



## Park 180 Brushless Outrunner Instructions

Thank you for purchasing the E-flite Park 180 Brushless Outrunner motor. This motor is ideal for 3D models 2-3 oz (55-85g), and sport and scale models 3-6 oz (85-170g) or models requiring up to 30 watts of power.

### Park 180 Brushless Outrunner Features:

- Ideal for 3D models 2-3 oz (55-85g) and sport and scale models 3-6 oz (85-170g)
- Ideal for up to 30 watts
- Designed for firewall mount or carbon tube mount
- Includes mount, mounting hardware, and 2mm gold BL connectors
- Extremely quiet and lightweight - just .3 ounces (8.5 grams)
- Upgraded performance motor for indoor motors
- High quality construction with ball bearings and hardened steel shaft
- Slotted 12-pole outrunner design

### Park 180 Specifications

Diameter: 16mm (.63 in)  
Case Length: 20mm (.80 in)  
Weight: 8.5 g (.30 oz)  
Shaft Diameter: 1.5mm (.06 in)

### EFLM1120

Kv: 2200 (rpms per volt)  
I<sub>o</sub>: .30A @ 8V (no load current)  
R<sub>i</sub>: .91 ohms (resistance)  
Continuous Current: 2.6A\*  
Max Burst Current: 3.2A\*  
Input Watts: 30  
Cells: 2-3S Li-Po or 4-8 Ni-MH/Ni-Cd  
Recommended Props: 3x3 to 6x3 'Slow Flyer' for 2S or 4x4 to 4.5x3 for 3S  
Brushless ESC: 4A – 6A

\* Maximum Operating Temperature: 220 degrees Fahrenheit

\* Adequate cooling is required for all motor operation at maximum current levels.

\* Maximum Burst Current duration is 15 seconds. Adequate time between maximum burst intervals is required for proper cooling and to avoid overheating the motor.

\* Maximum Burst Current rating is for 3D and limited motor run flights. Lack of proper throttle management may result in damage to the motor since excessive use of burst current may overheat the motor.

### Battery Choices:

We recommend either E-flite or Thunder Power batteries and list some possible choices for the Park 180 Brushless Outrunner motor, all depending on the airplane application. Battery technology is constantly changing and manufacturers are improving and updating their packs. The list below may change as new batteries are introduced.

THP2502SJPL2	250mAh 2-Cell/2S 7.4V 20C Pro Lite V2 Li-Po JST
THP2503SJPL2	250mAh 3-Cell/3S 11.1V 20C Pro Lite V2 Li-Po JST
THP3502SJPL2	350mAh 2-Cell/2S 7.4V 20C Pro Lite V2 Li-Po, JST
THP3503SJPL2	350mAh 3-Cell/3S 11.1V 20C Pro Lite V2 Li-Po, JST
THP4802SJPL2	480mAh 2-Cell/2S 7.4V 20C Pro Lite V2 Li-Po, JST
THP4803SJPL2	480mAh 3-Cell/3S 11.1V 20C Pro Lite V2 Li-Po, JST
EFLB4302SJ	430mAh 2S 7.4V 20C LiPo, 20 AWG JST
EFLB4303SJ	430mAh 3S 11.1V 20C LiPo, 20 AWG JST

### Examples of Airplane Setups:

#### Semi-Scale Aerobatic Biplane

Weight w/Battery: 4.2 oz

Prop 6 x 3 Slow Flyer

Battery: 480mAh 2-Cell 7.4V Li-Po (THP4802SJPL2)

ESC: 4A-5A Brushless

Comments – Great aerobatic performance with plenty of flight time.

### Flat Foamy Profile Jet

Weight w/Battery: 2.0 oz

Prop: 3 x 4 Slow Flyer

Battery: 250mAh 2-Cell 7.4V Li-Po

ESC: 10A Brushless

Comments – Extreme speed for fantastic indoor performance.

### **Accessories and Spare Parts:**

See our web site at [www.E-fliteRC.com](http://www.E-fliteRC.com) or [www.horizonhobby.com](http://www.horizonhobby.com) for our complete line of brushless motors. We have posted a specification comparison sheet on our web site so you can compare the different motors we offer.

EFLA110	Power Meter (measures power output in amps, volts, watts, and capacity)
EFLA1005	5A Pro Brushless ESC
EFLA1010	10A Pro Brushless ESC
EFLA248	Bullet Connector Set, Gold, 2mm (3)
EFLM1121	Replacement Mount: Park 180
EFLM1933	Prop Adapter with Setscrew, 1.5mm
EFLM1962	Carbon Fiber Tube, 6", 7mm OD, 5mm ID: Park 180

### **Operating Instructions:**

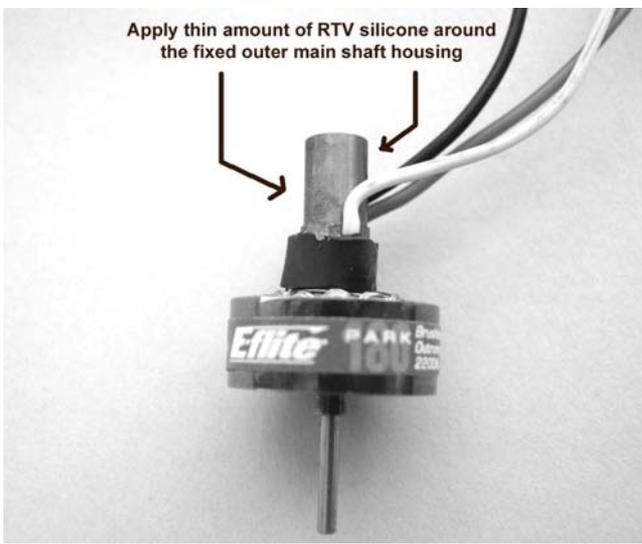
1. This brushless motor requires the use of a sensorless brushless speed control. Failure to use the correct speed control may result in damage to the motor and/or speed control. **Please be sure the timing and PWM switching frequency is set properly on your controller.**
2. When mounting the motor, be sure the correct length of screws are used so damage to the inside of the motor will not occur. We suggest you use the mounting hardware included with your motor. The use of long screws will damage the motor.
3. You may connect the three motor wires directly to the controller with solder or use connectors such as gold plated brushless bullet connectors (EFLA248), which will also need to be soldered properly to your wires. The three motor wires can be connected in any order to the three output wires or output port on a sensorless brushless speed control. Be sure to use heat shrink tubing to properly insulate the wires so the wires will not short. Shorting may damage the motor and speed control.
4. If you add connectors and or you no longer wish to use them, never cut the motor wires. Remove them by properly de-soldering them. Shortening the motor wires is considered an improper modification of the motor and may cause the motor to fail.
5. When you connect the motor to the esc, check the rotation direction of the motor. If you find the rotation is reversed, switching any two motor wires will reverse the direction so the motor rotates properly.
6. Proper cooling of the motor is very important during operation. New technology has brought much higher capacity batteries with higher discharge rates, which can cause extreme motor temperatures during operation. It is the responsibility of the user to monitor the temperature and prevent overheating. Overheating of the motor is not covered under any warranty.
7. You can install the propeller on the motor shaft after you have confirmed proper rotation direction. Also consult the instruction included with your sensorless electronic speed control for proper adjustments and timing.
8. Once the battery is connected to the motor, please use extreme caution. Stay clear of the propeller during operation. Spinning propellers are very dangerous as the motors produce high amounts of torque.
9. Never disassemble the motor. This will void any warranty.

### **Installation:**



**NOTE:** Photo shows installation of x-mount onto the motor.

1. Attach the aluminum x-mount to the fixed outer main shaft housing and tighten the set screw to secure the mount to the motor.
2. Attached the aluminum x-mount and motor to the outside of the firewall using the two wood screws.



**NOTE:** Photo shows installation using a carbon fiber tube, with 7mm OD, 5mm ID (EFLM1963 available separately). This is an option for mounting the motor. You can cut down the carbon fiber tube to meet your specific needs and attach to your foam or wood airplane with glue.

1. Add a very small thin amount of RTV silicone onto the surface of the fixed outer main shaft housing. The area is marked on the photo above. It is important that you add your silicone glue to the surface of the outer main shaft housing and not to the inside of the carbon fiber tube so that you do not get glue on the motor bearings.
2. Slide the motor into the carbon tube as shown. Let cure.
3. If the carbon tube is not already attached to your plane, please attach now and ensure you have proper clearance for the propeller.

**Safety Precautions:**

This is a sophisticated hobby product and not a toy. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this product in a safe and responsible manner could result in injury or damage to the product or other property. **This product is not intended for use by children without direct adult supervision. The Outrunner motor case is a rotating part so use extreme caution.** Please read the warning information included with your propellers for safety information related to the operation of motors with propellers. Failure to comply with these warnings and/or improper use of propellers may result in serious injury.

**Limited Warranty Period**

Horizon Hobby, Inc. guarantees this product to be free from defects in both material and workmanship for a period of 1 year from the date of purchase.

**Limited Warranty**

(a) This warranty is limited to the original Purchaser ("Purchaser") and is not transferable. REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER. This warranty covers only those Products purchased from an authorized Horizon dealer. Third party transactions are not covered by this warranty. Proof of purchase is required for warranty claims. Further, Horizon reserves the right to change or modify this warranty without notice and disclaims all other warranties, express or implied.

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**Damage Limits:**

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCT, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability.

If you as the Purchaser or user are not prepared to accept the liability associated with the use of this Product, you are advised to return this Product immediately in new and unused condition to the place of purchase.

Law: These Terms are governed by Illinois law (without regard to conflict of law principals).

**Safety Precautions:**

This is a sophisticated hobby Product and not a toy. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the Product or other property. This Product is not intended for use by children without direct adult supervision. The Product manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or injury.

### Questions, Assistance, and Repairs:

Your local hobby store and/or place of purchase cannot provide warranty support or repair. Once assembly, setup or use of the Product has been started, you must contact Horizon directly. This will enable Horizon to better answer your questions and service you in the event that you may need any assistance. For questions or assistance, please direct your email to [productsupport@horizonhobby.com](mailto:productsupport@horizonhobby.com), or call 877.504.0233 toll free to speak to a service technician.

### Inspection or Repairs

If this Product needs to be inspected or repaired, please call for a Return Merchandise Authorization (RMA). Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as **Horizon is not responsible for merchandise until it arrives and is accepted at our facility**. A Service Repair Request is available at [www.horizonhobby.com](http://www.horizonhobby.com) on the "Support" tab. If you do not have internet access, please include a letter with your complete name, street address, email address and phone number where you can be reached during business days, your RMA number, a list of the included items, method of payment for any non-warranty expenses and a brief summary of the problem. Your original sales receipt must also be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

### Warranty Inspection and Repairs

**To receive warranty service, you must include your original sales receipt** verifying the proof-of-purchase date. Provided warranty conditions have been met, your Product will be repaired or replaced free of charge. Repair or replacement decisions are at the sole discretion of Horizon Hobby.

### Non-Warranty Repairs

**Should your repair not be covered by warranty the repair will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost.** By submitting the item for repair you are agreeing to payment of the repair without notification. Repair estimates are available upon request. You must include this request with your repair. Non-warranty repair estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Please advise us of your preferred method of payment. Horizon accepts money orders and cashiers checks, as well as Visa, MasterCard, American Express, and Discover cards. If you choose to pay by credit card, please include your credit card number and expiration date. Any repair left unpaid or unclaimed after 90 days will be considered abandoned and will be disposed of accordingly. **Please note: non-warranty repair is only available on electronics and model engines.**

**Items requiring inspection or repair should be shipped to the following address (freight prepaid):**

**Horizon Service Center  
4105 Fieldstone Road  
Champaign, Illinois 61822**

*Please call 877-504-0233, or e-mail us at [productsupport@horizonhobby.com](mailto:productsupport@horizonhobby.com) with any questions or concerns regarding this product or warranty.*

**United Kingdom:  
Horizon Hobby UK  
Units 1-4 Ployters Rd  
Staple Tye  
Harlow, Essex CM18 7NS  
United Kingdom**

*Please call +44 (0) 1279 641 097 or email us at [sales@horizonhobby.co.uk](mailto:sales@horizonhobby.co.uk) with any questions or concerns regarding this product or warranty.*

**Germany:  
Horizon Technischer Service  
Hamburger Strasse 10  
25335 Elmshorn  
GERMANY**

*Please call +49 4121 46199 66 or email us at [service@horizonhobby.de](mailto:service@horizonhobby.de) with any questions or concerns regarding this product or warranty.*

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Instructions for Disposal of WEEE by Users in the European Union This product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

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