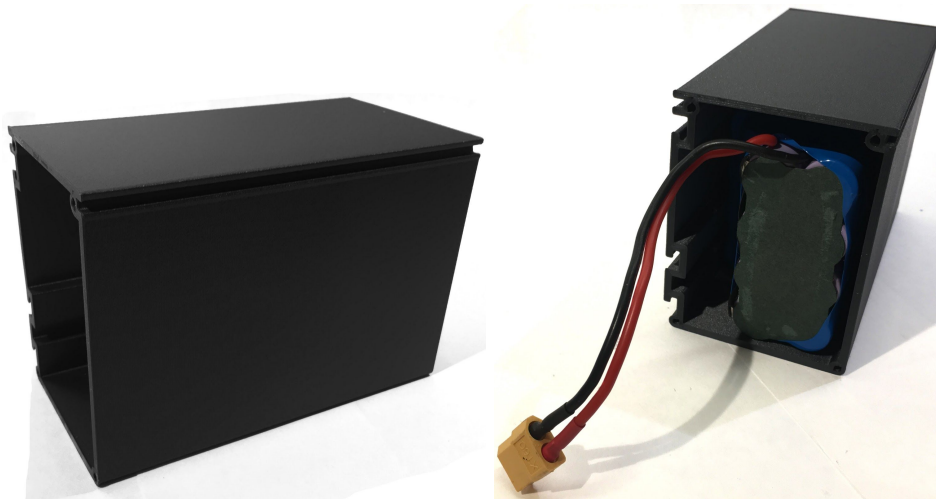


Carvepower Gen 2 Portable Charger

The Carvepower charger is built to work with a standard hoverboard battery, which needs to be purchased separately. They are easy to find on Ebay, ranging from \$35 to \$60. Search for "36v 4.4AH battery." Batteries made from Samsung or LG cells will be the best quality, though a little more expensive on average. These come in a standard configuration which will fit in the case. The actual capacity might vary a little, so it is wise to do a test charge before going out into the field.

First, place the battery in the battery box. Turn the box so that the wide, flat side is facing you, with the groove at the top. This is the front of the box.



The battery should be placed in the box so that the wire comes out the left side, near the upper left corner of that end. If the battery can wobble inside the box, use one of the adhesive backed foam pieces to make it snug. Usually one might need to stick onto the inside of the front face of the box.

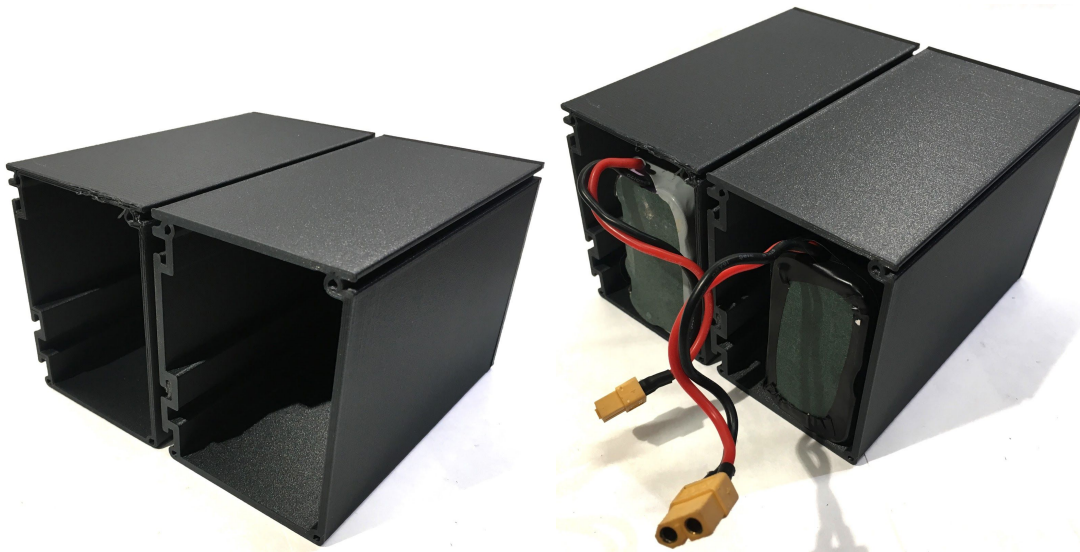
Screw the lid with the cutout for the wire on to the end of the box. The side of the lid that has INPUT written on it faces the inside of the box. The lid with OUTPUT written on it goes on the right end of the box, also with the writing facing to the inside.



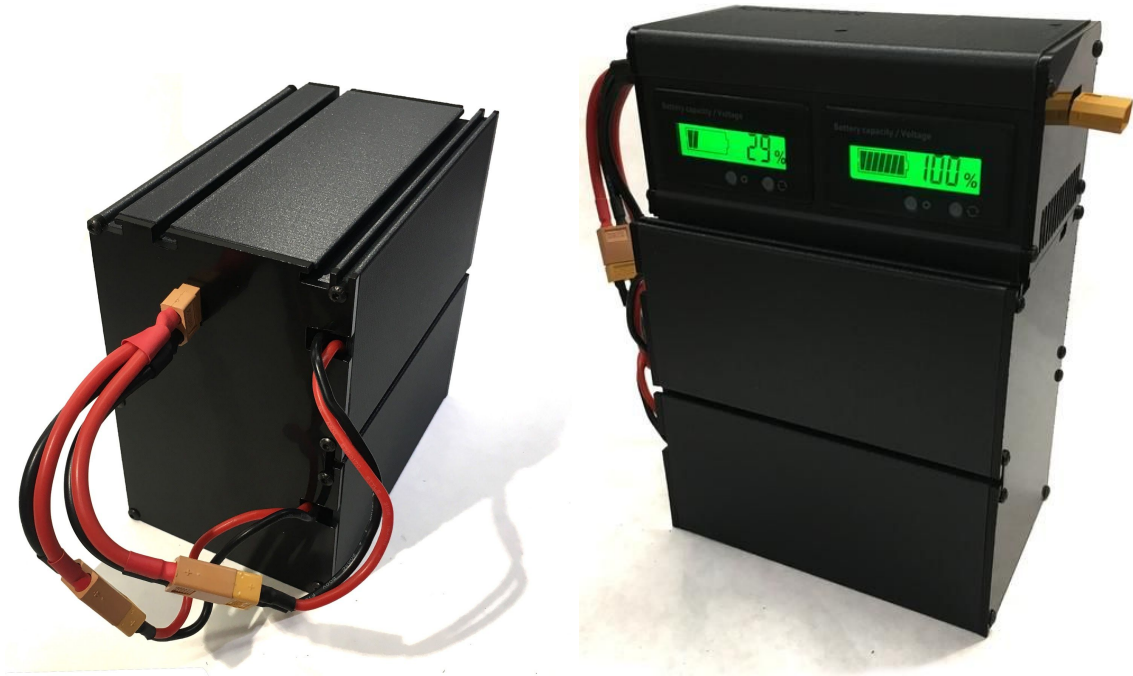


Slide the controller on to the grooves on the top of the box, from right to left with the displays facing you. It should slide easily, and get tight at the end.

The double battery box is two single boxes joined by common lids. Place the double box in the same orientation, with the groove at the top, and place the batteries inside the same way as the single box. Use the foam pieces to make a snug fit.



The double lid with INPUT written on it goes on the left end of the box, with the writing facing to the inside. Before use, fully charge both of the batteries using the same battery charger. They should be as close to the same voltage as possible. Connect the battery wires to the splitter.



Slide the controller on to the side grooves of the double battery box, from right to left. Always charge the two batteries together using the splitter to ensure that their voltage remains matched.

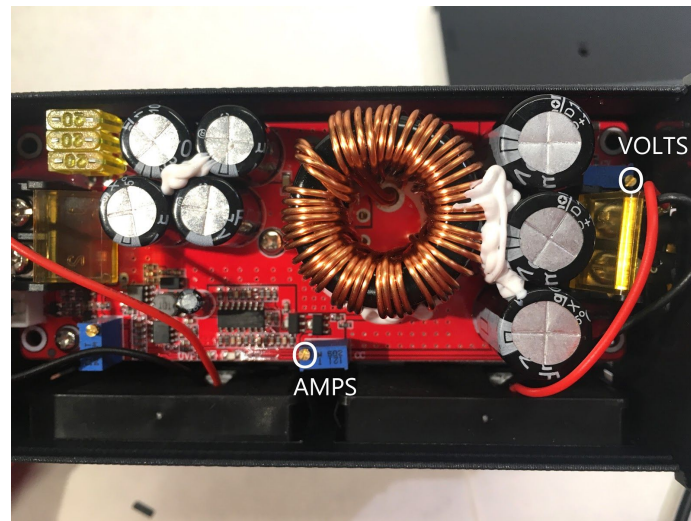


Plug the battery into the INPUT connector on the controller, powering it up. On the displays, pressing the button on the right (circular arrows) will cycle between Battery Capacity, Voltage, and Display Off. The display on the left shows the approximate capacity of the hoverboard battery. On the right (output) display, press the right button one time to change it to voltage. It will display the maximum output voltage that has been set, which should be close to 58.4. It is common for wall chargers to vary within a few .1v so it is ok if it isn't exactly 58.4v. While charging, it will show a voltage slightly higher than the voltage of the Onewheel battery as it rises.

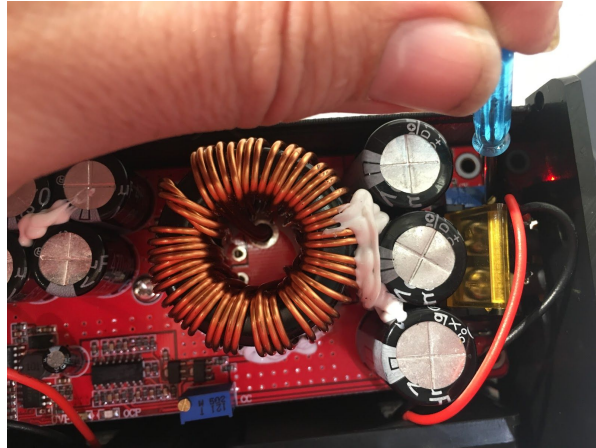
Plug the charging cable into the output connector, turn on the Onewheel, and plug the charging cable into the Onewheel. Sometimes the Onewheel will not charge if it is off when the charger is plugged in, so it is best to always turn it on first.

The charger is set to output 5 amps, which will fast charge a Onewheel Plus in around 25 minutes. The cells in a Onewheel V1 and a Onewheel+ can take a maximum charge current of 10 amps, so this is still well within its limits. It should have little to no effect on battery life since most charging is done at home with the wall charger, rather than in the field. Most users will not need to make any changes to the output voltage and current, and need only to plug the battery in to the left connector, then plug the Onewheel into the right.

The controller is set by default to output 58.4v for use with the Onewheel+ and Onewheel V1, and 63V for the Onewheel+XR. The voltage and current can be changed by turning screws located under the holes on the lid. Voltage is set by turning the screw labeled CV (Constant Voltage) and current is set by turning the screw marked CC (Constant Current). Though the screws can be accessed through the holes in the lid, it may be easier to simply remove the lid to make adjustments.



When setting the voltage, watch the output voltage display on the right side. The voltage can be slow to respond, so stop turning the screw a little bit before it reaches the target voltage.



The current is set by default to 5A. This will charge a Onewheel plus in approximately 25 minutes, and is fast enough to keep up with charging while riding in most circumstances. The battery cells in a Onewheel and Onewheel+ can handle up to 10A, so 5A is safe. Charging at higher currents can reduce the lifespan of the battery, so it's best to do this only while needed in the field, and use the wall charger whenever possible.

The Onewheel+XR can also charge at 5A. The maximum continuous charge current for the cells in an XR is 5A, but the XR battery was two groups of cells wired in parallel. This means each group takes half the current, so when you charge at 5A each cell receives 2.5A.

For changing the current, you will need something that can read the amps coming from the controller. This used to be possible with the official Onewheel app, but Future Motion removed that capability in an update. Android users can still download Ponewheel, a 3rd party Onewheel app that runs on Android 5 and above. To connect Ponewheel, make sure that the official Onewheel app is not running in the background. The bluetooth can be finicky, so for best results, turn off the Onewheel, press the Scan button in the app, and then turn on the Onewheel. Begin charging the Onewheel, then with Ponewheel connected, watch the BATTERY CURRENT parameter while turning the CC screw. The Onewheel should be less than 95% charged when you do this, because as the Onewheel battery nears capacity, the charger will begin reducing the output current.

iOS users who need to change the current can look for a cheap, used prepaid Android phone on Ebay to connect with the Onewheel. These can be found for around \$35, just make certain that it runs Android 5 or higher.

CnR

CnR stands for Charge and Ride, which is charging the Onewheel while riding it. The Gen2 controller can be carried inside a closed bag while charging without overheating. A single battery however can get very hot, so keeping a zipper partially open is recommended. With a double battery, the the load is evenly divided between them so each battery outputs only half as much current, and doesn't heat up as much as a single battery.

Because of the heat, a double battery is recommended for CnR, while a single battery is better suited to "Stop and Charge," where it can be taken out of the pack for charging.