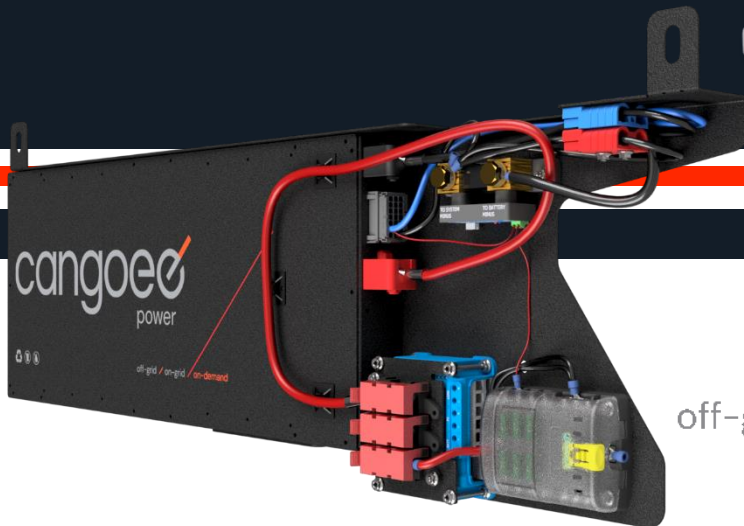


cangoee  
power

# Y62 Patrol Installation Guide

INS0174



off-grid / on-grid / on-demand.



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# Overview

The following guide is designed to assist with the install by providing a quick and easy guide for installation of this battery kit into the Y62 Nissan Patrol vehicle.






Cangoee strongly recommends following this guide and urges that the installers are qualified professionals.

## Tools

Tool	Description	Visual
13mm Socket		
12mm Socket		
10mm Socket		
8mm Socket		

# What's in The Kit

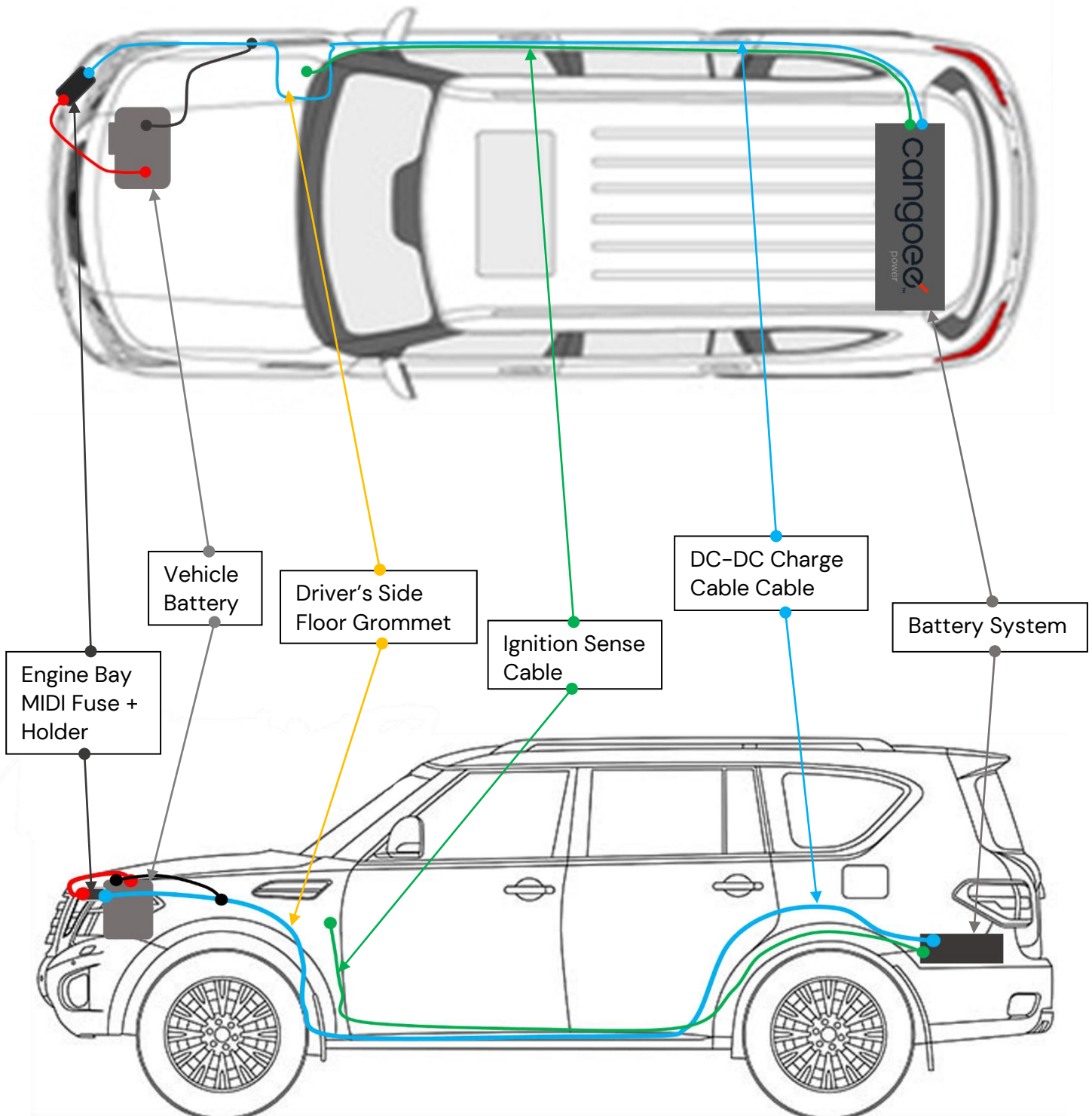
## Included Cables and Parts

Tool	Description	Visual
CANGOEE Y62 Battery System	The battery system for install	
DC – DC Charge Cable	DC-DC long twin core cable with black outer insulation: Red and Black Connections	
Ignitions Sense – Fuse Tap Cable	Used for the Ignition Sense function: Black braided with fuse clip on end	
Midi Fuse on Bracket	Midi Fuse attached to bolt-on bracket	
Main Positive Battery Connection (B+)	Cable connection for Midi Fuse	

Please ensure proper care is taken when handling these parts as there are no spares included in this kit.

# Installation Overview

This is an overview of the installation kit and where each component fits. Please carefully examine the below diagram and adhere to the guide, this will ensure the finished installation matches this diagram.



# WARNINGS and SAFETY

## SAFETY!

The battery contains lithium iron phosphate (LiFePO<sub>4</sub>) cells, considered to be the safest of all lithium-ion chemistries. The battery contains a large amount of stored energy. **Please follow these quick tips for safe use and operation:**

- Ensure appropriate PPE gear is worn at all times during this install
- Ensure the battery is secured safely before travel.
- Do not drill into the enclosure. Doing so may inadvertently puncture one of the internal cells.
- Do not short circuit the battery. Be careful not to drop a metallic object across the two exposed terminals. Always keep the terminal caps on the POS and NEG posts during operation.
- Do not mount the battery upside down. The battery can also be mounted on its side if mounting upright is not an option.
- Do not connect multiple batteries in series to raise the voltage. The Battery Management System (BMS) is not designed to accommodate higher voltages.
- If the battery comes in contact with your skin, please immediately seek medical advice.

### Please Note:

Cangoee strongly recommends that a competent un-intoxicated person completes this install, however if installing at home or by yourself, please adhere to the instructions and follow all steps carefully.

This is to ensure your Cangoee battery System is properly installed, and functions as intended.

**Please Make Sure** proper PPE equipment is always used, and the vehicle has been turned off to avoid serious injuries or damage to your vehicle.

## WARNINGS!

**Please follow these warnings carefully and adhere to the 'safety' Guidelines when installing this battery system:**

- Avoid mechanical shock
- Do not expose battery to fire
- Do not pierce battery
- Do not disassemble
- Do not drill into enclosure
- Do not short battery terminals
- Do not charge battery below 0 °C
- Do not store below -20 °C or above 60 °C
- Risk of burns if misused
- Always follow safe working practices
- Installation of this device should only be carried out by appropriately qualified competent persons.
- All minimum cable gauges and maximum lengths must be followed.

## WARNING

This install works with live wires and electricity, ensure all safety guidelines are followed and proper equipment is used during this Install. Failing to follow these guidelines could result in incorrect installation of the Cangoee battery, malfunction, or severe injury.

## Stage 1: Remove Rear OEM Floor and Clear Space— Location: Boot Space

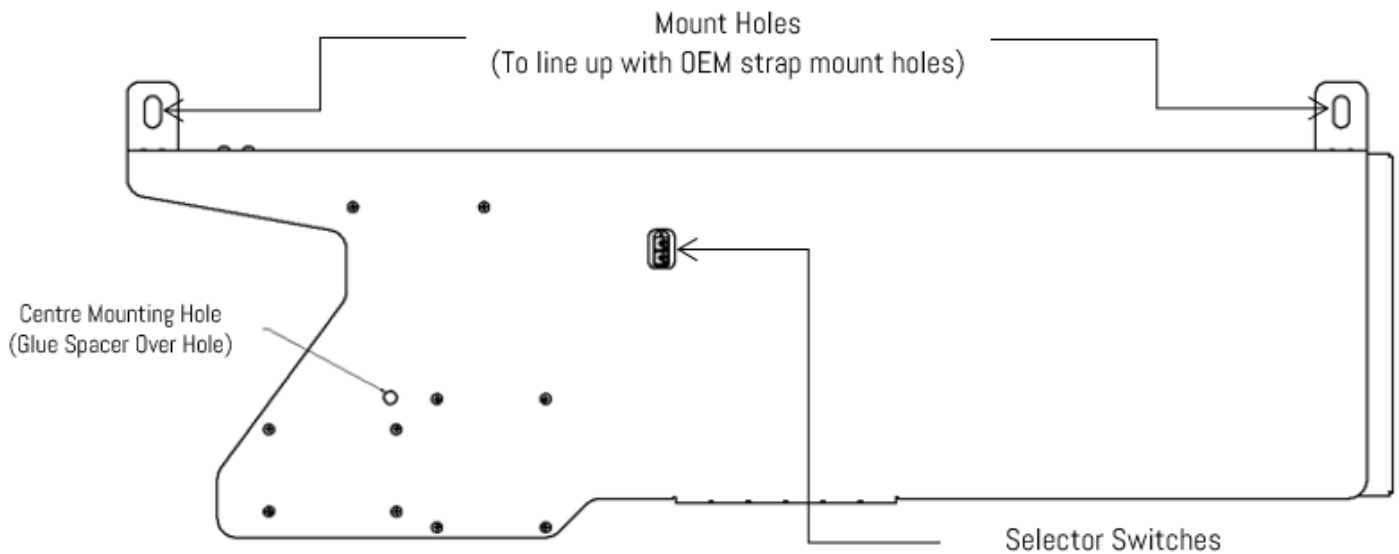


1. Remove false floor and retaining strap bolts (13mm socket)  
Remove driver side floor trim piece (10mm socket)
2. Relocate OEM jack and tools to under 3<sup>rd</sup> row seat trim flap + remove strap bracket (these will need to be placed back during stage 2)
3. Unscrew OEM strap mounts and keep fixing screws for later use.



Stage 1  
COMPLETE

## Stage 2: Cangoee Y62 Rear Mounting Plate Diagram



### Selector Switch Settings/ DCDC Charger

The DC-DC charger in the CAN battery allows the battery to charge from a vehicle engine/alternator/start battery. However, to avoid draining the start battery, charging is only desired while the engine is running.

In some applications it can be difficult to determine when the engine is running. Therefore, the DC-DC charger reads several inputs to determine when to turn ON (charge) and turn OFF (stop charging) to achieve:

- Charging when the engine is running, to maximize charging of the Cangoee Battery
- Not charging when the engine is not running, to avoid discharging the vehicle start/cranking battery.

Logic to determine when to turn the DC-DC charger ON and OFF will be implemented using software running on a microcontroller to allow advanced control combining several inputs:

- Start battery voltage
- Ignition signal voltage
- Timing delays
- 2 x 7-position (6-0) rotary switches: user-accessible from outside the battery



## Selector Switch Modes

These tables demonstrate the selection modes. The first table denotes the off delay, and the second table is your voltage this works by cutting power to the battery when the voltage decreases to not drain the vehicle battery or cause unexpected surges.

(E.g. if set to 0 and 6 the battery will cut out immediately once the voltage reduces due to the ignition sense, if set to 4 and 1 the battery will cut out after 30 seconds if the voltage goes below 12.5 volts.)

Carefully view the below tables to understand the different **selection modes**.

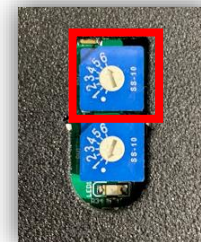
Voltage Switch Position	On Level	Off Level
0	11	10
1	12	11
2	13	12
3	13.3	12.3
4	13.5	12.5
5	13.7	12.7
6	14	13

Delay Switch Position	Delay Off Time	Application
0	0 Sec	Trad Alt, or Ignition Relay
1	30 Sec	Smart Alternator
2	1 Min	Smart Alternator
3	1.5 Min	Smart Alternator
4	3 Min	Smart Alternator
5	3.5 Min	Smart Alternator
6	0 Sec	Ignition Signal Control

**MEASURED VOLTAGE**



**OFF DELAY**



### ATTENTION?

Please carefully view the different selection modes, as the switches are not easily accessible once installed.

## Stage 2.1: Placement of Battery – Location: Boot Space



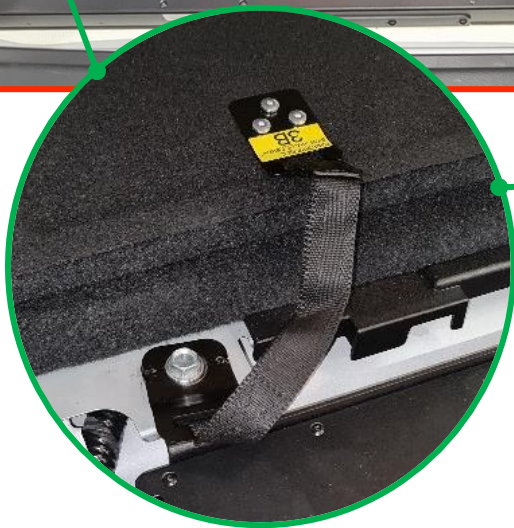
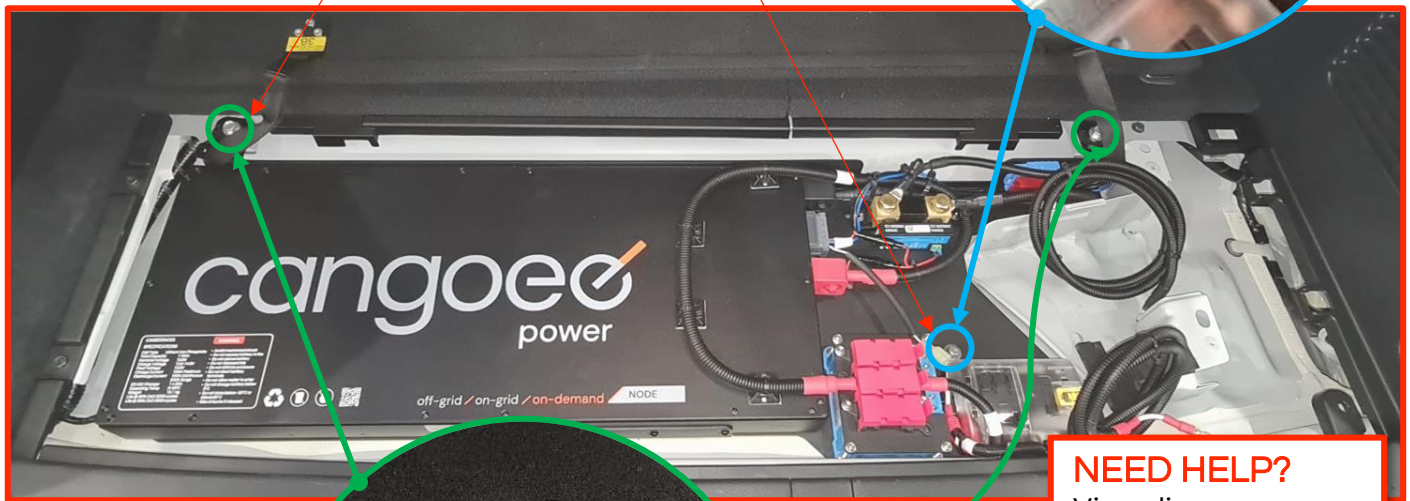
**ATTENTION?**  
Please carefully view the different selection modes on pages 7-8 as the switches are not easily accessible once installed.

1. Glue spacers to underside of battery plate (on central hole)
2. Set battery charge settings to ignition sense by setting selector switches on underside of battery to 0-6
3. Carefully place battery into rear compartment and line up with OEM strap mount holes



## Stage 2.2: Fixing Battery in Place – Location: Boot Space

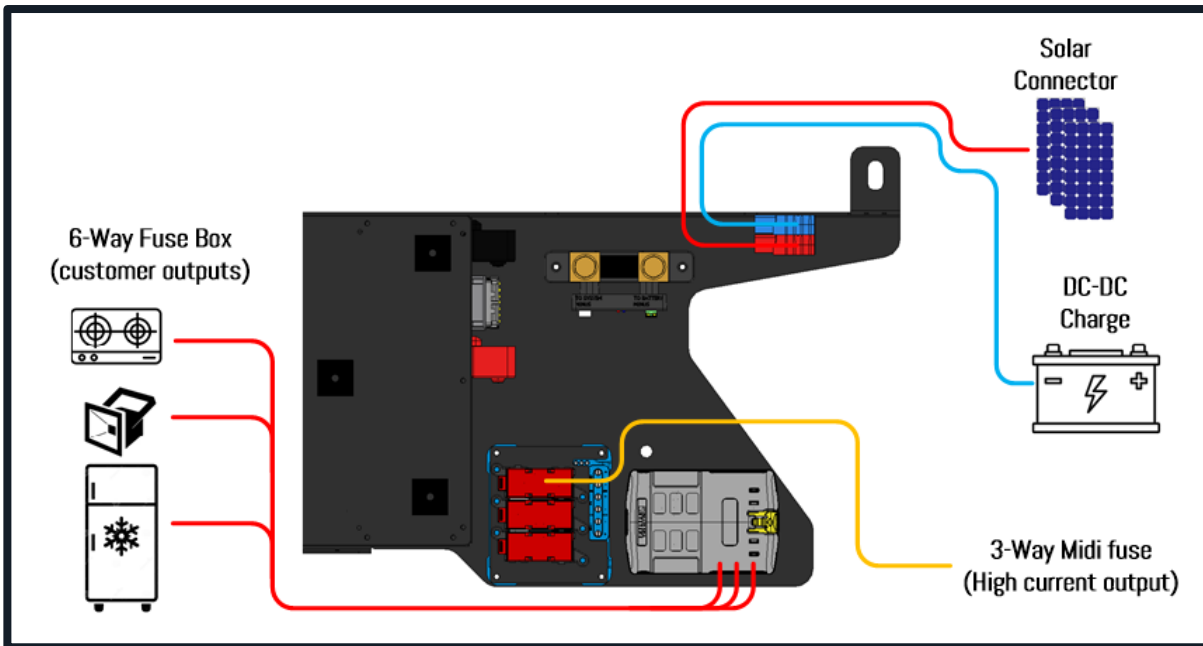
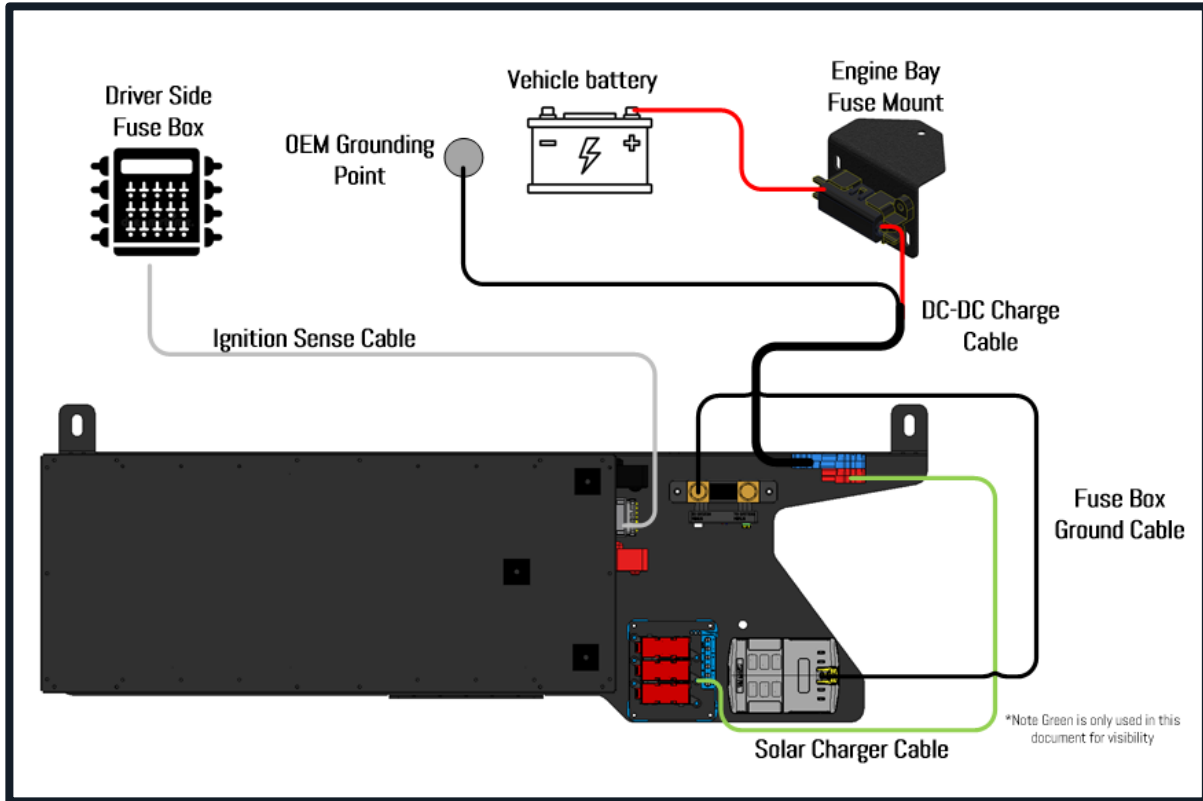
4. Use included M6x30 bolt + spring washer + flat washer to fasten center of bracket
5. Mount Cangoee Battery Kit using OEM floor mount and bracket mount holes. Ensure OEM straps are placed on top of battery top fixing brackets



**NEED HELP?**  
View diagram on  
Page 6 For Mounting  
Locations.

Stage 2  
COMPLETE

# For Stages 3 - 5: General Wiring Diagrams – For User Reference



# Stage 3.0: Main Cable Connections – Location: Boot Space



Fuse Block Negative Cable

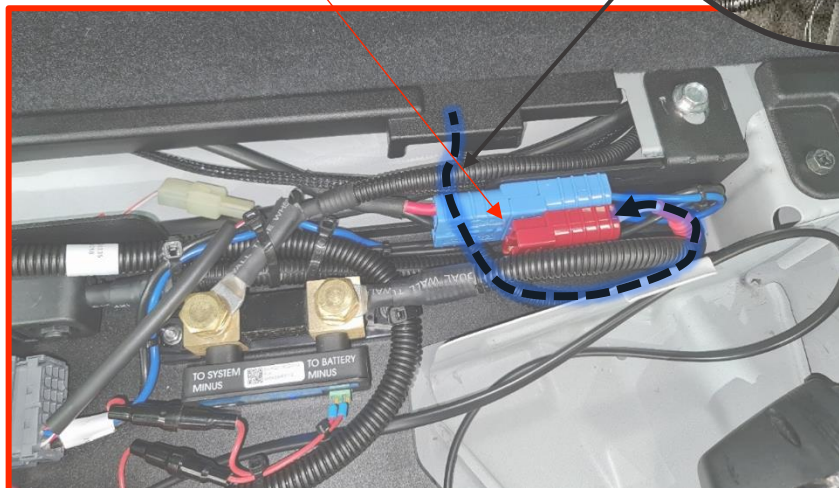
1. Route Fuse Block Negative through trim and onto ground terminal of fuse block
2. Route Solar Charge Cable through side trim



3. Connect Solar Charge Cable using supplied cable and plug into Red Anderson

**NEED HELP?**  
View Wiring Diagram on Page 10 for wire routing

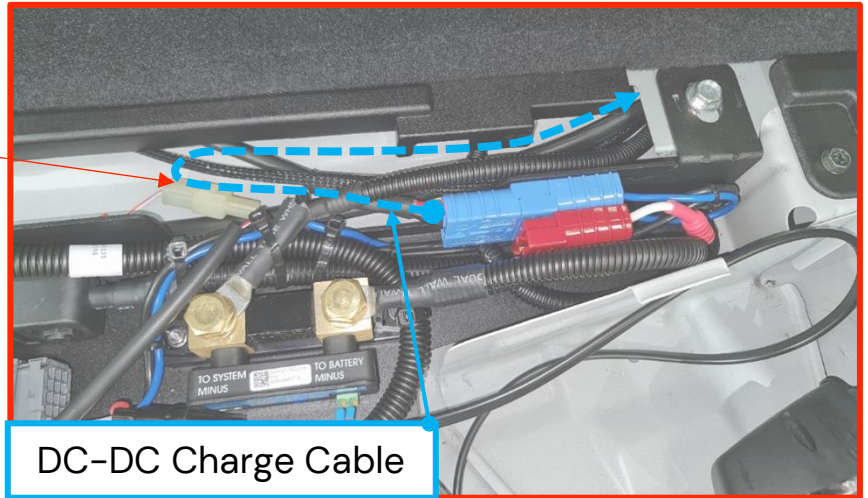
Solar Charge Cable



## Stage 3.1: Main Cable Connections – Location: Boot Space

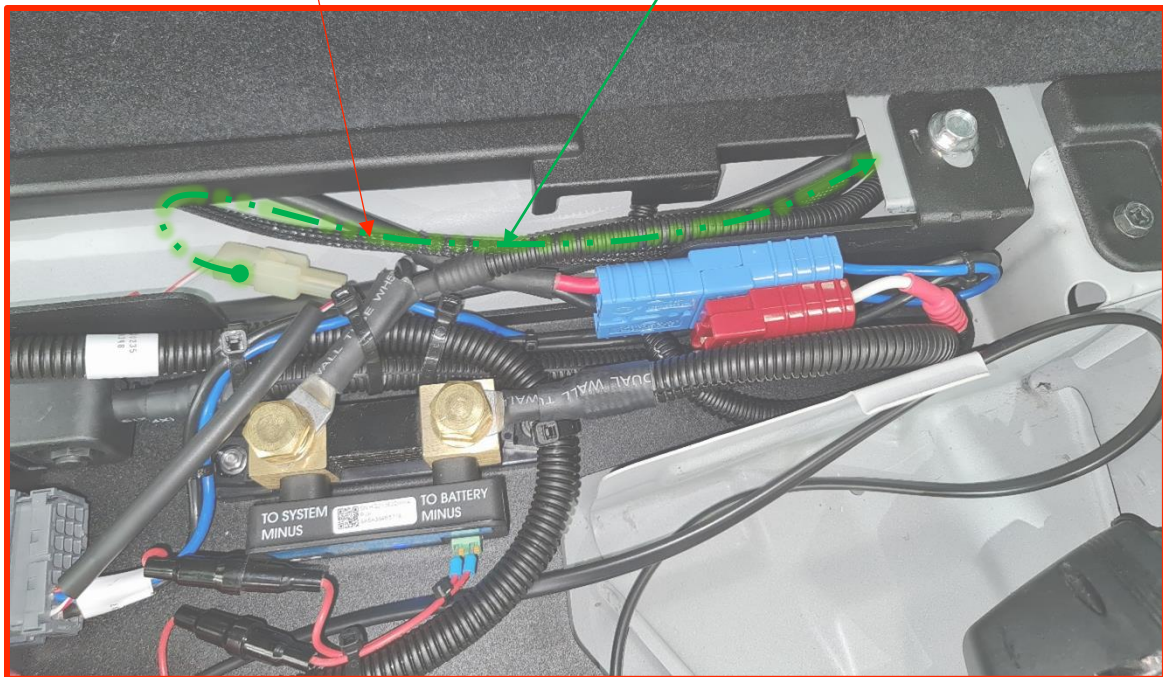
4. Connect DC-DC Charge Cable using supplied cable and plug into Blue Anderson – Route through side opening as shown

**NEED HELP?**  
View Wiring Diagram  
on Page 10 for wire  
routing



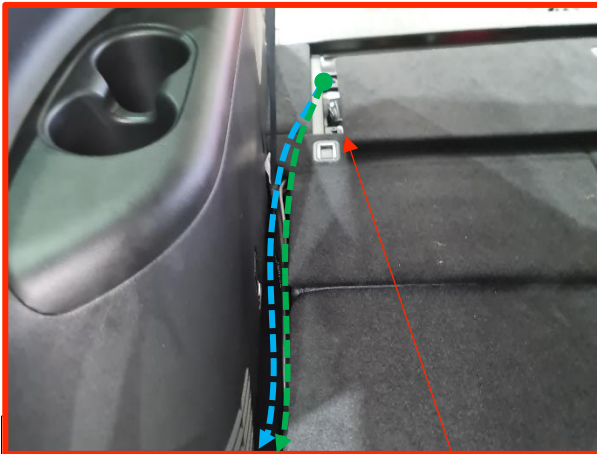
5. Connect Ignition Sense Cable into Female latch clip – Route through side opening as shown

Ignition Sense Cable



Stage 3  
COMPLETE

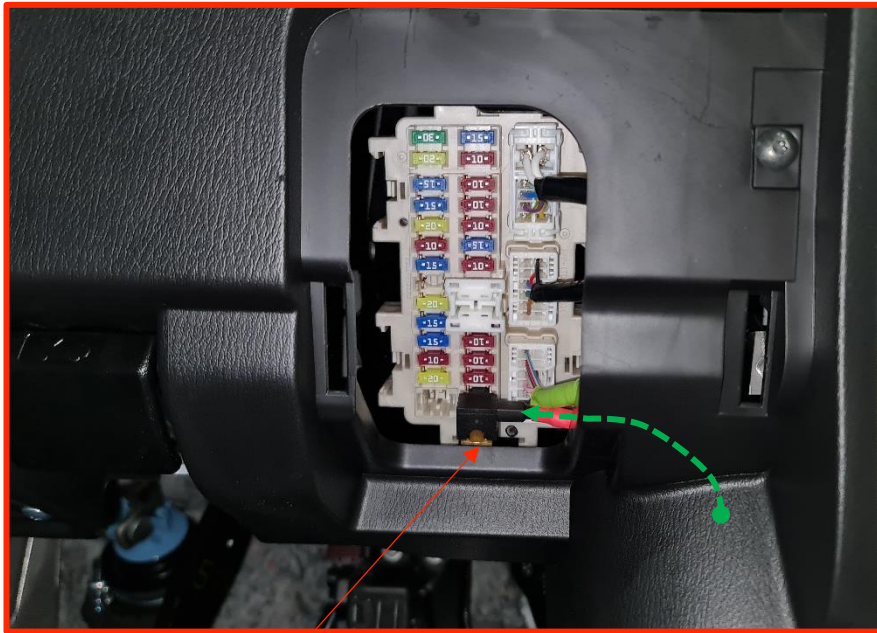
## Stage 4.0: Routing DC-DC Cable through Vehicle – Location: Rear



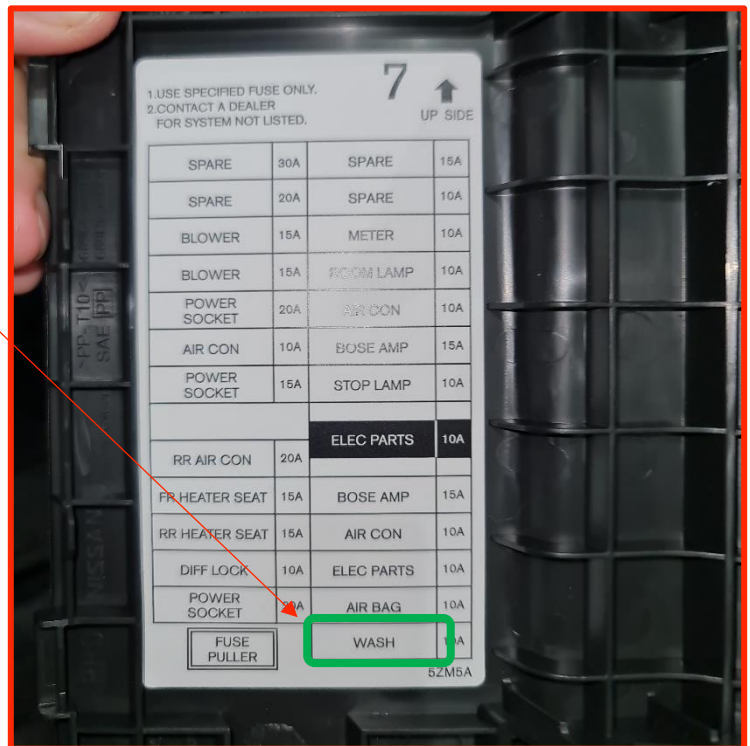
- Sense Cables from rear through side opening
- 2. Run DC-DC Cable and Ignition Sense Cable through firewall to driver's side seat.
- 3. (Optional) Zip tie to factory power conduit for proper cable management
- 4. Remove OEM Grommet plug and Push DC-DC Cable through to the engine bay wires will need to be routed through grommet and sealed later to ensure watertightness



## Stage 4.1: Routing Ignition Sense Cable through Vehicle Location: Rear to Front of Vehicle



5. Run Ignition Sense Cable through to vehicle fuse box.
6. Tap 'WASH' Fuse on fuse panel to connect Ignition Sense

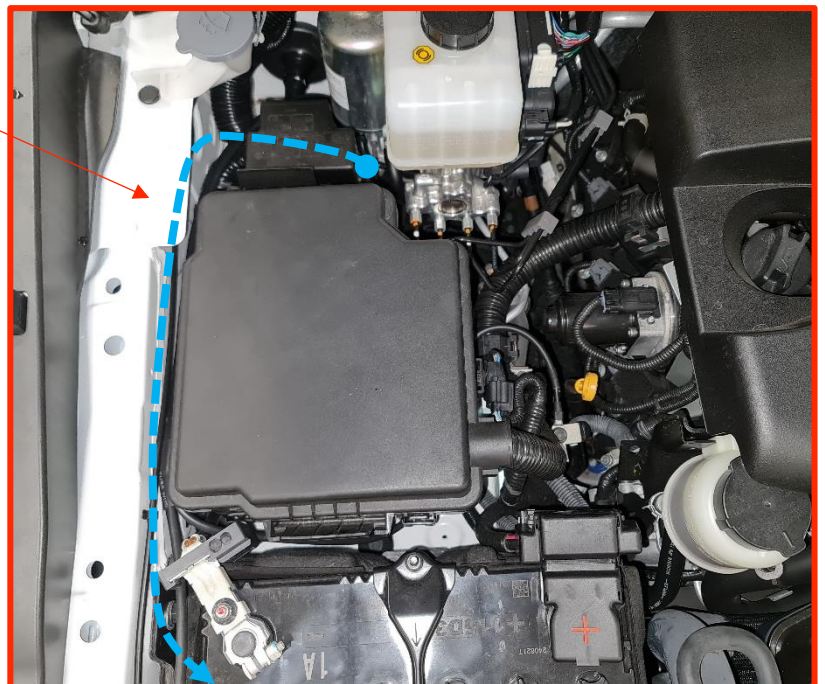




## Stage 4.2: Routing DC-DC Cable through Vehicle – Location: Rear to Front of Vehicle

7. Run DC-DC Cable through the front driver side and into the engine bay – this will run through the grommet as shown

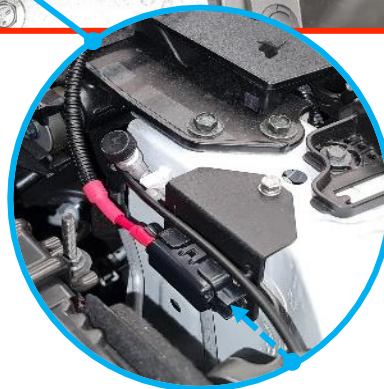
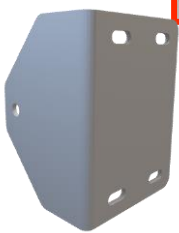
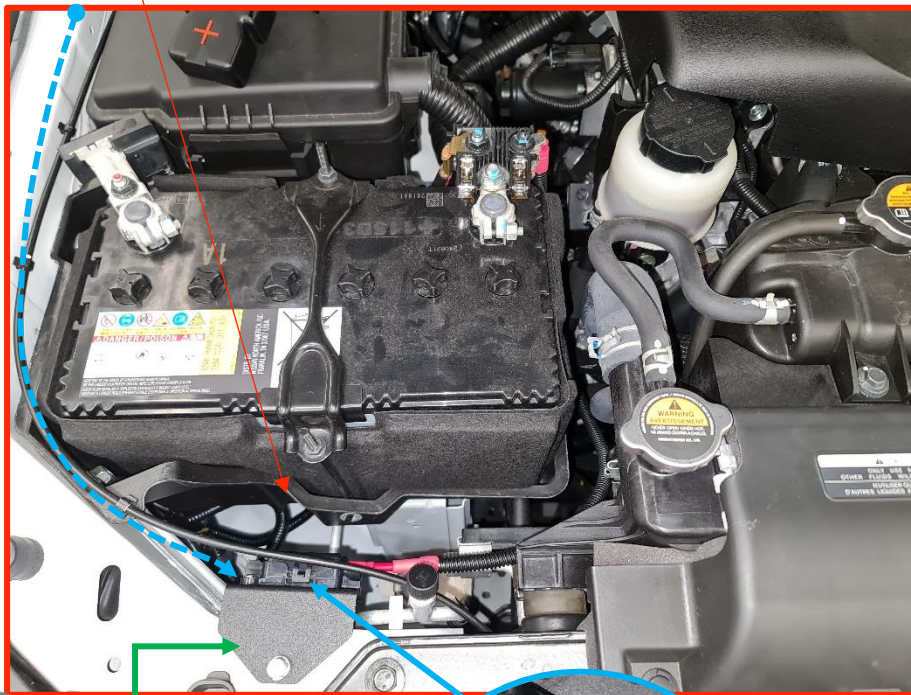
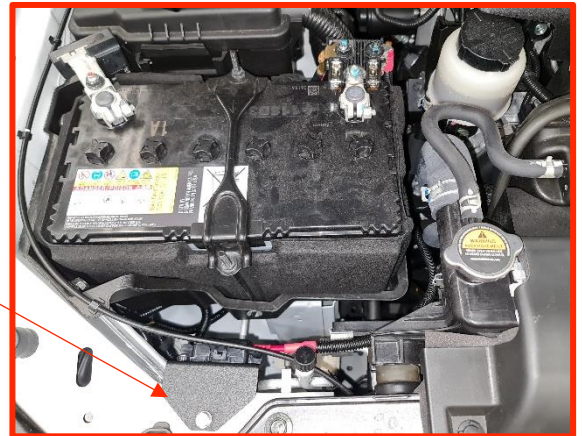
8. Run along front of engine bay and ensure cable is secured using cable ties



Stage 4  
COMPLETE

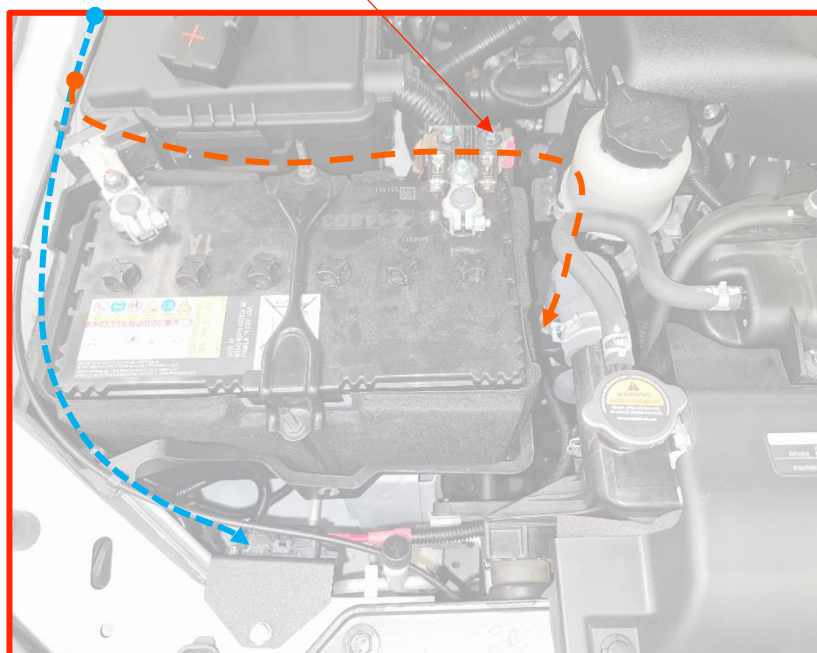
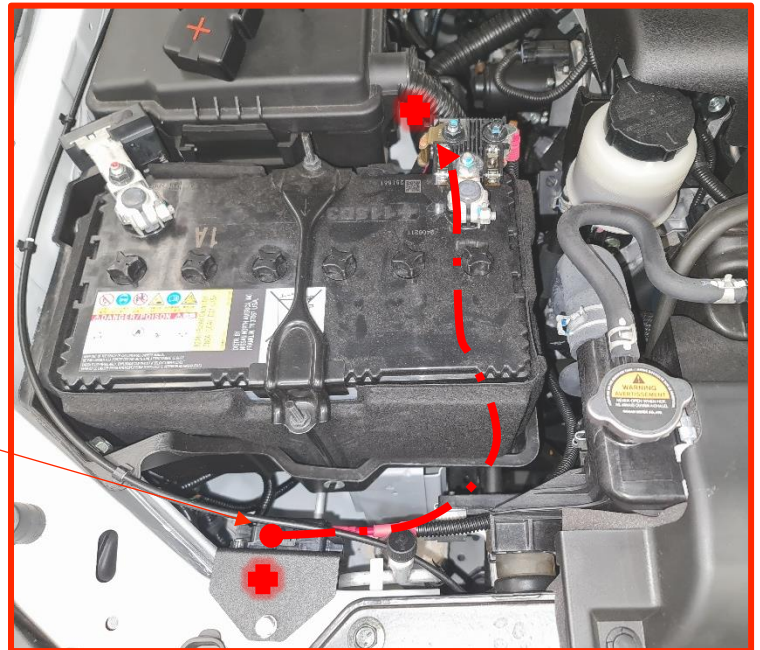
## Stage 5.0: Wiring Front Engine Bay – Location: Front of Vehicle - Engine Bay

1. Fix Midi Fuse Mounting plate onto front of engine bay as shown – Ensure correct M8 Bolt is used
2. Run DC-DC Positive into Midi Fuse – make sure to connect properly and tighten



## Stage 5.1: Wiring Front Engine Bay – Location: Front of Vehicle – Engine Bay

3. Attach Positive to positive cable onto adjacent end of midi fuse and connect to vehicle battery positive
4. Run DC-DC Cable negative to the battery compartment and bolt onto side of battery mounting point



Stage 5  
COMPLETE

## Please Note

Cangoee strongly recommends that installers do not disassemble, rearrange, or misplace components of the battery system as this could result in improper use, malfunction, or serious damage to the battery system.

Once again, we urge that installers where appropriate PPE gear when assembling and disassembling and that safety guidelines and warnings are adhered to.

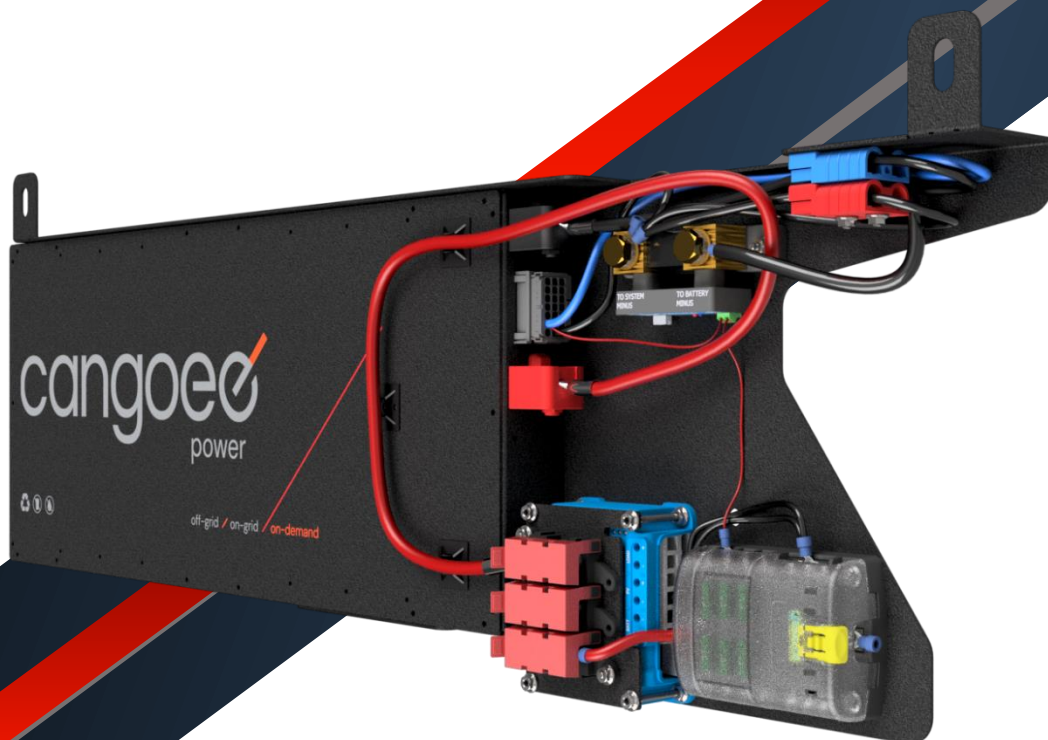
**Please Make Sure** that the vehicle is **turned off** whilst installing or uninstalling the battery system.

## WARNING

This install works with live wires and electricity, ensure all safety guidelines are followed and proper equipment is used during this Install. Failing to follow these guidelines could result in incorrect installation of the Cangoee battery, malfunction, or severe injury.

# Congratulations!

## Your brand new Cangoee Battery System is installed



## Battery Management System

The BMS is an internally mounted electronic solid-state circuit board that manages the cells and protects the battery, including overcharge and over-discharge protection. The BMS protection mechanisms will also activate during low voltage at 10.5V, overcurrent at 100A, and short-circuit situations. Unlike lead-acid batteries, overcharging or over-discharging a lithium battery may lead to a hazardous scenario. Therefore, the BMS is essential to the lithium battery. The BMS ensures that the battery cells are equalized throughout its operation. Turning the BMS off is used for disconnecting remote loads and should only be used to isolate in place of a dedicated isolator.

## Safety Tips

The battery contains lithium iron phosphate (LiFePO<sub>4</sub>) cells, considered to be the safest of all lithium-ion chemistries. The battery consists of a large amount of stored energy. Please follow these safety tips for use and operation:

- ❑ Ensure the battery is secured safely before travel.
- ❑ Do not drill into the enclosure. Doing so may inadvertently puncture one of the internal cells.
- ❑ Do not short-circuit the battery. Be careful not to drop a metallic object across the two exposed terminals. Always keep the terminal caps on the POS and NEG posts during operation.
- ❑ Do not mount the battery upside down. The configuration of the battery is different for the BA and BA2 models, with each shown on Page (5, 6). The battery can also be mounted on its side if mounting upright is not an option.
- ❑ Do not connect multiple batteries in series to raise the voltage. The BMS is not designed to accommodate higher voltages.
- ❑ If the battery is in contact with the skin, please immediately seek medical advice.

## Longevity Tips

Factors that mainly affect the lifespan of the battery are depth of discharge and operating temperature. To ensure longevity and use of the battery:

- ❑ Do not fully discharge the battery to zero. Each time the battery is discharged to zero, either intentionally or unintentionally, reduces the lifespan of the battery.
- ❑ Do not discharge the battery below 80% depth of discharge (i.e., 20% full).
- ❑ Do not charge the battery outside the range 0°C - 45°C to maximize the life of the battery and avoid damage to the cells.
- ❑ Do not operate the battery in direct sunlight, mount the battery in a compartment or undercover

The cells are designed to last 2,000 cycles at 80% DOD (Depth of Discharge) and 5,000 cycles at 50% DOD.

## Tips for Use

- ❑ Batteries of the same voltage may be placed in parallel to increase storage capacity. However, each battery should be independently fused, and the battery must be from **CANGOEE**.

- ❑ If the battery is frozen it is essential to wait for the battery to be defrosted and wait for an appropriate room temperature before connecting power to the battery.
- ❑ The battery is splash-proof and water-resistant but not waterproof, **DO NOT** directly submerge the battery in water.
- ❑ The battery is designed to be housed in a dry, enclosed compartment, not in direct sunlight or exposed to outside weather conditions for an extended period.

## Maintenance Tips

If not using the battery for a prolonged period (months at a time), then store the battery as follows:

- ❑ Disconnect all loads from the battery as there is no external current draw.
- ❑ Store the battery close to full capacity (the battery does not need to be at 100%).
- ❑ There is no need to keep the battery on trickle charge. The battery will self-discharge over time slowly.
- ❑ Within every two months, give the battery a quick recharge to ensure battery Longevity