



NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby LLC. For up-to-date product literature, visit horizonhobby.com and click on the support tab for this product.

MEANING OF SPECIAL LANGUAGE

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product:

NOTICE: Procedures, which if not properly followed, create a possibility of physical property damage AND a little or no possibility of injury.

CAUTION: Procedures, which if not properly followed, create the probability of physical property damage AND a possibility of serious injury.

WARNING: Procedures, which if not properly followed, create the probability of property damage, collateral damage, and serious injury OR create a high probability of superficial injury.



WARNING: Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury.

This is a sophisticated hobby product. 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. Do not attempt disassembly, use with incompatible components or augment product in any way without the approval of Horizon Hobby LLC. This 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 serious injury.



CAUTION: This product can become extremely hot when in use, which could lead to burns.

Age Recommendation: Not for children under 14 years. This is not a toy.

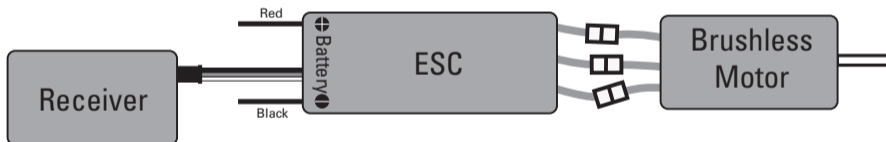
Thank you for purchasing the Kinexsis Indoor Flyer ESC. This is a high-quality sensorless brushless electronic speed control with an integrated linear-mode BEC that is very lightweight and efficient. It can operate without the need for a separate receiver battery to power your servos and receivers, saving you weight and complication.



CAUTION: Failure to exercise caution while using this product and comply with the following precautions could result in product malfunction and/or void the warranty.

FEATURES

- Extreme low output resistance, super current endurance
- **Multiple protection features:** Low voltage cut-off protection / over-heat protection / throttle signal loss protection
- **3 start modes:** Normal / Soft / Super-Soft, compatible with fixed-wing aircraft and helicopters
- Throttle range can be configured to be compatible with all transmitters
- Smooth, linear and precise throttle response
- Separate voltage regulator IC for microprocessor with good anti-jamming capability
- **Maximum speed:** 210000 RPM (2 pole motors), 70000 RPM (6 pole motors), 35000 RPM (12 pole motors)



SPECIFICATIONS

	KXSS2401	KXSS2402
Continuous Current	10A*	18A*
Max Burst Current	12A (10 sec)*	22A (10 sec)*
Length	27mm (1.06 in)	45mm (1.77 in)
Width	17mm (0.67 in)	24mm (0.94 in)
Height	6mm (0.24 in)	11mm (0.43 in)
Weight	9 g (0.31 oz)	19 g (0.67 oz)
Cells	2-4 cell Li-Po/Li-fe; 5-12 cell Ni-MH/Ni-Cd	2-4 cell Li-Po/Li-fe; 5-12 cell Ni-MH/Ni-Cd
Battery Input Leads	20AWG with EC2™ Connector	18AWG with EC2™ Connector
Motor Output Leads	20AWG with 2mm Gold Bullet Connectors	18AWG with 3.5mm Gold Bullet Connectors

*Proper cooling and airflow required

BEC Output Capability	Linear Mode BEC (5V/2 A)		
	2S Lipo	3S Lipo	4S Lipo
Standard micro servos (max.)	5	4	3

Note: BEC = Battery Elimination Circuit. It is a DC-DC voltage regulator to supply the receiver and other equipment from the main battery pack. With the built-in BEC, the receiver does not need an additional battery pack.



WARNING: Always remove the propeller before checking the startup function of the ESC or making programming changes. Keep all body parts, hair and loose clothing away from a moving propeller, as these items could become entangled.



WARNING: Always disconnect the battery when not flying to avoid over-discharging the battery. Batteries discharged to a voltage lower than the lowest approved voltage may become damaged, resulting in loss of performance and potential fire when batteries are charged.

When flying in hot weather, check on the condition of the ESC, battery and motor after each flight. Always let the electronic components cool to near ambient temperature between flights. During extreme conditions, throttle management is necessary when running near maximum levels of current draw. It is possible to cause permanent damage to the motor, battery and ESC if in full throttle the entire flight.

USING THE KINEXSIS™ BRUSHLESS ESC

Connecting the ESC to the Motor

The three wires from the motor connect to the three gold bullet connectors on the ESC. The order of connection to the motor is not important; any motor wire can be connected to any connector. If the motor runs backwards, you can simply disconnect and switch any two of the motor wire plugs connected to the ESC.

Mounting the ESC

1. Choose a location that has good airflow and offers good protection.
DO NOT cover the side with the flat heat shield with hook and loop tape, or any other material, as this will greatly reduce its effectiveness.
2. Mount the ESC with a combination of hook and loop tape, 2-sided foam tape and/or tie wraps.

Starting the ESC

1. Ensure your throttle position is **Idle** (low position), then power ON your transmitter.
2. Connect the battery to the ESC. You will hear a musical tone to indicate the voltage of the battery is in normal range, then a beep emits indicating the cell quantity of a lithium battery pack, followed by 1 long beep to indicate the ESC is armed.
3. When you move the throttle stick upward, the motor will run. Continue to move the throttle stick upward to full throttle (high position), and the motor will run faster. When the throttle stick goes below the start-up position, the motor will stop running.
4. Check the servo motion as part of your preflight check. It is very important to make sure linkages are free-moving with no binding. Remember, when in the programming mode:
Full Throttle = Stick Up Idle = Stick Down

The default settings for the ESC are:

- Brake set to Off
- Battery type is set to Li-xx
- Cutoff mode is set to soft cut-off
- Voltage cutoff set at 3.15V per cell
- Start-up Rate (Acceleration Delay) set at 300 milliseconds
- Timing set at 3.75 degrees

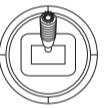
NOTICE: Throttle range differs among transmitters. Calculate throttle range before your first flight according to **Throttle Range Settings**.

Programming the ESC with Your Transmitter

1. Enter **Program Mode**
2. Select Programmable Item according to the chart below
3. Set the item value
4. Exit **Program Mode**

Step 1: Entering the Programming Mode

1. Switch on your transmitter.
2. Move the throttle stick to Full Throttle, then connect the battery pack to the ESC. The motor will give 2 beeps after 2 seconds.
3. Wait another 5 seconds and the ESC will give a rising tone to indicate you have entered **Programming Mode**.



Step 2: Selecting a Programmable Item

After entering **Programming Mode**, you will hear 8 tones in a loop. Move the throttle stick to the idle position within 3 seconds after the tone sounds matching the programmable item you want to select.



1	beep	Break	(1 short beep)
2	beep-beep-	Battery Type	(2 short beeps)
3	beep-beep-beep-	Cut-Off Mode	(3 short beeps)
4	beep-beep-beep-beep-	Cut-Off Threshold	(4 short beeps)
5	beep-----	Startup Mode	(1 long beep)
6	beep-----beep-	Timing	(1 long, 1 short)
7	beep-----beep-beep-	Set All to Default	(1 long, 2 short)
8	beep-----beep-----	Exit	(2 long beeps)

Step 3: Setting Item Value

After selecting a programmable item, you will hear several tones in a loop. Move the throttle stick to Full Throttle to select the value matching the tone. The ESC will give an alternating tone to indicate the item is selected.



NOTICE: Keep the throttle stick in Full Throttle to return to Step 2 and continue item selection. Move the throttle stick to the bottom position within 2 seconds to exit the Program Mode.

Programmable Item	1 Short Beep	2 Short Beeps	3 Short Beeps
Brake	Off	On	
Battery Type	Li-ion / Li-Po	NiMH / NiCd	
Cut-Off Mode	Soft-Cut	Cut-Off	
Cut-Off Threshold	Low - 3.0V per cell	Medium - 3.15V per cell	High - 3.3V per cell
Startup Mode	Normal	Soft	Super Soft
Timing	Low	Medium	High

Step 4: Exiting Program Mode

There are 2 ways to exit Program Mode.

1. In **Step 2**, after hearing 2 long beeps (Item #8), move the throttle stick to the bottom position within 3 seconds.
2. In **Step 3**, after hearing the alternating tone, move the throttle stick to the bottom position within 2 seconds.





PROTECTION FUNCTION

- 1. Startup Failure Protection:** If the motor does not start within 2 seconds, the ESC will cut off the output power. This happens because the connecting between the motor and ESC is compromised, or the propeller or motor is blocked. To restart the motor, move the throttle stick to the bottom position.
- 2. Over-Heat Protection:** When the ESC temperature is over 230°F (110°C).
- 3. Throttle Signal Loss Protection:** The ESC will reduce the output power if the throttle signal is lost for 1 second. The ESC will cut off power completely if the throttle signal is lost for 2 seconds.

THROTTLE RANGE SETTINGS

1. Turn ON your transmitter, then move the throttle stick to Full Throttle.
2. Connect the battery pack to the ESC, then wait for 2 seconds. The ESC will give 2 beeps, indicating the highest throttle range is confirmed.
3. Move the throttle stick to the bottom position. Several tones sound to indicate the quantity of battery cells. The ESC will give 1 beep, indicating the lowest throttle range is confirmed.

TROUBLESHOOTING GUIDE

PROBLEM	SOLUTION
ESC switch powered ON, but no motor function and no audible tone	<ul style="list-style-type: none"> Recharge or replace battery Ensure all connections are secure Repair or replace ESC switch or ESC Ensure ESC programming for battery is correct for your battery
ESC switch powered ON, but no motor function and ESC continuously sounds 1 beep between 1 second pauses	<ul style="list-style-type: none"> Ensure connections between ESC and receiver are secure Ensure transmitter is bound to the receiver Ensure receiver antenna is not damaged Check for acceptable battery pack voltage
ESC switch powered ON, but no motor function and ESC continuously sounds 3 beeps between 0.25 second pauses	<ul style="list-style-type: none"> Move the throttle stick to the bottom position; ensure it is zero (idle) throttle at this position
ESC switch powered ON, but no motor function and ESC continuously sounds 2 beeps followed by a rising tone	<ul style="list-style-type: none"> Set the throttle channel direction correctly
Motor runs in the opposite direction	<ul style="list-style-type: none"> Swap any 2 wire connections between the ESC and the motor
Motor quits during operation	<ul style="list-style-type: none"> Check the receiver and transmitter Check the throttle channel cable Recharge or replace battery

LIMITED WARRANTY

What this Warranty Covers - Horizon Hobby, LLC (Horizon) warrants to the original purchaser that the product purchased (the "Product") will be free from defects in materials and workmanship at the date of purchase.

What is Not Covered - This warranty is not transferable and does not cover (i) cosmetic damage, (ii) damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance, (iii) modification of or to any part of the Product, (iv) attempted service by anyone other than a Horizon Hobby authorized service center, (v) Product not purchased from an authorized Horizon dealer, (vi) Product not compliant with applicable technical regulations, or (vii) use that violates any applicable laws, rules, or regulations. OTHER THAN THE EXPRESS WARRANTY ABOVE, HORIZON MAKES NO OTHER WARRANTY OR REPRESENTATION, AND HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

Purchaser's Remedy - Horizon's sole obligation and purchaser's sole and exclusive remedy shall be that Horizon will, at its option, either (i) service, or (ii) replace, any Product determined by Horizon to be defective. Horizon reserves the right to inspect any and all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Horizon. Proof of purchase is required for all warranty claims. SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY.

Limitation of Liability - HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY, REGARDLESS OF WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, EVEN IF HORIZON HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. 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 the Product, purchaser is advised to return the 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). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Horizon reserves the right to change or modify this warranty at any time without notice.

WARRANTY SERVICES

Questions, Assistance, and Services - Your local hobby store and/or place of purchase cannot provide warranty support or service. Once assembly, setup or use of the Product has been started, you must contact your local distributor or 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 visit our website at www.horizonhobby.com, submit a Product Support Inquiry at <https://horizonhobby.quickbase.com/db/bghj7ey8c?a=GenNewRecord>, or call the toll free telephone number referenced in the Warranty and Service Contact Information section to speak with a Product Support representative.

Inspection or Services - If this Product needs to be inspected or serviced and is compliant in the country you live and use the Product in, please use the Horizon Online Service Request submission process found on our website or call Horizon to obtain a Return Merchandise Authorization (RMA) number. 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. An Online Service Request is available at http://www.horizonhobby.com/content/_service-center_render-service-center. If you do not have internet access, please contact Horizon Product Support to obtain a RMA number along with instructions for submitting your product for service. When calling Horizon, you will be asked to provide your complete name, street address, email address and phone number where you can be reached during business hours. When sending product into Horizon, please include your RMA number, a list of the included items, and a brief summary of the problem. A copy of your original sales receipt must be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

NOTICE: Do not ship Li-Po batteries to Horizon. If you have any issue with a Li-Po battery, please contact the appropriate Horizon Product Support office.

Warranty Requirements - For Warranty consideration, you must include your original sales receipt verifying the proof-of-purchase date. Provided warranty conditions have been met, your Product will be serviced or replaced free of charge. Service or replacement decisions are at the sole discretion of Horizon.

Non-Warranty Service - Should your service not be covered by warranty, service 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 service you are agreeing to payment of the service without notification. Service estimates are available upon request. You must include this request with your item submitted for service. Non-warranty service estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Horizon accepts money orders and cashier's checks, as well as Visa, MasterCard, American Express, and Discover cards. By submitting any item to Horizon for service, you are agreeing to Horizon's Terms and Conditions found on our website http://www.horizonhobby.com/content/_service-center_render-service-center.

ATTENTION: Horizon service is limited to Product compliant in the country of use and ownership. If received, a non-compliant Product will not be serviced. Further, the sender will be responsible for arranging return shipment of the un-serviced Product, through a carrier of the sender's choice and at the sender's expense. Horizon will hold non-compliant Product for a period of 60 days from notification, after which it will be discarded.

WARRANTY AND SERVICE CONTACT INFORMATION

Country of Purchase	Horizon Hobby	Contact Information	Address
United States of America	Horizon Service Center (Repairs and Repair Requests)	servicecenter.horizonhobby.com/RequestForm/	4105 Fieldstone Rd Champaign, Illinois, 61822 USA
	Horizon Product Support (Product Technical Assistance)	www.quickbase.com/db/bghj7ey8c?a=GenNewRecord 888-959-2306	
	Sales	sales@horizonhobby.com 888-959-2306	