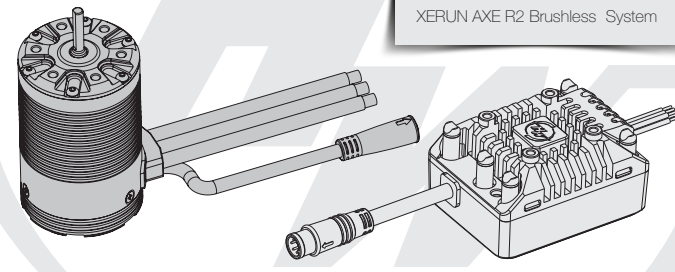


XERUN USER MANUAL XERUN AXE R2 Brushless System



Thank you for purchasing the HOBBYWING'S XERUN AXE Brushless System! Brushless power systems can be very dangerous. Any improper use may cause personal injury and damage to the product and related devices.

02 Warnings

- Ensure all wires and connections are well insulated before connecting the ESC to related devices, as short circuit will damage your ESC.
Ensure all devices are well connected to prevent poor connection that may cause your vehicle to lose control or other unpredictable issues such as damage to the device.

03 Features

- Apply FOC(Field Oriented Control) driving mode to the power system of rock crawler. The low speed torque is very strong, it is better than ordinary sensed brushless power system or even better than the brushed power system.
The chip-type magnetic encoder inside the motor guarantees consistency between three phases' signals and always outputs the pure and precise signals indicating the rotor position.

04 Specifications

Table with 2 columns: Model, XERUN AXE R2 Brushless ESC. Rows include PN, Cont./Peak Current, Motor Type, Applications, LiPo/NiMH Cells, BEC Output, Connectors, Size/Weight, ESC Programming.

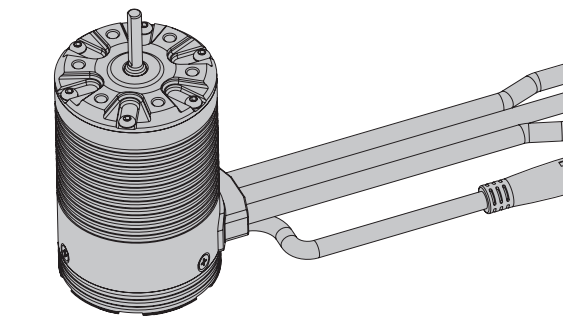
Table with 2 columns: PN, COMBO. Rows include 38020311, 38020312, 38020313, 38020314.

Table with 11 columns: PN, Motor Model, KV (No-load), LiPos, Resistance, No-load Current, Motor Diameter Length, Shaft Diameter Length, Poles, Weight. Rows include 30401253, 30401254, 30401255, 30401256.

05 Connections

XERUN AXE R2 Brushless Motor

XERUN AXE R2 Brushless ESC



Please make sure that the two arrows align when connecting, otherwise you may damage the inner part of the connectors and cause the power system to function abnormally. Remember, never connect/disconnect them forcibly. This is an extremely powerful brushless motor system. For your safety and the safety of those around you, we strongly recommend removing your pinion gear before performing calibration and programming functions with this system, and keeping wheels in the air when you turn on the ESC.

- Cooling Fan Installation (Optional)
Motor Wiring
Receiver Wiring

Please ensure that the ESC sensor wire has been plugged into the motor sensor wire and screwed up, otherwise the water may get inside and damage the ESC or motor.

- Battery Wiring

06 ESC Setup

1 Set the Throttle Range - ESC Calibration - Radio Setup

In order to make the ESC match the throttle range, you must calibrate it when you begin to use a new ESC. If you install a new radio system, or make changes to your throttle/brake values in your transmitter, you must redo the ESC Calibration Process.

Diagram showing ESC calibration steps: Press and hold the SET button, Press the ON/OFF button, Release the SET button once the LED flashes. Includes text: ESC starts to flash (Note 1) the motor beeps at the same time, and then release the SET button immediately. (The ESC will enter the programming mode if the SET button is not released in 3 seconds, then you need to restart from step 1.) Note 1: Beeps from the motor may be low sometimes, and you can check the LED status instead.

Diagram showing neutral point and full brake endpoint calibration steps. Includes text: Set the neutral point, the full throttle endpoint and the full brake endpoint. Leave the throttle trigger at the neutral position, press the SET button, the RED LED dies out and the GREEN LED flashes 1 time and the motor beeps 1 time to accept the neutral position.

2 Power On/Off & Warning Tones

- Power ON/OFF: (Start with the ESC turned off), press the ON/OFF button to turn on the ESC; (Start with the ESC turned on) press and hold the ON/OFF button to turn off the ESC.
Warning Tones: Turn on the ESC in the normal way (that is to turn it on without holding the SET button); the motor will beep the number of LiPo cells you have plugged in. For example, 3 beeps indicate a 3S LiPo.

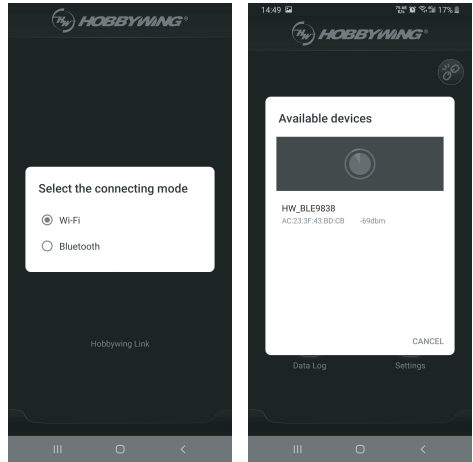
3 Programmable Items

Table with 12 columns: Item #, Programmable Item, Option 1, Option 2, Option 3, Option 4, Option 5, Option 6, Option 7, Option 8, Option 9, Option 10. Rows include Running Mode, Cutoff Voltage, RPM/Throttle Matching, Max. Forward Force, Max. Reverse Force, Turbo Timing, Turbo Delay, Drag Brake Force, Drag Brake Rate, Neutral Range, Start Mode (Punch), BEC Voltage, Motor Rotation.

- Note: those black-and-white options are default values.
1. Running Mode
Option 1: Forward and Reverse
Option 2: Forward/Reverse with Brake
Option 3: Forward/Reverse with Brake
2. Cutoff Voltage
3. RPM/Throttle Matching
4. Max. Forward Force
5. Max. Reverse Force
6. Turbo Timing
7. Turbo Delay
8. Drag Brake Force
9. Drag Brake Rate
10. Neutral Range
11. Start Mode (Punch)
12. BEC Voltage
13. Motor Rotation

4 ESC Programming & Firmware Upgrade - The Axe ESC is Only Adjustable using the HW Link App and a Bluetooth enabled Smart Phone

- 1) Program your ESC with a smart phone (installed with the HW LINK app)
Download and install the Hobbywing's official app "HW LINK" on your smart phone. For smart phones with the iOS operating system, please search "Hobbywing" in the App Store; for smart phones with the Android operating system, search "Hobbywing" in the Google Play or download it from our website or scan the following QR code to download it.
Connect a battery to the ESC and turn it on, then open the Hobbywing official app "HW LINK" on your smart phone.
It will ask if you want to connect "Bluetooth" or "Wifi" the first time when you open the app; at this point, please select "Bluetooth". You need to change the connection to "Bluetooth" after using the "Wifi" connection, you can click "Settings" (on the home page) and then "Select the connecting mode" to change the connection. A list of Bluetooth devices will pop out when you click the ESC icon on the upper right corner, then select the ESC you want to program to establish the Bluetooth connection between the ESC and smart phone. (Note: the default name & password of the Bluetooth device are HW\_BLE\*\*\*\* & 888888 respectively.)
Click "Parameters" (on the home page) to adjust the ESC parameters, click the ESC icon on the upper right corner to disconnect the Bluetooth connection between the ESC and smart phone after completing and saving the adjustments.



- 2) Firmware Upgrade with a smart phone (installed with the HW LINK app)
Download and install the Hobbywing's official app "HW LINK" on your smart phone.
As you enter the app, click Settings -> About -> Check for updates to ensure that the database and software version of your ESC are the latest.
Connect a battery to the ESC and then turn it on, open the "HW LINK" app on your smart phone, a list of Bluetooth devices will pop out when you click the ESC icon on the upper right corner, then select the ESC (Bluetooth device) you want to program to establish the Bluetooth connection between the ESC and smart phone. (Note: the default name & password of the Bluetooth device are HW\_BLE\*\*\*\* & 888888 respectively.)
Click "Firmware upgrade" and then "Select the target version" to select the firmware version you need, and then click "Update" to upgrade your ESC. After the upgrade, you can adjust the parameters via "Parameters" and click the ESC icon on the upper right corner to disconnect the Bluetooth connection between the ESC and smart phone after saving the adjustments.

Warning icon and text: During the upgrade process, please ensure that the network connection is stable and do not upgrade your ESC at any place with strong interference. In addition, please ensure that the smart phone is fully charged and the battery connected to the ESC still has sufficient power and it's firmly connected to the ESC. Do not disconnect the battery during the upgrade process, as that may cause the ESC to get damaged or be unable to function. When connecting the Bluetooth device (your ESC), please ensure the connection between the ESC sensor wire and the motor sensor wire is normal, otherwise the Bluetooth device cannot be connected and programmed.

5 Factory Reset

- Restore the default values (ESC parameters & Info about the Bluetooth module) with the SET button
Turn on the ESC, press and hold the Set button for over 3 seconds. Pressing and holding the SET button for over 3 seconds at any time when the throttle stick is at the neutral position (except during the ESC calibration or programming), can factory reset your ESC. The Red & Green LEDs flash at the same time indicating the factory reset is successful. The default values only take effect after you turn the ESC off and then on again. Attention! This method will also factory reset the Bluetooth device.
Restore the default values (only the ESC parameters) with a smart phone (installed with the HW LINK app)
After entering the app and establishing the Bluetooth connection between the ESC and smart phone, click "Factory Reset" in "Parameters" to factory reset your ESC. After that, please re-calibrate the throttle range.

6 Automatic Motor Pairing (Optional)

- You must do the "automatic motor pairing" (as explained below) when any of the following situations occurs:
1) Updated the ESC firmware,
2) Issues like loose rear endplate, severe impact, or abnormal heat (during the operation) abnormal power output occurs to the motor,
Steps of "Automatic Motor Pairing"
Step1: Unplug the throttle wire from the receiver, and then remove the pinion gear (or you can hold the vehicle in the air and remove the wheels, but the effect won't be that good);
Step2: Connect a battery (to the ESC), turn it on, press and hold the SET button for 3 seconds after it completes the self test to enter the "automatic motor pairing", the motor will spin a while during the process.
Step3: The ESC will automatically re-start and beep out the number of the LiPo cells you've plugged in after the pairing completes, after that, please re-plug the throttle wire into the receiver, and then the power system will be ready.

07 Explanations for Different Status LEDs

- 1. During the Start-up Process
The Red LED keeps flashing rapidly indicating the ESC doesn't detect any throttle signal or the neutral throttle value stored on your ESC may be different from the current value stored on the transmitter. Redo the ESC calibration Process if your ESC is flashing and not working.
The Green LED flashes "N (number of)" times indicating the number of LiPo cells you have plugged in.
2. In Operation - What lights you should see.
The Red & Green LEDs go out when the throttle trigger is in throttle neutral zone.
The Red LED turns on solid when your vehicle runs forward. The Green LED will also come on solid when pulling the throttle trigger to the full (100%) throttle endpoint and setting the "Max. Forward Force" to 100%.
The Red LED turns on solid when you brake the vehicle, the Green LED will also come on solid when pushing the throttle trigger to the full brake endpoint and setting the "Max. Reverse Force" to 100%.
3. Error or Warning LED CodesN
The Red LED flashes a short, single flash that repeats (☆, ☆, ☆) indicating the low voltage cutoff protection is activated.
The Green LED flashes a short, single flash that repeats (☆☆, ☆☆) indicating the ESC thermal protection is activated.
The Green LED flashes a short, double flash that repeats (☆☆☆, ☆☆☆) indicating the motor thermal protection is activated.
The Green and Red LEDs flash a short, double flash that repeats (☆☆☆, ☆☆☆) indicating the power system stops functioning due to "sensor issue". In that case, please check if the ESC sensor wire has been firmly connected to the motor sensor wire before resuming the operation.

08 Trouble Shooting

Table with 3 columns: Trouble(s), Possible Causes, Solution(s). Rows include: ESC unable to start status LED, ESC unable to start motor but beeping, ESC unable to start after LiPo detection, vehicle ran backward, motor suddenly stopped, vehicle couldn't be started or stopped halfway, car ran forward/backward slowly, motor stalls or loses power, receiver wiring issue, motor very hot during running.