A large blue battery pack assembly is shown, consisting of multiple blue cells connected in a grid. The pack is mounted on a black metal frame. A green PCB is visible, connected to the battery cells. The background shows a white surface with various electronic components and tools.

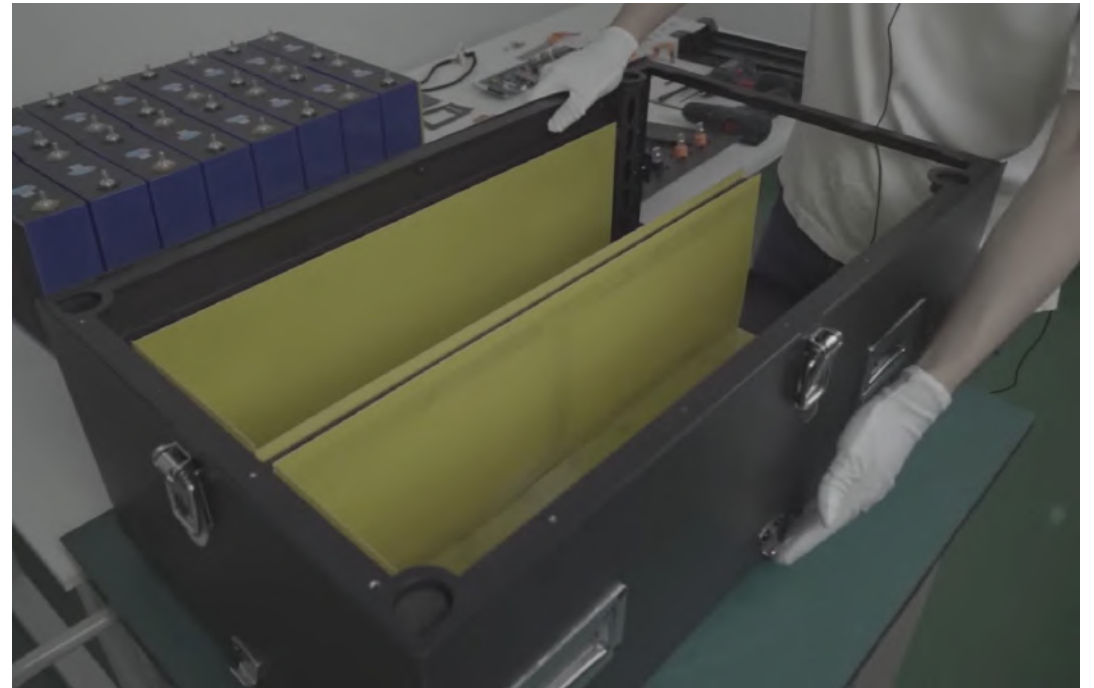
# MASON-280 51.2V 280Ah Battery Pack Assembling Guide

Video Guide: <https://youtu.be/z-w3F7GhYJE>

# Step 1. Handle and Hasps Installation

- Material: 1 battery pack box and 4 concealed handles
- Tool: electric screwdriver and hexagonal nuts H2.5

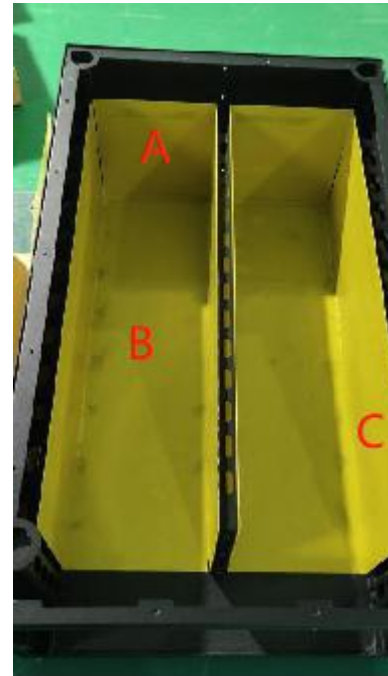
Thread the M4 countersunk nuts with the hex H2.5 to the box sink, with the concealed handles' folding side facing downward.  
Set the torque index of the electric screwdriver to 3 and lock the screws until we hear the sound of "da-da".



## Step 2. EVA Tape A/B/C Installation

- Material: epoxy insulation board A/B/C

Rip open the epoxy insulation board A/B/C and stick them to the inner sides of the box



## Step 3. Battery Cover Insulation

- Material: polycarbonate, box cover
- Tool: utility knife

After ripping open the polycarbonate, align it with the box margin and stick them together, expose the screw holes with a utility knife.



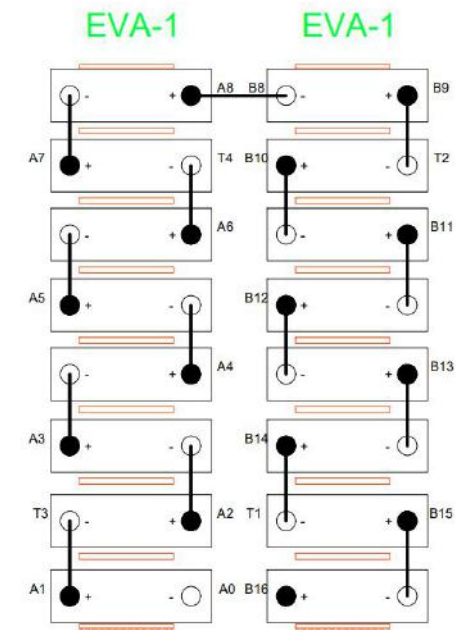
## Step 4. Battery Cell Placement

- Material: 16 battery cells, 18 EVA-1, 1 fixed plate front, 9 M6 \* 14mm Phillip Hex screw Sets(foot fix)
- Tool: Phillip screwdriver, screwdriver with torque index option.

Put the EVA-1 and cell batteries in the direction as shown. After stocking the cells into the box, make sure that side A is slightly lower than the margin or levels with the margin.

Then put another two pieces of EVA-1. Make sure we are having the positive and negative electrodes on the right position.

Set the torque index to 8-9 Nm, and cover the box with a fixed plate front.



## Step 5. Top Bracket Insulation

- Material: 2×top plate, 8×M5-8mm Phillip hex screw sets
- Tools: Phillip screwdriver, screwdriver with torque index option

Rip open the EVA-2, and apply it to the side A of the plate top of the module.  
After that, fix the module top plate on the cell batteries with M5\*10 screws.



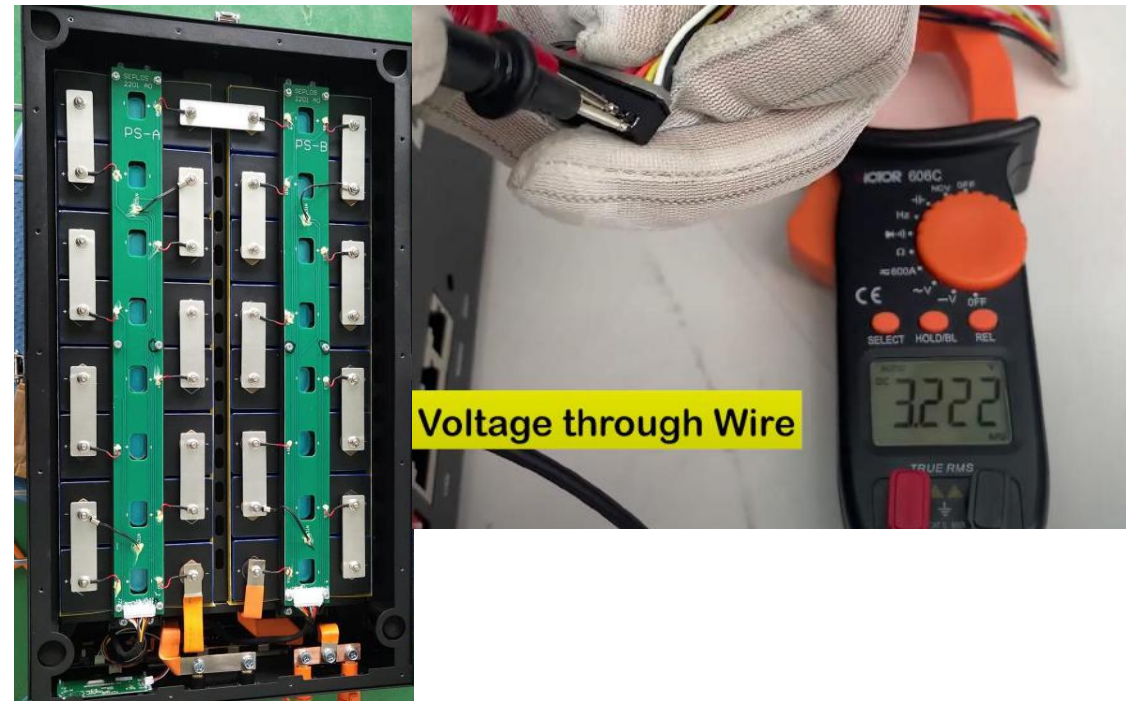
## Step 6. Battery Cell Connection

- Material: 15×aluminium busbar-1, 12×M4\*8mm Phillip hex screw sets, 32×M6 flange nuts

Put the aluminium bus bars as shown. Make sure that we have the maximal contact area between the aluminium bus bar and the cell thread.

Put the PCB A/B and tighten it in the order as shown. We lock the string with M6 flange nuts with a torque index of 5 Nm.

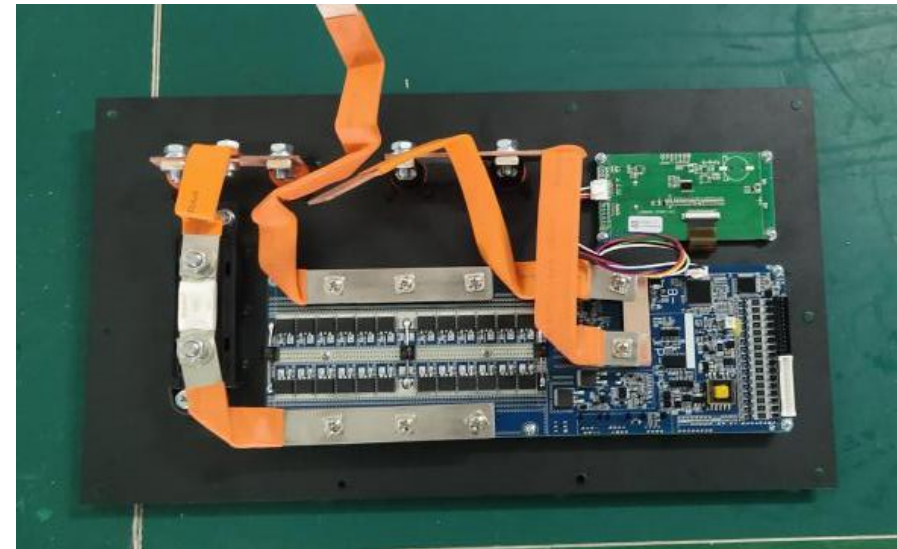
Connect wire harness A and B and measure up the voltage of the module, the neighboring PIN voltage should be around 3.2V.



## Step 7. Front plate kits assembling

- Material: 2×battery terminals (yellow), 2×battery terminals (black), 1×front plate, 1×BMS, 1×display screen, 10×M3-8mm Phillip round screw sets
- 1×wire harness C, 1×SF2, 1×SF3, 1×SF5, 1×SF6, 1×SF7, 1×SF8, 1×wire harness A, 1×wire harness B

Fix the battery terminal with torque index of 1.5-2 Newton meters, BMS with the torque index of 1.5-2 Newton meters, display screen of torque index of 0.5-1 Newton meters, fuse of recommended 7 Newton meters, and copper busbar of torque index of 7 Newton meters. Wrap the display screen wire harness in cycle and connect the wire harness A, B, and display screen wire harness together.

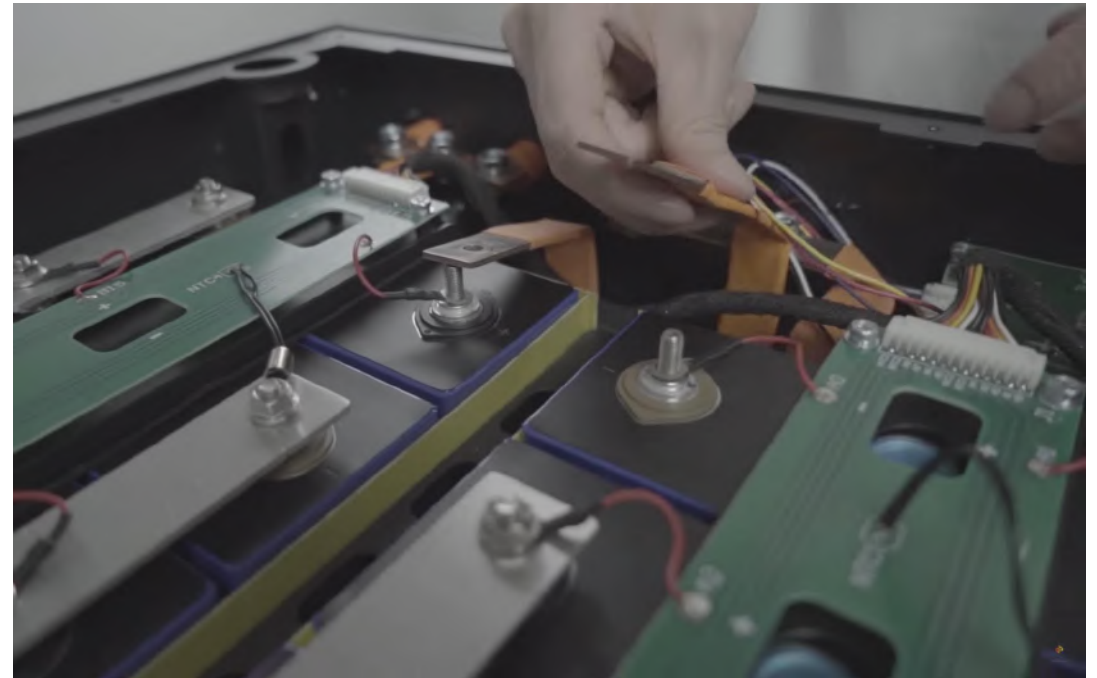




## Step 8. BMS Wiring

- Material: 15×aluminium busbar-1, 12×M4\*8mm Phillip hex screw sets, 32×M6 flange nuts

Insulate copper busbar S-F-2, S-F-8, and then connect B's negative electrode with module A wire harness, module B wire harness and B's positive electrode, run a turn-on test by turning on the tact switch and check if the total voltage is 52V and output current is 0.



## Step 9. Battery Pack Fix

- Material: 15×aluminium busbar-1, 12×M4\*8mm Phillip hex screw sets, 32×M6 flange nuts

Lock the box, box cover and front plate with torque index of 4 Nm. And we finish assembling the MASON-280 51.2V 280Ah battery pack.





## Step 10. BatteryMonitor

If the Battery Monitor system shows that the current isn't 0, calibrate by logging in with the account "admin" and password "admin".

After assembling, the BMS need to have capacity learning, and this is how we do it:

- Fully charge the battery at a recommended current of 100A
- Set it in the battery protection system with recommended current of 100A
- Charge the battery until the battery protection disappears with the recommended current of 100A
- The capacity learning is finished.