB +ve..

BEP/AB-CB4

Cable connector between:BEP AB +ve & CB#4 (IN)..



BEP/AB-FUSE1

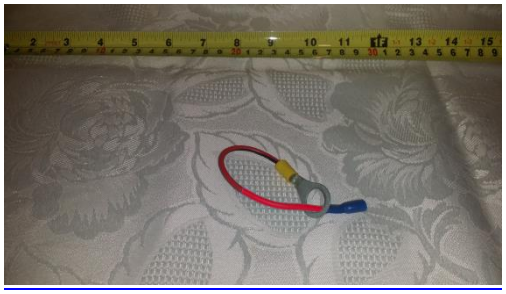
Cable connector between:BEP AB +ve & Fuse#1..

BEP/SBB-CB5

Cable connector between:BEP SBB +ve & CB#5 (IN)..

BEP/SBB-CB7

Cable connector between:BEP SBB +ve & CB#7 (IN)..



BEP/SBB-FUSE2

Cable connector between:BEP SBB +ve & Fuse#2..

BEP/SBB-SBB

Cable connector between:BEP SBB +ve & SBB +ve..

D250/AB-M300/P

Cable connector between:D250 AB +ve & M300 +ve. This cable has to be soldered directly onto the DC +ve of the M300 charger..

D250/GND-BB

Cable connector between:D250S GND & GND Bus Bar..

INV/GND-BB

Cable connector between:Inverter GND & GND Bus Bar

INV/N-SBB/N

Cable connector between:Inverter -ve & SBB -ve

INV/P-CB7

Cable connector between:Inverter +ve & MRCB#7 (OUT)

SBB/N-CHA/GND

Cable connector between:SBB -ve & Chassis GND

SBB/N-JUMP

Cable connector between:SBB -ve & SBB -ve

SBB/P-JUMP

Cable connector between:SBB +ve & SBB +ve

SP-CB6

Cable connector between:Smartpass DC Out & MRCB#6

2x SP/D250-JUMP

Cable connector between:Smartpass AB +ve & D250S AB +ve

SP/SBB-CB4

Cable connector between:Smartpass SBB +ve & MRCB#4 (OUT)

SP/SBB-CB5

Cable connector between:Smartpass SBB +ve & MRCB#5 (OUT)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