



Delta-V 480 65mm EDF System Instructions

Thank you for purchasing the E-flite Delta-V 480 65mm EDF System (EFLDF480). This electric ducted fan unit includes the installed BL480 Ducted Fan outrunner motor and is an ideal choice for ducted fan airplanes requiring 65mm diameter fan units. This System is also an ideal 4S upgrade choice for E-flite's F-15 Eagle DF and F-16 400 DF. The included BL480 Ducted Fan Brushless Motor, 4000Kv (EFLM1550DF) is purpose-built for this Delta-V 480 65mm EDF and together will provide great 4S performance.

Delta-V 480 65mm EDF System Features:

- Includes 65mm Fan Unit with installed BL480 Ducted Fan outrunner motor
- Ideal 4S upgrade option for E-flite's F-15 Eagle and F-16 DF
- High-performance, efficient design EDF
- Injection molded, fiberglass-filled nylon
- Factory-balanced 65mm 6-blade rotor design
- BL480 DF Motor is ideal for up to 600 input watts
- Designed for 3S-4S Li-Po batteries

BL480 Ducted Fan Motor Specifications

Mounting Diameter: 20mm (.70 in)
Overall Diameter: 28mm (1.10 in)
Case Length: 53.2mm (2.10 in)
Motor Weight: 82g (2.9 oz)
Shaft Diameter: 3mm (.12 in)
Kv: 4000 (rpms per volt)
I_o: 4.2A @ 10V (no load current)
R_i: .027 ohms (resistance)
Continuous Current: 35A*
Max Burst Current: 45A*
Cells: 3S-4S Li-Po or 10-14 Ni-MH/Ni-Cd
Brushless ESC: 40A – 60A

Delta-V 480 65mm EDF Unit Specifications

Rotor Diameter: 65mm (2.5 in)
Shroud Outer Diameter: 68mm (2.7 in)
Shroud Length: 42mm (1.65 in)
Weight: 30g (1.05 oz)
Overall Weight: 112g (3.95 oz) (motor and EDF unit)

Performance Data (Measured Using BL480 Motor)

Static Thrust: .9 lbs on 3S (11.1V)
 1.8 lbs on 4S (14.8V)
RPM: 39,000 on 3S (11.1V)
 49,000 on 4S (14.8V)
Watts: 255 on 3S (11.1V)
 590 on 4S (14.8V)
Current: 25A on 3S (11.1V)
 43A on 4S (14.8V)

* 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 full high power and limited motor run flights. Lack of proper throttle management, especially on 4S operation may result in damage to the motor since excessive use of burst current may overheat the motor.**

Examples of Airplane Setups:

E-flite F-15 Eagle DF ARF (EFL7050)

Comments – Sport performance with increased vertical and power when using 4S. About 3 minutes run time.

Weight w/Battery: 45.2 oz (1281g)

Battery: 4S 14.8V 2600mAh Li-Po, 13AWG eXtreme V2 Series (THP26004SXV)

ESC: 60A Pro SB Brushless (EFLA1060)

Accessories and Spare Parts:

EFLDF4801	Delta-V 480 65mm EDF Unit (no motor)
EFLDF4802	Rotor, 6-Blade
EFLM1550DF	BL480 Ducted Fan Brushless Outrunner Motor, 4000Kv
EFLM15501	Replacement Shaft
EFLA1040L	40A Lite Pro SB Brushless ESC
EFLA1040	40A Pro SB Brushless ESC
EFLA1060	60A Pro SB Brushless ESC
EFLA110	Power Meter (measures power output in amps, volts, watts, and capacity)
EFLA241	Bullet Connector Set, Gold, 3.5mm (3)

Battery Choices:

EFLB21003S	3S 11.1V 2100mAh
THP21003SPL2	2100mAh 3-Cell 11.1V
THP22503SP30	2250mAh 3-Cell 11.1V Pro Power
EFLB21004S	4S 14.8V 2100mAh
EFLB32003S	4S 14.8V 3200mAh Li-Po, 13AWG
THP22504SP30	2250mAh 4-Cell 14.8V Pro Power
THP26004SPL2	2600mAh 4-Cell 14.8V
THP27004SP30	2700mAh 4-Cell 14.8V Pro Power
THP33004SPL2	3300mAh 4-Cell 14.8V
THP33004SP30	3300mAh 4-Cell 14.8V Pro Power

There are many Li-Po battery brands on the market offering several choices for consumers. We recommend either E-flite or Thunder Power batteries and list some possible choices for the BL480 DF Brushless Motor, depending on the airplane application. Battery technology is constantly changing and manufacturers are improving and updating older packs with new ones so the list above may generally be substituted for the packs they replaced.

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 is set properly on your controller. This is a 6-pole motor.**
2. **The BL480 motor requires the PWM Switching Frequency to be set at 16 kHz.** If the PWM Switching Frequency in the speed control is not set to 16 kHz, the BL480 will not run properly on 4S batteries. The default Switching Frequency setting in both the EFLA1040 40A Pro ESC and the EFLA1060 60A Pro ESC (required for 4S power) is 8 kHz. This setting can be changed in Programming Menu 6 of either controller. Without making this change the motor will fail to operate on 4S; while advancing the throttle, the motor will turn off and spool down inconsistently and without warning.
3. When mounting the motor, be sure the correct length of screws (6mm) are used.
4. You may connect the three motor wires directly to the controller with solder or use connectors such as gold plated brushless bullet connectors (EFLA241), 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.
5. 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.
6. 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.
7. 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.
8. You can install the rotor/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.

9. Once the battery is connected to the motor, please use extreme caution. Stay clear of the propeller/ducted fan rotor during operation. Spinning propellers/rotors are very dangerous as the motors produce high amounts of torque.
10. Never disassemble the motor. This will void any warranty.

EDF Safety Precautions:

This EDF unit contains a rotating part so use extreme caution. Never operated the EDF with loose clothing that can get caught in the rotor, and never operate the EDF while holding it in your hands. Please read the warning information included with your motor for safety information related to the operation of motors with propellers. Failure to comply with these warnings and/or improper use of propellers and EDF units may result in serious injury.

Limited Warranty Period for EDF Unit

Horizon Hobby, Inc., (Horizon) warrants that the Products purchased (the "Product") will be free from defects in materials and workmanship at the date of purchase by the Purchaser.

Limited Warranty Period for Motor

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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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.**

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 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 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 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 as 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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