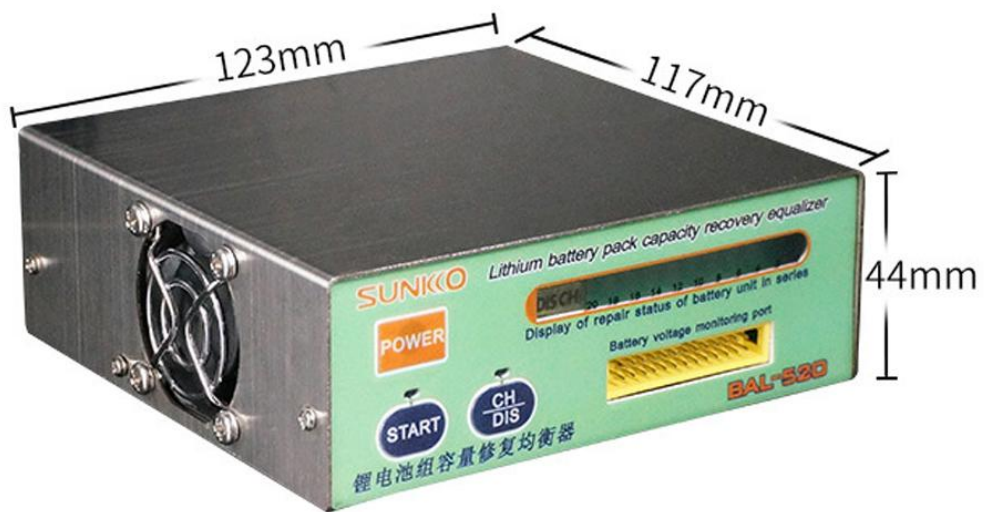
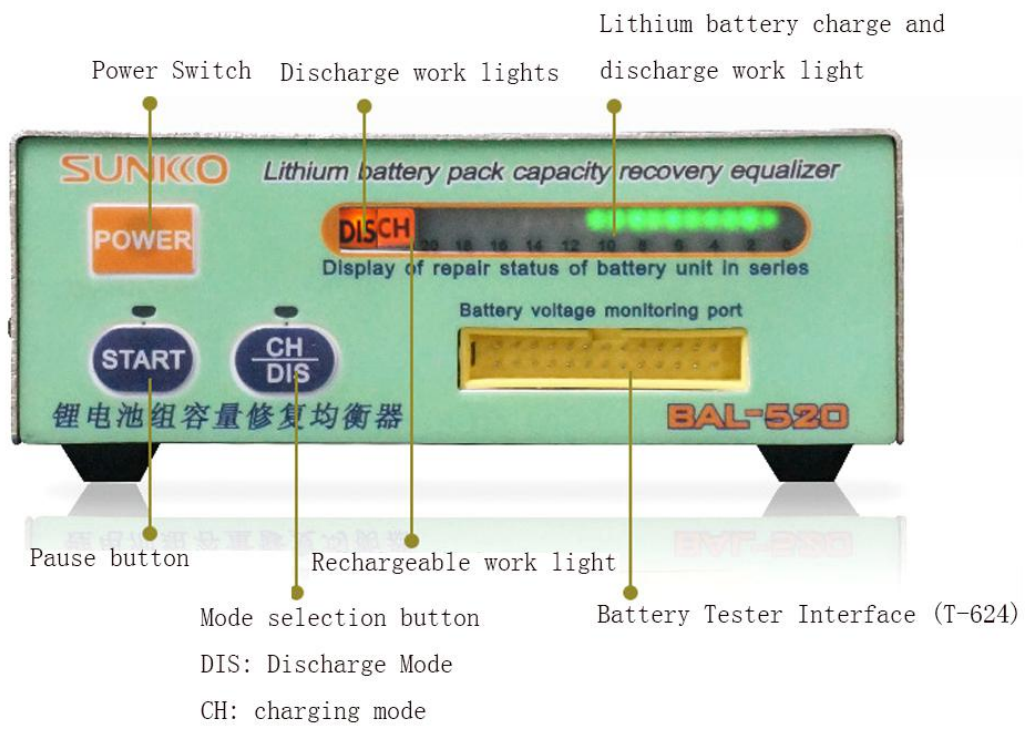


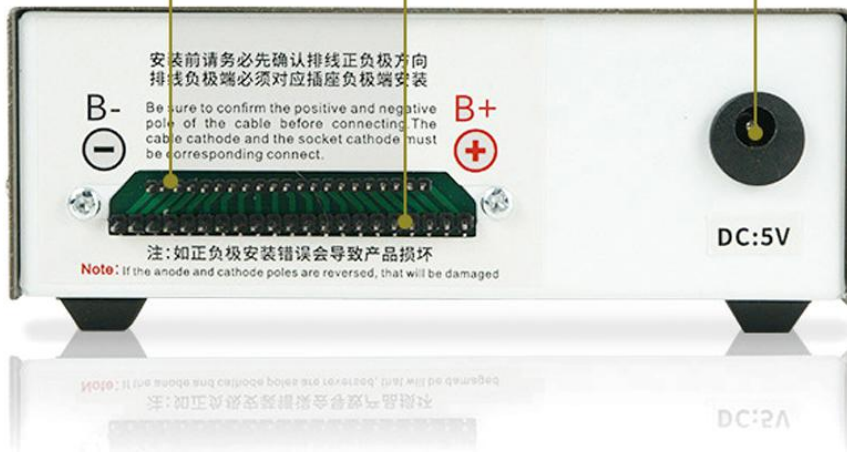
Precautions:

1. Check whether the cable connection is connected according to the schematic diagram. Pay attention to whether the negative pole is missing, if the negative pole is missing, stop using it, and you need to consult customer service on how to operate;
2. The ternary lithium balance board or the lithium iron phosphate balance board needs to be selected according to the battery type of the battery pack. The battery types are different, and the voltage standard ranges are different, so they cannot be used universally;
3. Determine whether the battery pack can support 1A current output. For example, the discharge current of some polymer soft-pack lithium batteries is lower than 1A, which will lead to poor balance effect or battery damage.
4. Self-provided 5V2A adapter, due to the large resistance heating during discharge, the current of the adapter should be sufficient to 2A. If it is less than 2A, the fan will not start or the heat dissipation will be slow, which will cause damage to the balance board components or the fan melts. , If you need to discharge for a long time, it is recommended to add a small fan to cool down.
5. Before installing the battery pack cable on the balance board, adjust the red switch of the balance board to the off state. After inserting the cable, make sure that it is correct and then turn on the red switch to avoid damage to the balance board caused by the wrong insertion of the cable.
6. In order to strengthen the repair effect, after the battery pack is discharged and balanced, the battery pack can be connected back to the protection board and charged, and then balanced and discharged again after being fully charged.
7. The instrument will generate a lot of heat during use. A small fan must be used to dissipate all the metal resistors to ensure that the instrument has a sufficient safety factor to avoid damage caused by poor heat dissipation during operation. The maximum voltage that can be accepted by the entire group of discharge functions is 80V, and the maximum voltage of single-string discharge is 4.8V. Excessive voltage will cause serious damage to the equipment.
8. The balance repairer should be separated from the battery pack by a distance of more than 20cm, and at the same time, it should not be close to flammable items for safety.





2.54 cable socket
2.0 cable socket
Power socket



Equalizer Work Light



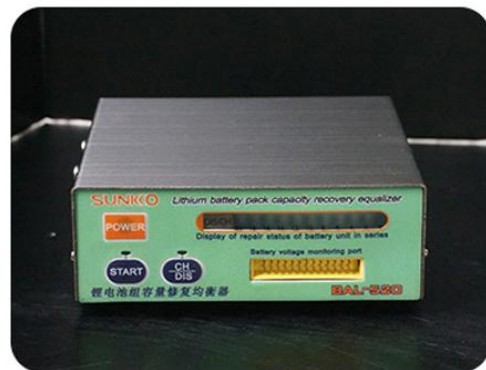
DIS light ON, and the discharge mode is turned on
(The battery pack begins to discharge, and the indicator lights go out one by one after the discharge is completed, and the discharge is completed)



CH light ON, and the charging mode is turned on.
(Press the CH/DIS button to switch the charging mode, after charging, the indicator light will be on)



START light on, stop working
(All charging and discharging work is suspended, but the mode light will not go out)



Off state, all lights are off



The negative electrode (black wire) of the battery pack cable must be connected to the B- interface of the equalizer. Reverse connection will cause damage.



Connecting the positive pole of the cable to the negative pole will cause damage to the equalizer resistance and make it unusable



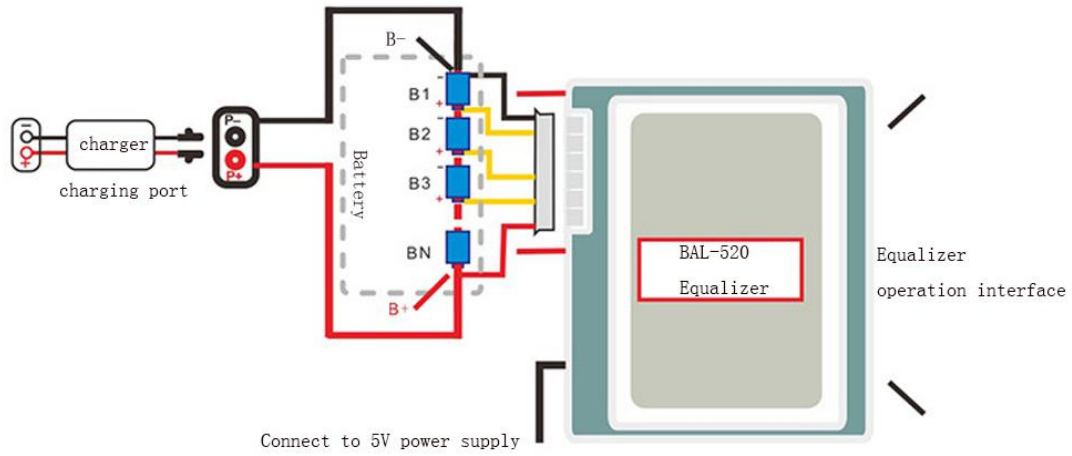
Connecting the cables in the wrong order will cause the battery pack to be over-discharged, which will damage the battery pack



The negative pole of the cable is correctly connected to the negative pole of the equalizer, and it can be used normally.



10-series lithium battery pack balanced charging practice case (for reference only)



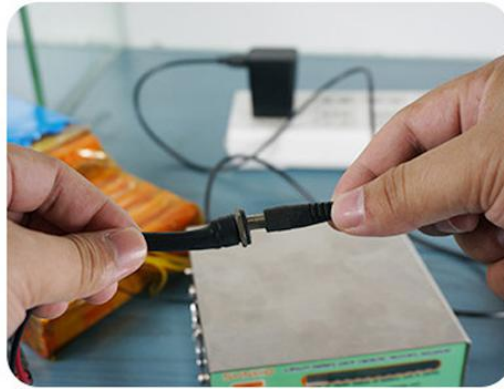
1. Short circuit the battery pack protection board
(the protection board needs to be disconnected
during the charging equalization process)



2. Connect to the 2.0 battery pack cable



3. Connect to the power supply of the equalizer (with 5V adapter)



4. The battery pack is connected to the adapter charger (Charging equalization requires an external battery pack charger, and the equalizer balances the voltage of the battery pack)



5. Press the equalizer power switch



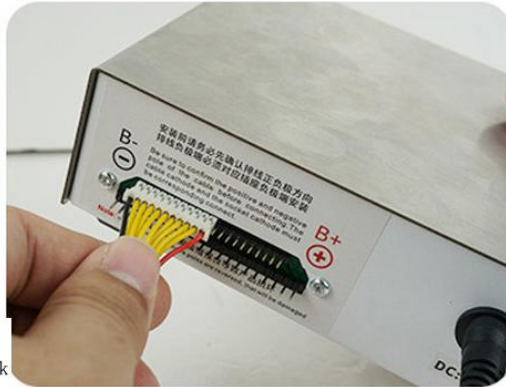
6. Press CH/DIS to switch to discharge mode (In charging mode, the CH/DIS working light is on, and the indicator light will be on when the battery is fully charged)

10 series lithium battery pack balanced discharge practical case



The adapter only provides power for the instrument and does not charge the battery pack

1. Connect to the power supply of the instrument (use 5V power supply)



2. Connect the battery pack cable
(The negative pole is connected to the instrument B-, the reverse connection will cause damage to the instrument, please operate with caution)



3. Press the power switch



4. DIS discharge mode starts to work
(The balancer is powered on by default in battery discharge mode)

Q&A:

1. Why is there still a voltage difference between each string of batteries after the discharge balance is repaired?

The principle of balance board equalization is to discharge the voltage of each string of the battery pack to 3V. It is necessary to use a T616 differential pressure analyzer to test the differential pressure at this time. According to the difference in the internal resistance of each string of batteries, the recovered voltage will also be different. The smaller the difference in battery internal resistance, the better the balance effect.

2. Why does the discharge balance voltage repair the same, but the voltage difference still occurs after charging?

The voltage balance repair board plays the role of balancing the voltage of each string. If the battery itself is damaged due to aging or the capacity internal resistance is inconsistent, it cannot be repaired. After the balance repair, the voltage of each string is detected by charging. If the

voltage of one of the strings is high or low, it means If the capacity or internal resistance is quite different from other strings of batteries, it is recommended to remove and replace the new battery, re-pair the battery, and reassemble the battery pack.

3. Why does the green light corresponding to a certain string not light up when the discharge is balanced?

1. It is necessary to check whether the connection of the cable is correct;
2. Check whether there is poor contact at the cable end;
3. Check whether the voltage of each string is higher than 3V, the discharge cut-off voltage of the ternary lithium balance board is 3V (2.5V for the lithium iron phosphate balance board), if the voltage is lower than 3V, the corresponding green light will not light;

4. When the charge balance is repaired, the voltage of a certain string of batteries is overcharged (higher than 4.25V)?

First, check whether the charger for charging the battery pack is suitable for the battery pack. For example, a 48V battery pack uses a 54.6V charger, and a 60V battery pack uses a 74V charger. It is generally recommended to use a 2-3A charger for charging. If the current is large, it can be balanced by multiple charging and discharging to achieve better results (when 1 to 2 strings are charged with the green light for 5 minutes, switch to discharge mode and discharge for 5 minutes, and then switch to charging mode until the charging of each string is balanced. until all lights turn green).

5. Why does the voltage indicator light flicker during repair work?

The voltage indicator flashes to indicate that the battery pack is nearing completion of repair. The reason is that the battery voltage will fluctuate to a certain extent when the repair is nearing the end, causing the indicator to flash. Wait until the indicator turns off and the fan stops working before the repair is completed.

6. How to properly use the balance plate to balance the voltage difference of the battery pack?

To achieve better results, first equalize once in the discharge mode, and then use the charge mode to equalize once, and the cycle can be equalized 2-3 times, and the effect is better.

7. Under what circumstances should the balance plate be used to balance the battery pack?

When the electric vehicle starts to lose power and the charging and use time is short, first check the voltage of each string of the battery pack. If the voltage difference exceeds 0.1V, this product can be used for equalization; then check the internal resistance of the battery, the internal resistance The greater the difference, the greater the pressure difference will be, and the battery with large internal resistance will have more virtual power, and will also be prone to power outages.

8. Under what circumstances can the balance plate be used to balance the battery pack?

1. The electric vehicle cannot be started after being placed for too long. At this time, the battery pack is in a state of power loss, and the balance board cannot be activated or repaired. It needs to be activated by a professional charger.

2. Before using the balance board, check the voltage of each string of the battery pack. If the battery is damaged and has no voltage, the battery should be replaced in time and then the voltage balance should be repaired. (Balance board repair object, based on the normal charge and discharge of the battery, no battery damage / power loss state, can play the role of equalizing the voltage of each string of batteries, rather than repairing battery failure damage.)

Special statement:

1. Before balancing repair, judge the condition of the battery pack, distinguish between repairable and irreparable, and determine the repair value. For example, the open circuit or short circuit of a certain cell cannot be repaired.

2. The time for the cells of the battery pack to drop voltage is not long, and it can be repaired under normal conditions, that is, when the power supply capacity of the battery pack is found to be reduced, it should be repaired in time.

3. It can be judged by the use time of the battery pack whether it has maintenance value. Only the battery pack within 2 years has a large repair value, and the battery pack for 4 years and above has basically no maintenance value. It can also be judged by the discharge of the battery pack. If the voltage drop is very large when the battery is discharged at 10A, it means that the battery pack has reached the life limit, and the maintenance value is not great.

4. The voltage consistency of each string of batteries is good, but when the whole group is discharged, the voltage of a single cell drops to more than 0.2V, and the discharge turn-on time of the whole group is short, which shows that the repair value of the battery pack is not large.

5. When using the repairer to repair the battery pack, please make sure that the battery protection board is in good condition and the battery pack has no false welding phenomenon.

6. The low-voltage battery is caused by the poor contact of the cable port. Please reconnect the cable port and connect the wires everywhere, and consider replacing the cable if necessary.

7. If the voltage difference is still large after a balance repair is completed, it is due to the long-term high-current charge and discharge of the battery cell, you can try to repair it again.

8. When conditions are met, it is recommended to balance and repair the battery twice a month, which can greatly extend the battery life.

This instrument can only balance the voltage discharge of the lithium battery pack, and will not change the nature of the battery itself, so please be clear to the user that the instrument cannot be repaired for batteries with reduced service life, rust in water, and zero voltage.