

EZRUN

USER MANUAL

Sensorless Brushless Motor
EZRUN 3652/3660 G2



Thank you for purchasing the EZRUN 3652/3660 G2, HOBBYWING's high performance sensorless brushless motor! Brushless power systems can be very dangerous, any improper use may cause personal injury and damage to the product and related devices. We strongly recommend reading through this user manual before use. Because we have no control over the use, installation, or maintenance of this product, no liability may be assumed for any damages or losses resulting from the use of this product. We do not assume responsibility for any losses caused by unauthorized modifications to our product.

01 Warnings



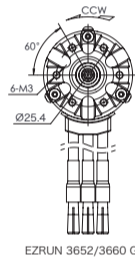
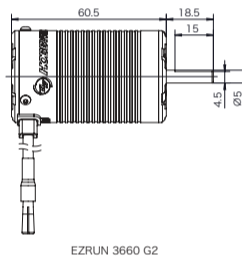
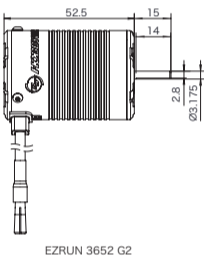
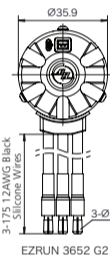
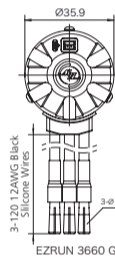
- Never leave this product unsupervised when it is powered on.
- Ensure all wires and connections are well insulated before connecting the motor to related devices, as short circuit will damage your motor.
- Read through the manuals of all power devices and chassis and ensure the power configuration is rational before using this unit.
- Never hit full throttle before installing the pinion, as high speed rotation may cause damage to the motor in circumstances of no load.
- Ensure all devices are well connected, in order to prevent poor connection that may cause your vehicle to lose control or other unpredictable issues such as damage to the device.
- Stop using the motor when its shell temperature exceeds 100 C/212 F; otherwise the rotor may be demagnetized and cause irreversible damage to your motor.

02 Features

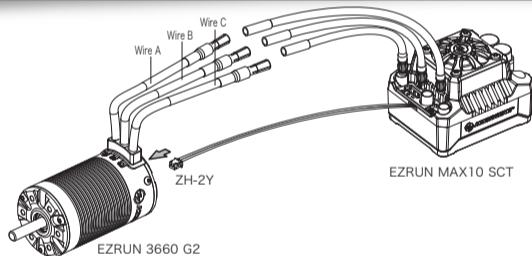
- Innovative 4-pole-8-magnet "staggered pole" rotor (Hobbywing-patented) with low cogging effect and torque pulsation greatly improves control feel around corners.
- Built-in temperature sensor and sensor port protect the motor from damage due to overheat when pairing EZRUN 3652/3660 G2 with a EZRUN MAX10/MAX10 SCT ESC.
- O-ring seal fitted between the front end bell and motor case isolates screw holes from inner parts to prevent liquid or dust from getting inside and protect motor from damage.
- Special design implemented by the motor case (the end attaches to the front end bell) isolates inner coils from outside to protect winding from being damaged by overlong screws.
- Special technology for temperature control implemented by this motor guarantees less heat more efficiency (efficiency rate of up to 90%).
- CNC machined aluminum housing, high purity copper windings, advanced rotor structure, high-quality alloy steel output shaft, high-precision bearings for high durability and smoothness.
- Rebuild-able design (partially rebuild-able) for routine maintenance effectively prolongs the motor life and raises the motor efficiency.
- Excellent match between EZRUN 3652/3660 G2 with EZRUN MAX10/MAX10 SCT guarantees users large torque plus a very smooth and linear power band.

03 Specifications

Model	PN	KV (No-load)	LiPo	R. (Ω)	No-load Current	Motor Diameter & Length	Shaft Diameter & Length	Poles	W (g)	Applications
EZRUN-3652SL-3300KV-G2	30402600	3300	2-3S	0.0100	4.3A	Φ=36 / L=52	Φ=3.175 / L=15	4	218	1:10 Scale Touring Car/Buggy(Sport)
EZRUN-3652SL-4000KV-G2	30402601	4000	2-3S	0.0074	5.2A				216	1:10 Scale SCT (2WD)
EZRUN-3652SL-5400KV-G2	30402602	5400	2S	0.0051	7.2A				217	1:10 Scale Monster Truck/Truck (Light-duty)
EZRUN-3660SL-3200KV-G2	30402650	3200	2-3S	0.0083	4.9A	Φ=36 / L=60	Φ=5 / L=18.5		262	1:10 Scale SCT (4WD)
EZRUN-3660SL-4000KV-G2	30402651	4000	2-3S	0.0060	5.7A				268	1:10 Scale Monster Truck/Truck (Heavy-duty)
EZRUN-3660SL-4600KV-G2	30402652	4600	2S	0.0053	7.2A				262	



04 Installation & Connection



1. How to Mount the Motor into a RC vehicle

M3 mounting screws (6*M3) are needed here, as the mounting holes are 5mm in depth, so we don't recommend using the M3 screws with the length exceeds 8mm to mount the motor into your vehicle.

2. How to Connect the Motor to an ESC

There is no polarity on the A/B/C three ESC-to-motor wires, so do not worry about how you connect them initially. You may find it necessary to swap two wires if the motor runs in reverse. When pairing with a HOBBYWING EZRUN MAX10/MAX10-SCT ESC, plug the ZH-2Y male connector on the ESC into the TEMP port at the load end of the motor can make the motor thermal protection available.

3. Recheck the Installation & Connections

Recheck the installation and all the connections before turning on the power.

05 FDR/Gear Ratio Selection

It's important to select the FDR/gear ratio properly, as improper FDR/gear ratio may cause you great loss. Therefore, please choose the gear ratio by referring to the following points!

1. Operating Temperature of the Motor

The motor temperature should be lower than 100°C (212°F) during the operation. Temperatures above 100°C will weaken the magnet and may partly melt the coils and eventually damage the ESC (because of strong current). Therefore, the most effective way to prevent overheat is to select the right gear ratio.

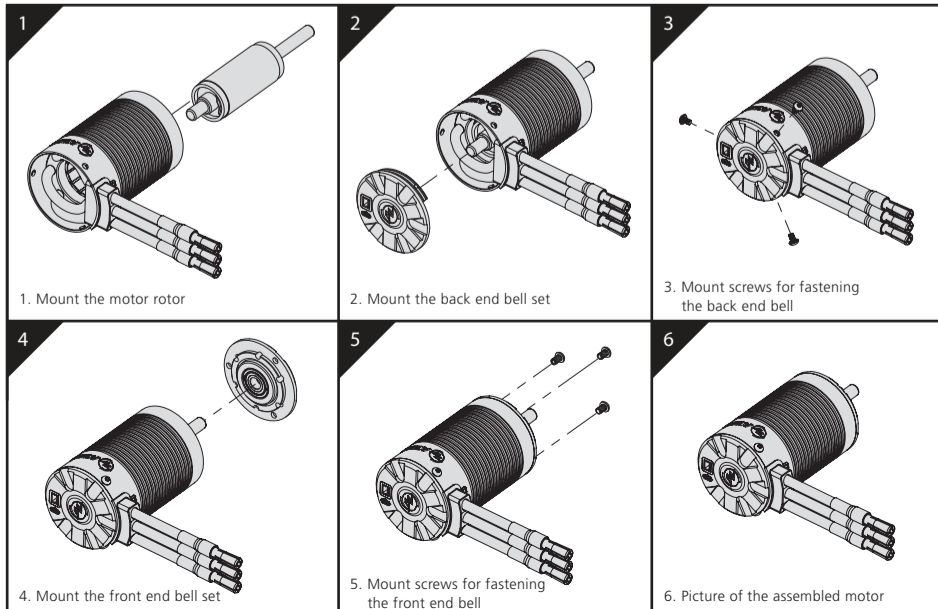
Note: We recommend enabling the Motor Thermal Protection (on the ESC) when you are pairing the motor with a HOBBYWING EZRUN MAX10/MAX10-SCT ESC.

2. Principle of Gear Ratio Selection

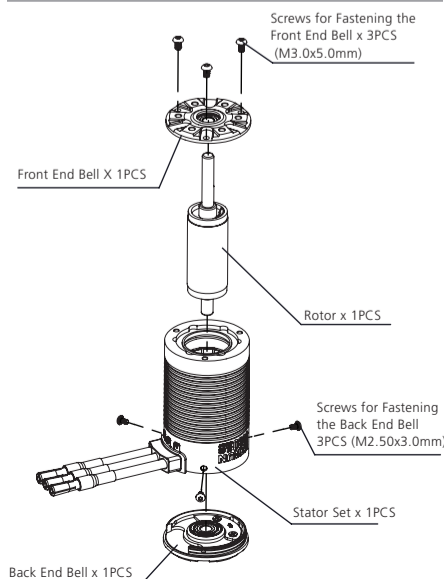
To avoid potential risks such as ESC/motor damage or malfunction caused by overheat, please start with a very small pinion first and check the ESC & motor temperatures regularly throughout the run. This is the only way to guarantee that your motor won't overheat. If the motor and ESC temperatures remain stable and low in the running, then you can slowly increase the pinion size while monitoring temperatures to determine the safe gearing for your vehicle, climate and track condition. Because these elements may change, so please keep monitoring the ESC & motor temperatures to protect your electronics from damage.

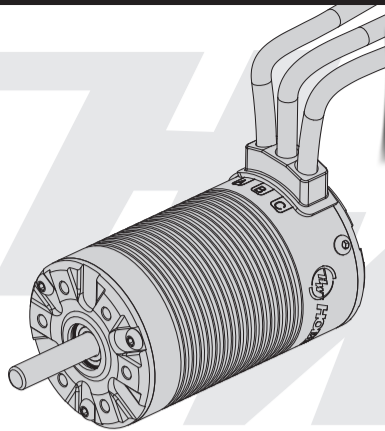
06 Assembly/Disassembly

For prolonging the motor life and raising its efficiency, we recommend checking and cleaning the motor regularly. About the frequency, it depends on the times you use the motor and the track condition. Please refer to the following diagrams to assemble your motor and dismantle it in the reverse order if necessary.



Parts List





EZRUN
车用无感无刷电机
使用说明书
EZRUN 3652/3660 G2



感谢您购买本产品！无刷动力系统功率强大，错误的使用可能造成人身伤害和设备损坏。在使用设备前，请务必仔细阅读本说明书，并严格遵守规定的操作程序。我们不承担因使用本产品而引起的任何责任，包括但不限于对附带损失或间接损失的赔偿责任；同时，我们不承担因擅自对产品进行修改所引起的任何责任。我们有权在不经通知的情况下变更产品设计、外观、性能及使用要求。

01 注意事项



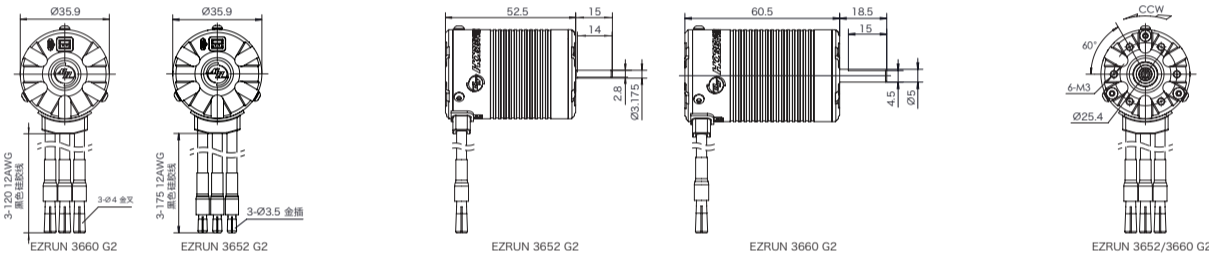
- 在产品处于通电状态时，不应分散精力去处理其他事情。
- 连接电机前，**请确保需要绝缘的部位处理良好，短路会毁坏产品。**
- 使用此电机前，请认真查看各动力设备以及车架说明书，确保动力搭配合理，避免因错误的动力搭配导致电机超载而损坏。
- 齿轮未安装前，禁止全油门操作。无负载情况下高速运转可能会损坏电机。
- 请务必仔细连接好各部件，若连接不良，遥控模型车可能无法正常控制，或出现部件损坏等其他不可预知的情况。
- 勿使电机外壳温度超过100摄氏度（212华氏度），高温可能导致转子退磁并最终对电机造成不可恢复的损坏。

02 产品特点

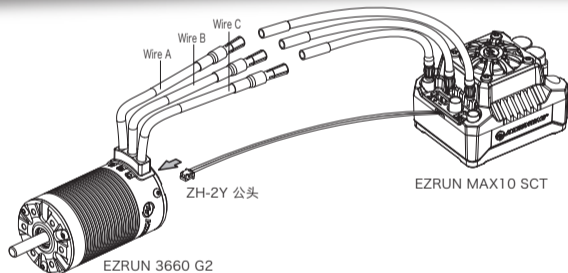
- 业界首创的4极8磁片“错极”转子专利技术，齿槽效应极低，低速时非常顺滑，油门收低时不会产生让车手厌烦的“过强拖刹”效应，极大提升了车辆减速过弯时的操控性。
- 电机内置温度传感器及接口，与MAX10-SCT/MAX10电调搭配时，可实现电机过热保护功能，有效防止电机过热损坏，延长电机寿命。
- 前端盖内嵌O型密封圈，将螺纹孔完全与电机内部隔离，螺丝锁紧后，前面盖近乎完全防水密封效果，有效避免前端盖进入液体，从而损坏电机。
- 电机外壳前部铝板防护，与内部线圈隔离，避免螺钉过长损伤铜线，有效保护电机。
- 高硬度铝质CNC外壳、耐高温线圈、防爆转子、高韧性合金输出轴、进口高精度长寿命优质轴承打造电机超强耐用性。
- 超高输出效率，最高可达90%；在同等级负载情况，有效降低了马达温度，且能输出更大功率。
- 可拆卸式设计（注：部分可拆），便于日常清洁和维修，能够有效地延长电机使用寿命、提高电机的工作效率。
- 电机完美匹配EZRUN MAX10/MAX10-SCT电调，为玩家带来刚柔并济的极致操控体验。（MAX10搭配3652、MAX10-SCT搭配3660）。

03 规格

型号	PN	KV (空载)	适用锂电	内阻 (Ω)	空载电流	外径 / 长度 (mm)	轴径 / 外露轴长 (mm)	马达极数	重量 (g)	主要用途
EZRUN-3652SL-3300KV-G2	30402600	3300	2-3S	0.0100	4.3A	Φ=36 / L=52	Φ=3.175 / L=15	4	218	1:10 房车/越野(娱乐)
EZRUN-3652SL-4000KV-G2	30402601	4000	2-SS	0.0074	5.2A		Φ=3.175 / L=15		216	1:10 短卡(2WD)
EZRUN-3652SL-5400KV-G2	30402602	5400	2S	0.0051	7.2A		Φ=3.175 / L=15		217	1:10 大脚/卡车(轻载)
EZRUN-3660SL-3200KV-G2	30402650	3200	2-3S	0.0083	4.9A	Φ=36 / L=60	Φ=5 / L=18.5	4	262	1:10 短卡(4WD)
EZRUN-3660SL-4000KV-G2	30402651	4000	2-SS	0.0060	5.7A		Φ=5 / L=18.5		268	1:10 大脚/卡车(重载)
EZRUN-3660SL-4600KV-G2	30402652	4600	2S	0.0053	7.2A		Φ=5 / L=18.5		262	



04 安装和连接



1、安装电机

该电机安装螺丝规格为6个M3螺丝孔，面板螺孔可锁入深度为5mm，因此建议采用不长于8mm的M3螺丝进行安装，具体安装情况可试车架而定。

2、电机连接

电机与电调相连无严格的线序要求，电调的#A/#B/#C可以与电机的三线随意对接，若出现转向相反，任意交换两条电机线即可。若与好盈MAX10系列电调搭配，把ZH-2Y公头线插入电机尾部的TEMP接口，可实现电机过热保护功能。

3、检查

开启遥控车电源前，请再次仔细检查电机安装的可靠性及所有连接的正确性。

05 齿比选择

齿比的合理选择非常重要，不合适的齿比可能会给您带来重大损失。请遵守以下要点来正确选择齿比！

1、电机的工作温度

电机在工作时，温度应低于100° C (212° F)；温度高于100° C时，将会使电机转子磁性减弱，且线圈可能出现局部烧熔短路现象，产生大电流而损坏电调。选择合适的齿比可以有效防止电机过热。

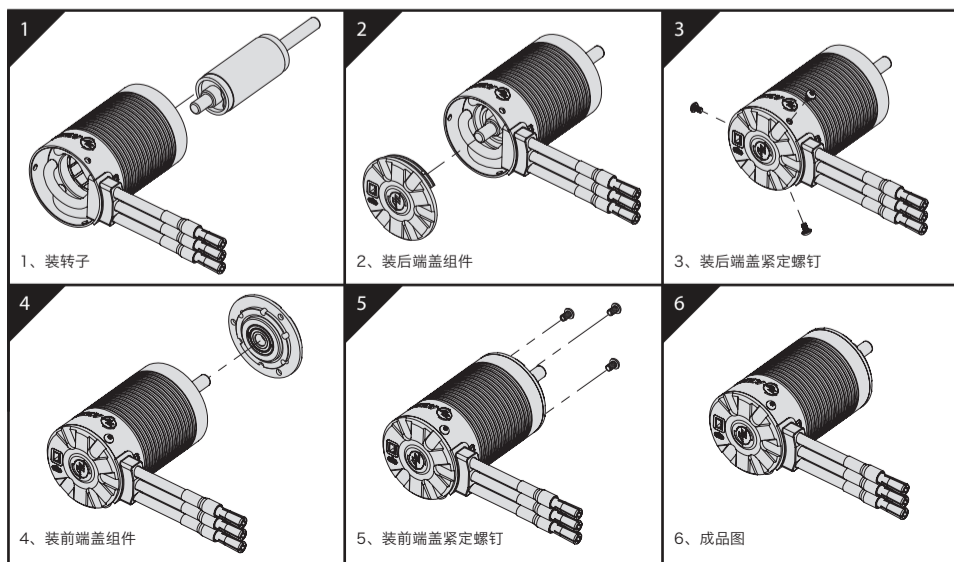
备注：与好盈MAX10系列电调搭配时，建议开启电机过热保护功能，防止电机过热损坏电机。

2、齿比选择原则

为防止电机过热引发潜在危险而导致电调和电机损坏，请从一个最少齿数的电机小齿进行齿比配置，并随时检查电机温度，这是唯一能确保电机不过热的方法。车子在行驶途中，如果电机及电调温度一直处于稳定的低温范围内，您可以试着使用齿数较多的小齿，并密切监测电机温度，以确定更改后的齿比是否适合您的模型车、当地气候及赛道条件（请注意气候及赛道条件不是恒定不变的，而是经常会发生变化，所以频繁地监测电调及电机的温度是一项重要的日常操作，它可以确保您的电子设备长期稳定地工作）。

06 装配说明

为了使电机寿命更长、效率更高，我们建议定期检查轴承并清理电机中的污垢，具体时间取决于您使用电机的频次和场地情况。安装时，请遵循以下装配图的步骤；拆卸时，请按相反步骤执行



零件清单

