



Park 370 & Park 400 Outrunner Brushless Motors Instructions

Park 370 Outrunner Features:

- Upgrade your Speed 280 and Speed 370 applications
- Excellent motor for small 3D airplanes 7 oz – 14 oz (200 g – 400 g)
- Motor mount included
- Prop adapter and gold-plated connectors included
- Slotted 12-pole outrunner design
- EFLM1210HS features a 4mm hollow shaft and optimized 1200 Kv – it is ideal for variable pitch operation

Park 370 Outrunner Specifications

Diameter: 28mm (1.10 in)
Case Length: 25mm (1.00 in)
Weight: 45g (1.6 oz.)
Shaft Diameter: 3.17mm (1/8 in)
Shaft Diameter for Hollow Shaft (EFLM1210HS only): 4mm (.16 in)

EFLM1200

Kv: 1080 (rpms per volt)
Io: .70A @ 10V (no load current)
Ri: .19 ohms (resistance)
Continuous Current: 9A*
Max Burst Current: 11A*
Watts: up to 110
Cells: 6-10 Ni-Cd/Ni-Mh, 2-3 Li-Po
Prop Range: 9x4.7-10x4.7
Brushless ESC: 10- to 25-Amp

EFLM1205

Kv: 1360 (rpms per volt)
Io: 1.00A @ 10V (no load current)
Ri: .10 ohms (resistance)
Continuous Current: 12A*
Max Burst Current: 15A*
Watts: up to 150
Cells: 6-10 Ni-Cd/Ni-Mh, 2-3S Li-Po
Prop Range: 8x6-10x4.7 / 8x3.8 (3 cell)
Brushless ESC: 10- to 25-Amp

EFLM1210HS (Hollow Shaft Motor)

Kv: 1200 (rpms per volt)
Io: .60A @ 10V (no load current)
Ri: .18 ohms (resistance)
Continuous Current: 10A*
Max Burst Current: 12A*
Watts: up to 120
Cells: 6-10 Ni-Cd/Ni-Mh, 2-3S Li-Po
Prop Range: 8x3.8-10x4.7
Brushless ESC: 10- to 25-Amp

Park 400 Outrunner Features:

- Replacement for Speed 370 and some Speed 400 applications
- Excellent motor for small 3D and scale park flyers 10 oz – 20 oz (280 g – 560 g)
- Motor mount included
- Prop adapter (EFLM1923) and gold-plated connectors (EFLA241) included
- Slotted 12-pole outrunner design

Park 400 Outrunner Specifications

Diameter: 28mm (1.10 in)
Length: 29mm (1.15 in)
Weight: 56g (2.0 oz)
Shaft Diameter: 3.17mm (1/8 in)

EFLM1300

Kv: 740 (rpms per volt)
Io: .55 @ 10V (no load current)
Ri: .26 ohms (resistance)
Continuous Current: 7A*
Max Burst Current: 10A*
Watts: up to 100
Cells: 6-10 Ni-Cd/Ni-Mh, 2-3 Li-Po
Prop Range: 10x7-12x3.8
Brushless ESC: 10- to 25-Amp

EFLM1305

Kv: 920 (rpms per volt)
Io: .70A @ 10V (no load current)
Ri: .10 ohms (resistance)
Continuous Current: 10A*
Max Burst Current: 13A*
Watts: up to 140
Cells: 6-10 Ni-Cd/Ni-Mh, 2-3 Li-Po
Prop Range: 9x7-11x4.7
Brushless ESC: 10- to 25-Amp

- * 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:

There are many Li-Po battery brands on the market with several choices for consumers. We recommend either E-flite or Thunder Power batteries and list some possible choices for the Park 370 and Park 400 Brushless Outrunner motor, depending on the airplane application.

THP4802SJPL	480mAh 2-Cell 7.4V LIPO,JST	EFLB1000	7.4V 860mAh 2-Cell LIPO,JST
THP4803SJPL	480mAh 3-Cell 11.1V LIPO,JST	EFLB1005	11.1V 860mAh 3-Cell LIPO,JST
THP7302SJPL	730mAh 2-Cell 7.4V LIPO,JST	EFLB1010	7.4V 1200mAh 2-Cell LIPO,JST
THP7303SJPL	730mAh 3-Cell 11.1V LIPO,JST	EFLB1011	7.4V 1200mAh 2-Cell LIPO,16GA
THP9102SJPL	910mAh 2-Cell 7.4V LIPO,JST	EFLB1015	11.1V 1200mAh 3-Cell LIPO,JST
THP9103SJPL	910mAh 3-Cell 11.1V LIPO,JST	EFLB1016	11.1V 1200mAh 3-Cell LIPO,16GA
THP13202SJPL	1320mAh 2-Cell 7.4V LIPO, JST		
THP13202SPL	1320mAh 2-Cell 7.4V LIPO,16GA		
THP13203SJPL	1320mAh 3-Cell 11.1V LIPO, JST		
THP13203SPL	1320mAh 3-Cell 11.1V LIPO, 16GA		

Accessories and Spare Parts:

See our web site at www.E-fliteRC.com or 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 in amps, volts, watts, and capacity)
EFLA241	BL Conn Set,Gold,3.5mm (3)
EFLA1010	10A Pro Brushless ESC
EFLA311B	20A Brushless ESC (V2)
EFLA1025	25A Pro Brushless ESC
EFLM1923	Prop Adapter w/ Collet, 1/8"
EFLM1924	Prop Adapter w/Collet, 4mm
EFLM1201	Replacement Shaft: Park 370 BL Outrunner
EFLM1211	Replacement Hollow Shaft, 4mm: Park370, 1200Kv (for EFLM1210HS only)
EFLM1301	Replacement Shaft: Park 400 BL Outrunner
EFLM1914	Prop Saver
EFLPVPP100	Show Stopper Precision Variable Pitch Prop System

Variable Pitch Prop Systems:

The Park 370 BL Outrunner, 1200Kv with 4mm Hollow Shaft is ideal for variable pitch propeller systems, such as E-flite's Show Stopper Precision Variable Pitch Prop System (EFLPVPP100). The motor features a 4mm hollow shaft and is optimized for performance with its 1200Kv. If you purchased the hollow shaft motor (EFLM1210HS) you are not limited to variable pitch prop systems. This motor can be used in the same applications as the other Park 370 options. The shaft can also be reversed by following the same instructions mentioned below.

Please consult the instructions included with your variable pitch prop for proper set up and assembly.

Reversing the Shaft:

This Outrunner motor has a shaft, which exits through the rotating part of the motor. If you want to reverse the shaft to exit through the fixed part of the motor, follow these instructions carefully for changing the shaft installation. **NOTE:** The user assumes all liability for damage that may occur.

1. Loosen the set screw on the shaft collar and remove the collar from its location against the bearing.
2. Remove the small black donut washer that rests against the bearing.
3. Loosen the two set screws in the rotating part of the motor.
4. Slide the shaft through the motor. It may be necessary to use a small hammer to lightly tap the shaft. It is very important that you do not bend the shaft in this process so use extreme caution to assure this does not happen.
5. Re-install the donut washer against the bearing. Do not skip this step.
6. Re-install the shaft collar back against the washer and bearing.
7. Retighten all setscrews making sure you line up with the flat spot on the shaft.

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.
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 (EFLA243), 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.

Motor Safety Precautions:

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.

(b) Limitations- HORIZON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCT. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

(c) Purchaser Remedy- Horizon's sole obligation hereunder shall be that Horizon will, at its option, (i) repair or (ii) replace, any Product determined by Horizon to be defective. In the event of a defect, these are the Purchaser's exclusive remedies. Horizon reserves the right to inspect any and all equipment involved in a warranty claim. Repair or replacement decisions are at the sole discretion of Horizon. This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the Product. This warranty does not cover damage due to improper installation, operation, maintenance, or attempted repair by anyone other than Horizon. Return of any goods by Purchaser must be approved in writing by Horizon before shipment.

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, 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 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.

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

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

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