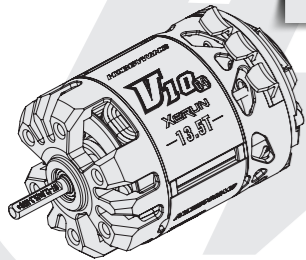


# XERUN V10 G4 USER MANUAL



20220324



Thanks for purchasing Hobbywing XERUN V10 G4 motor. This sensored brushless power system is very powerful, any improper usage can be dangerous and may damage the product and related devices. Please take your time and read through the following instructions before you start using the motor. We have the right to modify the product design, appearance, features and usage requirements without notification. We, Hobbywing, are only responsible for our product cost and nothing else are result of using our product.



## 01 CAUTIONS

- To avoid short circuits, ensure that all wires and joints must be well insulated before connecting the motor to related devices.
- Never allow this product or other electronic components to come in contact with water, oil, fuel or other electro-conductive liquids. If it happens, stop the use of the product immediately and let it dry carefully.
- Read through the manuals of all power devices and chassis and ensure the power configuration is rational before using this unit.
- Never apply full throttle if the pinion gear is not mounted on, because (under the no-load circumstances) high RPMs may get the motor damaged.
- Please connect all the devices carefully, you may not control the vehicle properly or encounter some unpredictable issues like damaged components if any poor connection exists.
- To avoid possible damage (result from overheat) to the product, please control the soldering time within 5 seconds when soldering the motor wires (a soldering iron with the power of at least 60W is needed).
- Stop immediate usage once the casing of the motor exceeds 100°C/212°F as high temperature may damage the motor and cause the rotor to demagnetize. Hobbywing recommends activating the "Motor Thermal Protection" (of the ESC).

## 02 FEATURES

- Excellent performance, specially designed for racing; Compared with V10 G3R motor, the KV value of G4 motor is increased by 9.8%, the maximum output power is increased by 5%, and the internal resistance is reduced by 4%.
- The innovative outer diameter structure of fully exposed stator core maximizes the heat dissipation area and increases the direct heat dissipation area by 25.6% compared with G3R. In addition, the rear end of the motor is a big opening structure to further improve the heat dissipation effect.
- Dual sensor interface design to meet various wiring/layout requirements.
- The special copper bar is customized and the spacing of copper bar is widened, which greatly facilitates the operation of soldering wire.
- The built-in high precision Hall sensor combined with the high precision and balanced rotor guarantee outstanding linearity of the motor.
- The motor case is designed to be easy to dismantle for maintenance purposes and for the replacement of common wearing parts.
- The use of high-performance stator core, heat(200°C)-resistant wire, heat(180°C)-resistant rotor with strong structure, world-class high precision and high strength bearings, and copper solder tabs with super current endurance guarantees outstanding performance and super durability.
- It's compliant with IFMAR, ROAR, EFRA, BRCA, JMRC rules, and certificated by RoHS, CE, FCC and etc.

## 03 SPECIFICATIONS

PN	Model (Turns)	KV (No-load)	LiPos	Resistance (Ω)	No-load Current (A)	Max. Output Power (W)	Current @Max. Output Power (A)	Diameter/Length (mm)	Shaft Diameter/Length (mm)	Stock Rotor	Bearing size(mm)	Poles	Weight (g)	Applications
30401140	13.5T	3950KV		0.021Ω	4.5A	322	70	Ø=35.8mm (1.41in) L=51.4mm (2.024in)	Ø=3.175mm (0.125in) L=13.9mm (0.547in)	Φ 7-12.5*25.2-HUS	Front: D9*D4*t4 Rear: D8*D3*t4	2	149g	1/10" STOCK Class Racing
30401141	17.5T	3020KV	2-3S	0.036Ω	3.7A	234	51			Φ 7-12.5*25.2-HUS			149g	
30401142	21.5T	2500KV		0.055Ω	3.0A	173	38			Φ 7-12.5*25.2-GUS			148g	

### Notes:

- The KV value is measured when no load is applied to the motor, the motor timing is set to the value by default and the ESC timing is set to Zero.
- Never allow the motor to get overheat, because high temperatures may affect its performance. Please let the motor cool down before using it again in case that it gets too hot.
- The input current corresponding to the maximum output power can be instructive for load configuration & ESC selection, we strongly suggest not allowing the load to be higher than the input current corresponding to the maximum output power.

## 04 INSTALLATION & CONNECTION

### 1. Install the motor

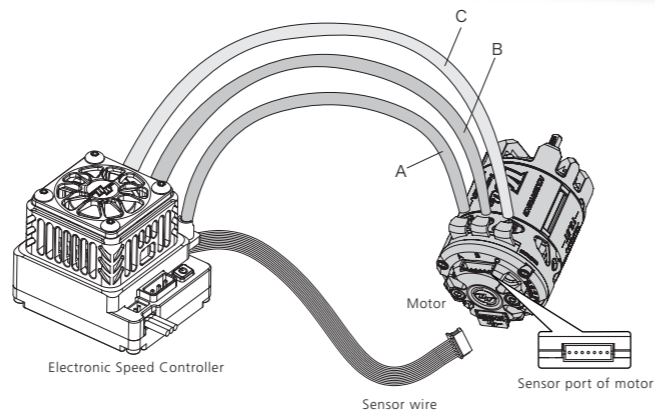
M3 mounting screws are needed there, and the mounting holes are 6mm in depth, before installing the motor on the vehicle, please carefully confirm whether the specification of the screws is appropriate according to the thickness of the motor mounting plate to avoid damage to the motor due to too long screws.

### 2. How to Connect the Motor to an ESC

When connecting the motor and esc, please pay attention to the marked three-phase position of A, B and C to ensure that the three wires of the motor and esc are connected correspondingly (A-A,B-B,C-C), otherwise, it cannot run normally and even damage the esc and motor. And then connect the sensor cable to the motor and ESC.

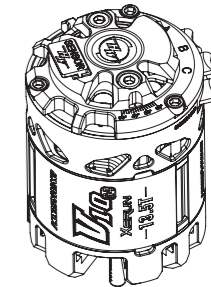
### 3. Inspection

Before power on the ESC, please check the reliability of the motor installation and the correctness of all connections.



## 05 TIMING ADJUSTMENT

- The V10 G4 motors provide a wide range of adjustable mechanical timings, the following are the methods & principles you can follow when adjusting the timing.
- You can adjust the motor timing after unfastening the screw on the rear end plate. Please adjust the timing as needed according to the mark (white lines) at the rear end of the motor and fasten the screw after the adjustment.
- For obtaining the optimal performance, you can change the output range and characteristic of your power system through adjusting the motor timing. And the timing is 43 degrees by default.
- As shown in the picture, turn the rear end plate clockwise can reduce the timing and turn it counter-clockwise can increase the timing.
- Increasing the timing can increase the motor speed (/RPM), while that also increases the motor temperature and reduces the efficiency. A high(er) timing usually requires a high(er) ratio.
  - Please ensure your ESC is properly programmed before setting the motor timing. For detailed information about ESC programming, please refer to the user manual of the ESC.
  - After the timing adjustment, please ensure that your motor will not get overheat after running a whole pack (i.e. LiPo). You can get the information about the motor temperature via a infra-red temperature gun or the LCD program & a laptop (with the Hobbywing USB Link APP installed) or the WiFi module & smart phone (with the Hobbywing WiFi Link App installed). If the temperature is too high, please let the motor cool down first and then test again. If the temperature is still too high, then please reduce the timing or increase the FDR (that is to replace the pinion gear with fewer teeth or spur gear with more teeth.).



## 06 RECOMMENDED FDR

The FDR (Final Drive Ratio) is the ratio between the angular velocities of the pinion gear and the tyres. In simple terms, the number of laps the motor will rotate when the tyres spin one lap. Different conditions like track type, grip, tyres, temperature, vehicle weight, gearing mode, driving mode influence the performance of your vehicle and have different requirements on the power system, therefore one FDR can not be applicable for all conditions.

All the values in the table are initial FDRs recommended for the motors in Blinky mode. Please starts testing with the recommended values, and determine the final value as per the test results. If no recommended FDR is applicable to your vehicle, please start with a big FDR and then adjust gradually as per the demand.

STOCK	13.5T	17.5T	21.5T
TC (Small Track)	4.7: 1	4.0: 1	3.5: 1
TC (Big Track)	4.0: 1	3.5: 1	3.0: 1
1/12th TC	55mm	66mm	80mm
2WD Off-road	7.6: 1	6.6: 1	N/A
4WD Off-road	8.3: 1	8.3: 1	N/A

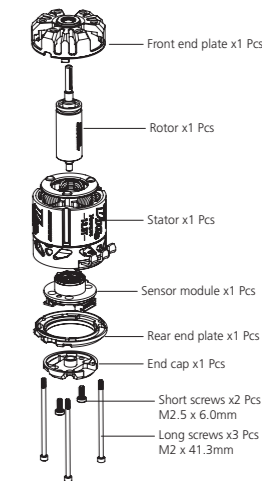
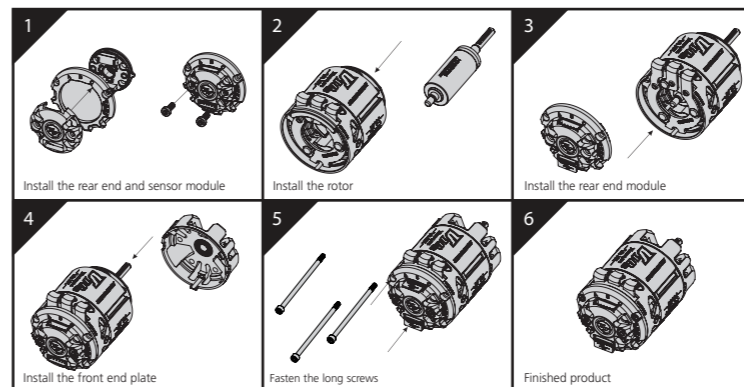
### Notes:

- If possible, please exchange ideas with the drivers using the same power system in your community or club for getting the fundamental data applicable to the track you usually run.

## 07 ASSEMBLY & DIS-ASSEMBLY

The XERUN V10 G4 Motor is very strong in construction but also easy to disassemble for maintenance. We recommend checking the bearings and cleaning the motor periodically.

Please follow the steps (as shown below) to assemble the motor. When disassembling the motor, the sequences are reversed.



## 08 PARTS LIST

The V10 G4 motor contains the following parts:

- |                        |                       |                                    |
|------------------------|-----------------------|------------------------------------|
| Front End Plate x 1Pcs | Sensor Module x 1Pcs  | Short Screws (M2.5x 6.0mm) x 2Pcs  |
| Rotor x 1Pcs           | Rear End Plate x 1Pcs | Long Screws (M2.5 x 41.3mm) x 3Pcs |
| Stator x 1Pcs          | End Cap x 1Pcs        | Sensor Wires (140mm) x 1Pcs        |

## 09 OPTIONS

Optional Parts	PN	Part Name	Applications (Motors)	Description
Rotors	30820444	XERUN-V10-Rotor-G4-Φ7-12.5*25.2-HUS	13.5T&17.5T	Stock rotor for 13.T&17.5T motors, applicable to Stock class racing in Blinky mode
	30820445	XERUN-V10-Rotor-G4-Φ7-12.5*25.2-GUS	21.5T	Stock rotor for 21.5T motor, applicable to Stock class racing in Blinky mode