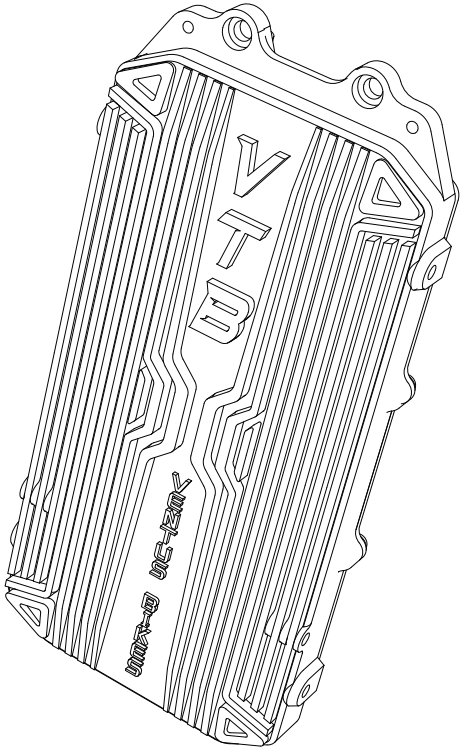
Venture To Begin

VTB Controller



Light Bee User Modification Manual

I. Preparations Before Installation

1.Installation Instructions

The V9600 controller is currently designed to operate in conjunction with the VTBGZ display, multi-functional combination switch, and regen brake (thumb brake). These components are packaged together with the controller for convenience. The installation of the accompanying components is straightforward, independently.
It is recommended, however, that Users refer to the contents of this Manual for guidance during the installation process. The V9600 is a plug-and-play controller, requiring no prior knowledge of electronics or programming for installation and configuration.

2.Packing List


V9600 Controller×1


Display×1


Combination switch×1

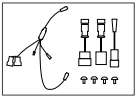

Regen Brake×1
(thumb brake)


Display Mount×1
(with installation screws)


Dust-proof Rubber Covers for Terminals×5


Terminal Screws×5

Installation Manual×1


Compatible Vehicle Accessory Kit×1

Accessory Kit Contents

Mid-section Wiring Harness-light bee Model×1

The model adapter connects to the bike's main wiring harness, with the upper and lower interfaces connecting to the longer controller harness and the display harness, respectively.

Horn Driver×1

Connects the main vehicle harness to the mid-section wiring harness

General Encoder Motor Adapter×1

Connects to the motor encoder harness

General Hall Motor Adapter×1

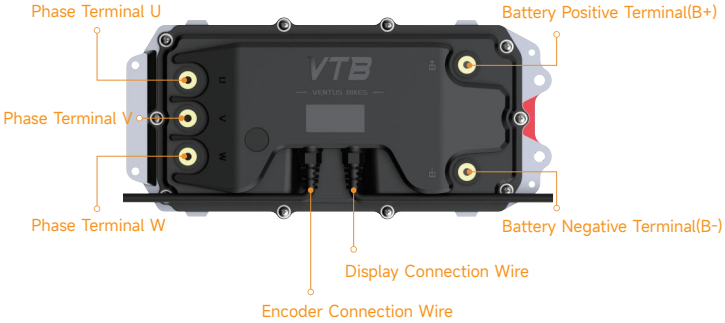
Connects to the motor Hall harness
(for Hall-effect motors)

M6*10 Round-Head Screws×4

Secures the V9600 Controller

I. Preparations Before Installation

3.Route Description

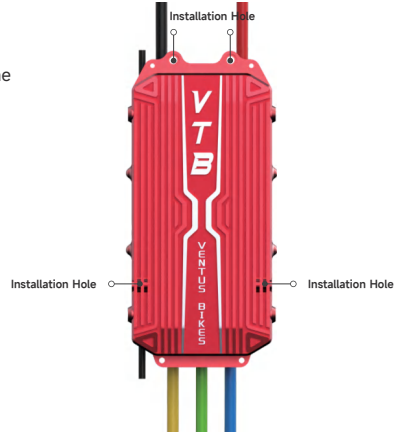


Special Note

The V9600 controller is equipped with a motor calibration, allowing the phase connection sequence to be unrestricted and freely arranged. The designations of U, V, and W in this context are merely illustrative labels. This innovative feature is intended to accommodate various motor types, ensuring the system can automatically adjust phase sequences based on the connected motor to achieve optimal performance.

4.Installation Hole Diagram

The installation holes for the Light Bee are indicated by the four positions outlined in the rectangular frame in the diagram.



II. Installation and Precautions

1.Connecting Motor Phase Wires

Note

Before proceeding with the installation of the controller, ensure that the circuit breaker is completely turned off. Inspect the power lines connected to both sides of the circuit breaker to confirm they are securely fastened. If any wires are found to be loose, tighten the corresponding cross-head screws on the circuit breaker.

Connect the motor phase wires to the phase terminals. It is not necessary to differentiate between cable colors, as the connection sequence is unrestricted. While the phase wire lengths may vary, great care must be taken to avoid entanglement during the connection process. Use a wrench to apply a torque of 16 N·m to securely fasten the terminal screws, ensuring all connections are robust to prevent potential loosening during operation. Once all the phase wires are correctly and securely connected, cover the connection points with dust-proof rubber covers.

Note

The V9600 controller is equipped with a motor calibration feature, allowing the phase wire connection sequence to remain flexible. Connections should therefore be arranged according to the actual length of the wiring harness for ease of installation and organization.

2. Connecting the Positive and Negative Power Terminals

Connect the power lines following the sequence: red for the positive terminal and black for the negative terminal. To facilitate subsequent installation, slightly adjust the angles of the positive and negative power lines outward. Ensure that every connection point is securely fastened to prevent loosening during operation. Once the positive and negative power lines are properly fixed, cover the connection points with dust-proof rubber covers for protection.

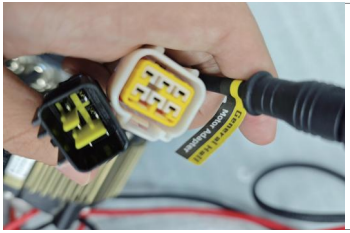
The final appearance after completing the installation of both the motor phase wires and the positive and negative power lines is shown in the diagram below:

II. Installation and Precautions

3. Connecting the Motor Plug

Please choose either the general encoder motor adapter or the general Hall motor adapter for installation based on specific requirements; only one is needed. VTB is dedicated to providing comprehensive service to our customers and therefore offers an alternative cable as a backup. We deeply appreciate your support and trust.

The stock VTB motor does not require the use of a motor adapter.



For the stock Light Bee motor and third-party Hall motors, a general Hall motor adapter is required.

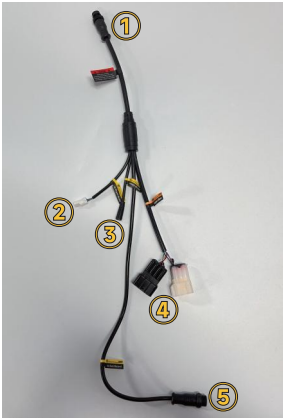
For third-party encoder motors, a general encoder motor adapter is needed.

One end of the motor adapter connects to the motor harness interface, while the other end connects to the shorter harness of the controller.

Note

When connecting the square plug, a "click" sound indicates that the plug has been securely and correctly connected. If the plug is not fully inserted, it may loosen due to vibrations, resulting in functional abnormalities.

4.Connect the Wiring Harness Plug



①Main signal interface of the controller, connected to the longer wiring harness of the controller.

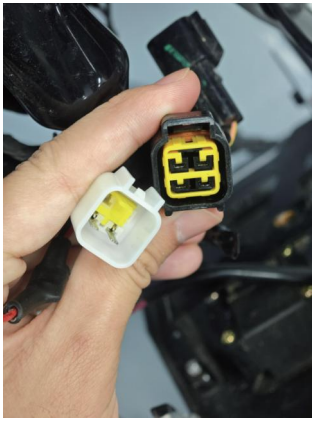
②Regen brake (thumb brake) plug, connected to the regen brake (thumb brake).

③The horn button signal interface of the switch assembly, connected to the horn driver circuit.

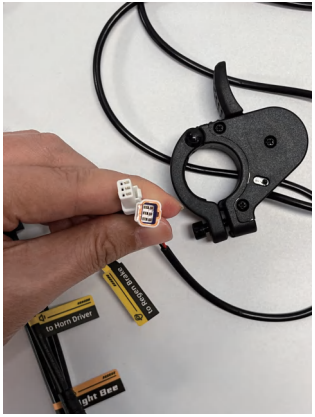
④Light Bee model adapter harness, connected to the bike's main wiring harness and the throttle voltage signal interface.

⑤Display communication interface, connected to the display wiring harness.

Interface ④ connects to the main vehicle wiring harness functional interface.



The horn driver connects one end to the main vehicle wiring harness and the other end to the mid-section harness at Interface ③.

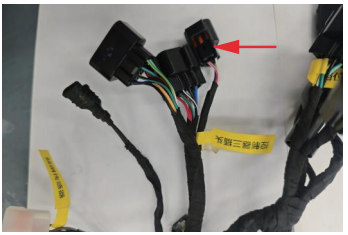


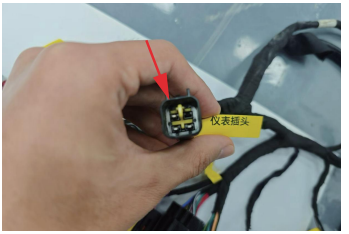
Interface ② connects to the regen brake (thumb brake) wiring harness interface.

The pins of Interface ① are relatively delicate; exercise caution during connection to prevent misalignment or bending of the pins. When connecting the square plug, a "click" sound indicates that the plug has been securely and correctly connected. If the plug is not fully inserted, it may loosen due to vibrations, resulting in functional abnormalities.

5.Organize the Wiring Harness

Before organizing the wiring harness, it is recommended to trim the unnecessary plugs from the original vehicle's main wiring. These include one of the three controller plugs, as well as the display plug. The positions and interfaces for trimming the plugs are illustrated in the accompanying diagram.



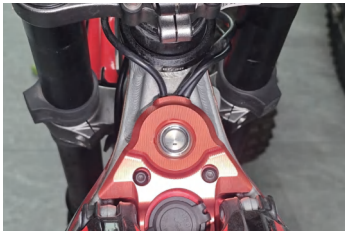


II. Installation and Precautions

Note

When trimming the wiring harness, ensure an angled cut to keep the pins staggered and prevent short circuits. After cutting, wrap the pins with insulating tape.

Place the wiring harness above the controller in front of the battery cover, while the lower wiring harness should be positioned in the space above the motor's bottom cover. The interface ② of the mid-section wiring harness passes through the start switch and connects to the thumb brake, while the interface ⑤ runs along both sides of the controller, extends out from the start switch location, and connects to the display, routed to the external compartment. (as shown in the bottom left image). Once the wiring in the outer compartment is organized (as shown in the bottom center image).



Note

During the arranging of the wiring harness, it is crucial to avoid pinching or squeezing the wires. Ensure that they are not pulled or compressed when the handlebar rotates.

install the license plate.

6.Fastening the Front Battery Panel

Attach the screws on both sides of the chassis to securely anchor the front battery panel, ensuring it remains stable and free from vibration.

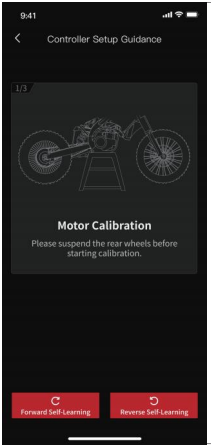
7.Installing the Controller

Begin by aligning and securing the lower mounting holes of the controller using screws from the accessory kit, fastening them with a wrench. Adjust the position of the controller to align with the upper mounting holes, then tighten the screws with a wrench. Secure all four mounting screws tightly to ensure the controller is stable and free of movement, and finally, tighten the screws on the top of the motor cover to complete the installation.

Note

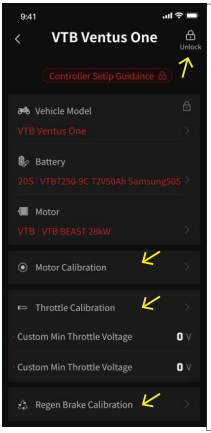
Ensure the installation area is sufficiently clear, and check through the gaps in the front battery panel for any pinched wires around the controller. Initially, do not over-tighten the top screws to allow for adjustments when aligning the lower mounting holes.

8.Controller Setup Guide



After installing the controller, open the app and select the vehicle model on the main page to automatically enter the controller setup guide. Follow the instructions to complete the setup. During the guide, observe the wheel rotation direction during motor calibration. If it rotates correctly (forward) and a success message appears, the setup is complete.If not, select the alternative direction for calibration. Once familiar with the app's operations, you can independently perform motor self-learning, throttle calibration, or regen brake (thumb brake) calibration in the advanced settings.

At the end of the throttle calibration, you need to select a gap; for normal use, choose the standard gap. The throttle gap refers to the minimum throttle opening needed for a response, with the ultra-small gap being even smaller than the standard gap.



When adjusting battery or motor settings, you must first click on "Unlock" in the upper-right corner of the page and enter the unlock password: 123686, before making any changes.

Exercise extreme caution when altering battery or motor settings, as such modifications are not recommended for general users. The advanced settings are designed to meet the needs of users seeking a more refined and precise experience. The password is implemented as a safeguard to ensure the safety of non-professional users.

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