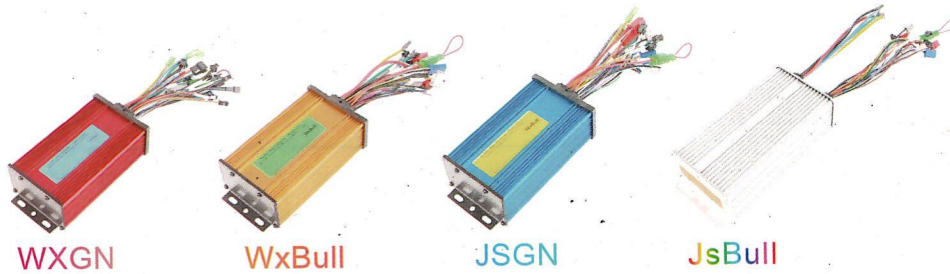


Jiangsu Wuxi Bull Technology Co., Ltd.

(Focus On The Development And Manufacture Of Electric Vehicle Controllers For 15 Years)

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Wiring And Debugging Procedures :

Step 1. Connect 3 motor phase wires. (The motor phase wire has no positive and negative poles, so it can be connect them with confidence.)

Step 2. Connect the Hall wire. (If the original vehicle motor does not have a Hall wire, you do not need to connect the Hall wire. If the original vehicle motor has a Hall wire, you need to connect the Hall wire. However, if the wrong Hall wire is connected or the Hall sensor inside the motor is damaged, the controller may not be able to drive a few motors to rotate, or the motor may be able to rotate, but it can only achieve low speed and medium speed, not high speed. At this time, the high speed gear and medium speed gear are the same speed.) Note : If the motor Hall sensor is wet or damaged, it is recommended not to connect the hall sensor wire between the motor and the controller, otherwise the motor may rotate or stop abnormally during driving.

Step 3. Connect the positive wire of power supply, negative wire of power supply and electric door lock wire. (Note that the positive and negative poles of the power wire should not be connected incorrectly, otherwise the controller will be burned out. Because the controller is different from the charger, the controller does not have reverse connection protection. So if the connection is reversed, the controller will be burned out directly. It is recommended to connect the negative pole first and then the positive pole to prevent sparks. In addition, if the original vehicle does not have a electric door lock, it is necessary to connect the electric door lock wire of the controller to the positive pole of the power supply in parallel.)

Step 4. Hang the motor drive wheel in the air and do not touch the ground and obstacles, otherwise the controller may be burnt out in subsequent operations. (If the controller is used on some mechanical equipment, since the load weight of the mechanical equipment motor may be relatively large, it may be considered to take off the chain or gear connecting the motor to the load, and make the motor unloaded.

After the subsequent intelligent identification wire is inserted and identified, and the motor can rotate slowly, pull off the intelligent identification wire, then install the chain or gear, and finally turn the potentiometer knob. At this time, the motor will turn one by one Step acceleration normal rotation.)

Step 5. Manually release brake handles, mechanical brakes, etc. (Electronic brakes, if any, also need to be released.)

Step 6. Plug in the two white intelligent identification wires (learning-wires) on the controller, turn the key of the electric vehicle, open the electric door lock, and energize the electric vehicle controller. If the motor rotates in the forward direction, wait for the forward rotation for 5 seconds, and then disconnect the two white identification wires. (If the motor rotates in the reverse direction, unplug the identification wires, and then insert the identification wires again. At this time, the motor will rotate in the forward direction. After waiting for 5 seconds for the motor to rotate in the forward direction, unplug the two white identification wires again.)

【 The role of the intelligent identification wire : identify the motor phase and the voltage of the battery power supply. The effective time of intelligent identification wire : the identification function of the intelligent identification wire of some models of controllers is only 120 seconds. Therefore, after the electric door lock incoming wire (orange wire) is powered on, two white identification wires need to be inserted into each other within 120 seconds. If more than 120 seconds, the function of the identification wire is automatically disabled. If you want to start the function of the identification wire again, the method is : turn off the power on the electric door lock wire (orange wire) for 10 seconds, then turn on the power again, and then plug the intelligent identification wires to each other, and the identification function will be valid again. Suggestion : Plug the smart identification wire first, then open the key lock and power on the controller electric door lock (orange wire). 】

★★★ Important note: After the intelligent identification wire is plugged in, the motor can rotate automatically, indicating that the function of the controller is normal and intact. ★★★

Step 7. Connect the accelerator handle wire or accelerator accelerator wire.

【 Note: There are also positive and negative poles for the acceleration handle wire, the red-white wire is +4.3V (or +5V, +4.2V), the green-white wire is the accelerator signal wire, and the black wire is the negative electrode. Do not connect the positive and negative poles incorrectly, otherwise the motor will not rotate, and in serious cases, the throttle handle or the controller may be burned out by a short circuit. 】

★★★ After the above steps are completed in order, you can turn the throttle handle and drive normally. ★★★

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Step 8. Connect the brake level wire. (For personal safety, please connect the brake level wire, except for special equipment.) 【 Low brake and high brake, the function is the same, brake strength is the same. Both are brake power-off, commonly known as low brake power-off and high brake power-off. The difference between the two is that the brake signal to the controller is different, $\leq 5V$ is low brake and $\geq 10V$ is high brake. According to the actual situation of the original vehicle wire, the low-level brake or high-level brake should be selected reasonably. Most electric vehicles will only be equipped with one brake level mode (low brake or high brake), and a few electric vehicles are equipped with two brake levels at the same time (low brake for the front wheel and high brake for the rear wheel). 】

Remember : when replacing the controller, do not connect the brake level wire first. Please wait until step 8 before connecting the brake level wire. Because some individual buyers lack high circuit knowledge, they will connect the wrong Brake level wire, and the brake handle contact switch of some vehicles is aging and insensitive, which causes the low-level brake or high-level brake signal to be turned on in advance. At this time, plug the learning wire or turn the accelerator handle, the motor will not rotate. The customer may mistakenly think that there is a problem with the quality of the controller. In fact, the controller is normal and intact.

Step 9. After the above steps are completed, if the user needs other functions, such as three speed gear, reverse gear, constant speed cruise, anti-theft alarm, meter, etc., the wire on the controller can be connected to the corresponding wire on the electric vehicle. Three speed gears, one is "Shift Gear" and the other is "Jog Gear". Users choose the correct gear wire according to their vehicle's gear situation to connect. It is also possible to not connect the speed gear wire, and at this time, the default speed is normal. (The required function shall be wired. The unnecessary function wires may not be connected, which will not affect the use of other functions.)

On the premise that the motor is in good condition, the vehicle circuit wire is in good condition, the throttle handle is in good condition, and the battery voltage is normal, the controller of our company is installed. Through the correct debugging steps, the motor can be driven to rotate normally. Otherwise, even if our company's controller is installed, it can not drive the motor to rotate.

Special Statement:

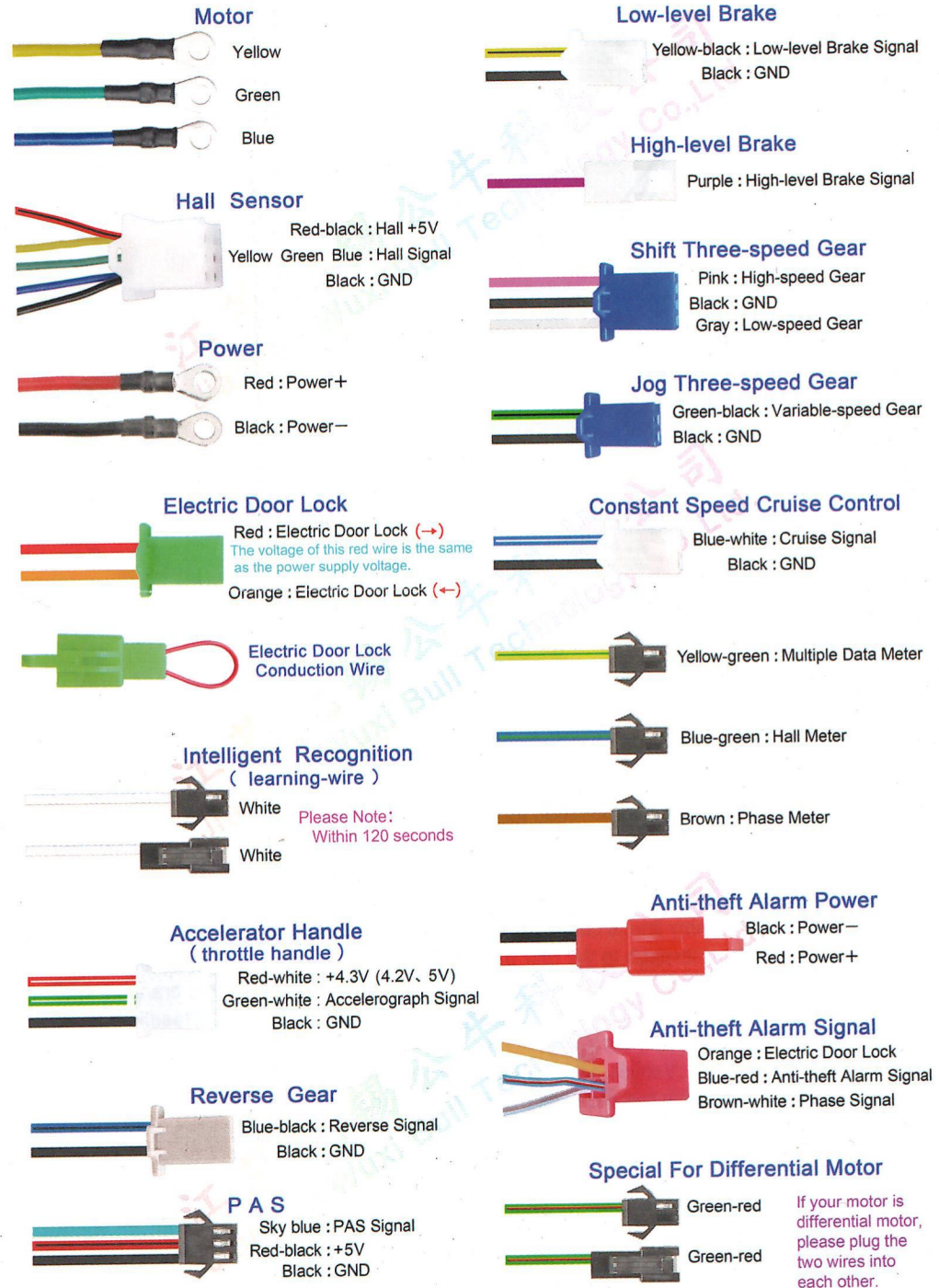
Due to different production batches, some wires may be added or reduced, the color and sequence of the wires may change, the shape and color of the connectors may change, the shape and color of the controller casing may change, the functionality of the controller may increase or decrease, etc. without further notice. In addition, due to shooting, printing and other factors, there may be errors between the figure and color displayed on the page of the manual and the real object. So when installing wiring, please refer to the actual controller received.

Due to the complexity of the controller, the different internal wiring harnesses of different electric vehicles that need to replace and install the controller, the controllers of different production batches, text translation errors and other factors, the meanings expressed in the text description and pictures in this manual may not be all correct. Therefore, when installing the controller wiring and debugging, please operate according to the actual situation.

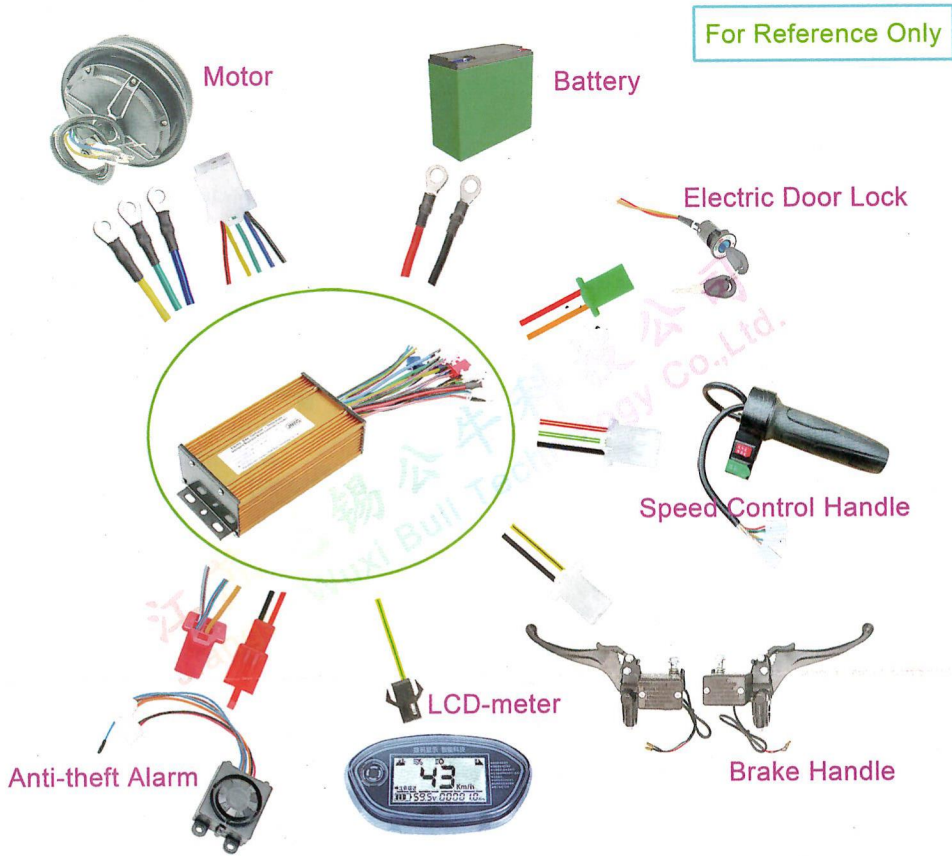
The company shall not be responsible for any loss caused by improper installation of the product or any other reason.

Controller Wires Functional Description

(Friendly Reminder of Wuxi Bull Technology Company : All Rights Reserved)



Wiring Diagram Of Common Basic Functions



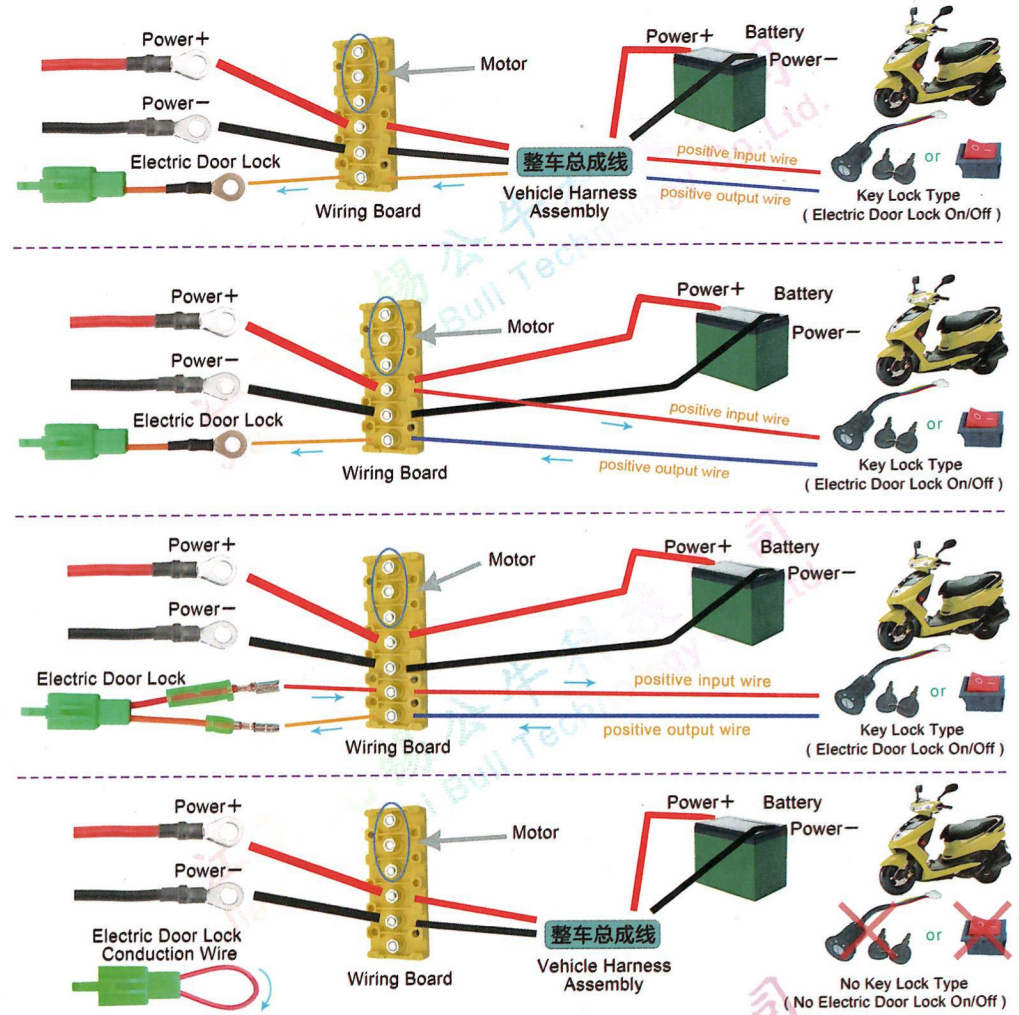
The above diagram is for reference only, just to let users quickly understand the controller and know how to connect some common functions. In reality, more than 95% of the electric vehicles in the market are equipped with vehicle assembly line. In other words, the controller is not directly connected to the various functional components of the vehicle, but bridged through the vehicle assembly line.

The vehicle assembly line is composed of several main lines and some branch lines, the main line from the front through to the rear of the vehicle, branch lines in all directions to each component. The controller is connected to a part of the assembly line, and the branch line of the assembly line is connected to the Motor, Battery, Speed Control Handle, Headlight Switch, Brake Light, Converter, Meter, etc.

Friendly reminder : Vehicle headlights, turn signals, horns, etc., are not controlled by the controller, but the assembly line provides the positive current (battery voltage) to the switch of the vehicle head, which is controlled by their respective switches. Note : If the working voltage of the vehicle's headlights, turn signals and horns is 12V, then a converter (actually a miniature transformer) will be installed inside the vehicle to change the battery voltage (24V, 36V, 48V, 52V, 60V, 72V, 84V, etc.) to 12V, and then the 12V current will be supplied to the front switch button through part of the vehicle assembly line, and the switches on the front will control the headlights and horns respectively.

Friendly reminder : Vehicle headlights, turn signals, horns, etc., are not controlled by the controller, but the assembly line provides the positive current (battery voltage) to the switch of the vehicle head, which is controlled by their respective switches. Note : If the working voltage of the vehicle's headlights, turn signals and horns is 12V, then a converter (actually a miniature transformer) will be installed inside the vehicle to change the battery voltage (24V, 36V, 48V, 52V, 60V, 72V, 84V, etc.) to 12V, and then the 12V current will be supplied to the front switch button through part of the vehicle assembly line, and the switches on the front will control the headlights and horns respectively.

Some Connection Examples Of Electric Door Lock Wire. (For Reference Only)



Precautions For Controller Wiring :

A. The controller shall be installed in the ventilated, waterproof and shockproof position. Before wiring, first disconnect the power supply, and then wire according to the wiring diagram.

B. It is preferred to confirm the positive and negative poles of the power supply and the positive pole of the electric door lock. It is not allowed to connect the positive and negative poles of power wire, the positive pole of the electric door lock, handle positive and negative poles, power wire positive and negative poles, anti-theft alarm positive and negative poles, etc. wrongly or reversely. (It is strictly prohibited to connect the thick red wire and thin red wire of the positive pole with the thick black wire and thin black wire of the negative pole in the opposite direction).

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D. After there is a cable from of the pole of the have been

E. Plug this time the access vehicle a connect

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Low-level Low-level B

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Power+ Battery

C. After installing the controller, turn the speed control handle. At this time, the motor reverses or blocks or shakes violently. You can re-plug the two white intelligent identification wires (learning wires) to identify them once again.

D. After installing the controller, open the electric door lock, the motor does not respond, and there is a little burnt smell. At this time, should immediately disconnect the controller power cable from the electric vehicle power cable. Check whether the positive pole and negative pole of the power cable of the controller are connected reversely with the positive pole and negative pole of the power cable of the electric vehicle. If the connection is reversed, the controller may have been short-circuited and burnt out.

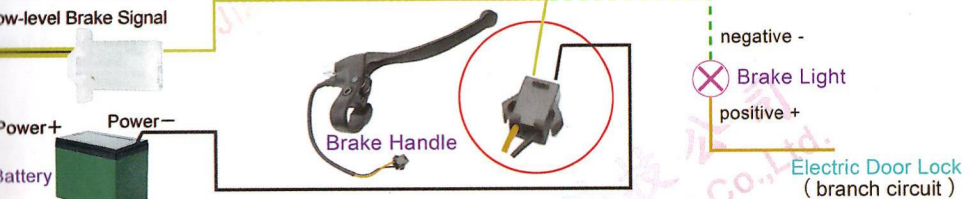
E. Plug in the learning wire, the motor rotates, and then disconnect the two learning wires. At this time, turn the accelerograph handle, and the motor does not rotate. Please check whether the accelerograph handle wire of the controller and the accelerograph handle wire of the electric vehicle are connected wrongly, whether the negative pole of the accelerograph handle is connected, whether the accelerograph handle is damaged, etc.

Some Connection Examples Of Brake Signal Wire. (For Reference Only)

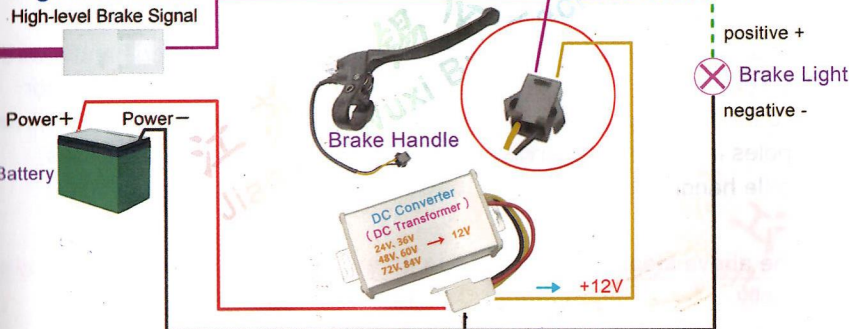
Low-level Brake



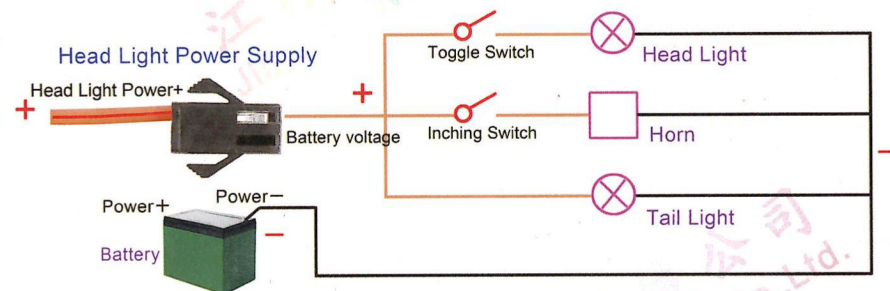
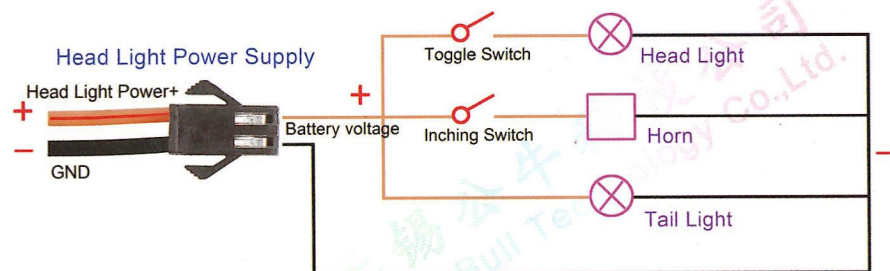
Low-level Brake



High-level Brake



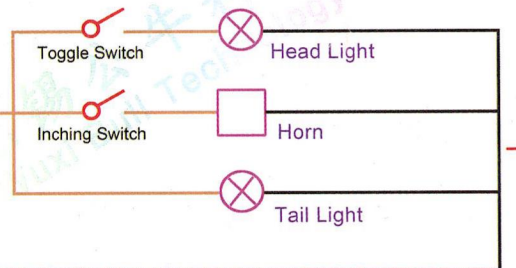
Some Connection Examples Of Head Light Power. (For Reference Only)



Vehicle Harness Assembly

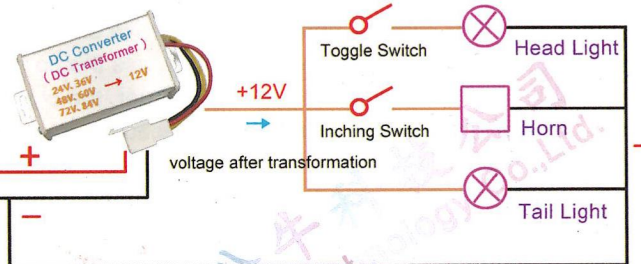
整车总成线

Battery voltage



Vehicle Harness Assembly

整车总成线



Important : After the controller is installed and powered on. It is not recommended to disassemble it again if it is not necessary. Because a small amount of electric energy will be stored in the controller at this time, electric sparks may be generated during or after disassembly. In addition, if the positive and negative poles of the main line contact other signal lines, the main board chip inside the controller will be burnt out by short circuit, and then the controller will break down and cannot work.