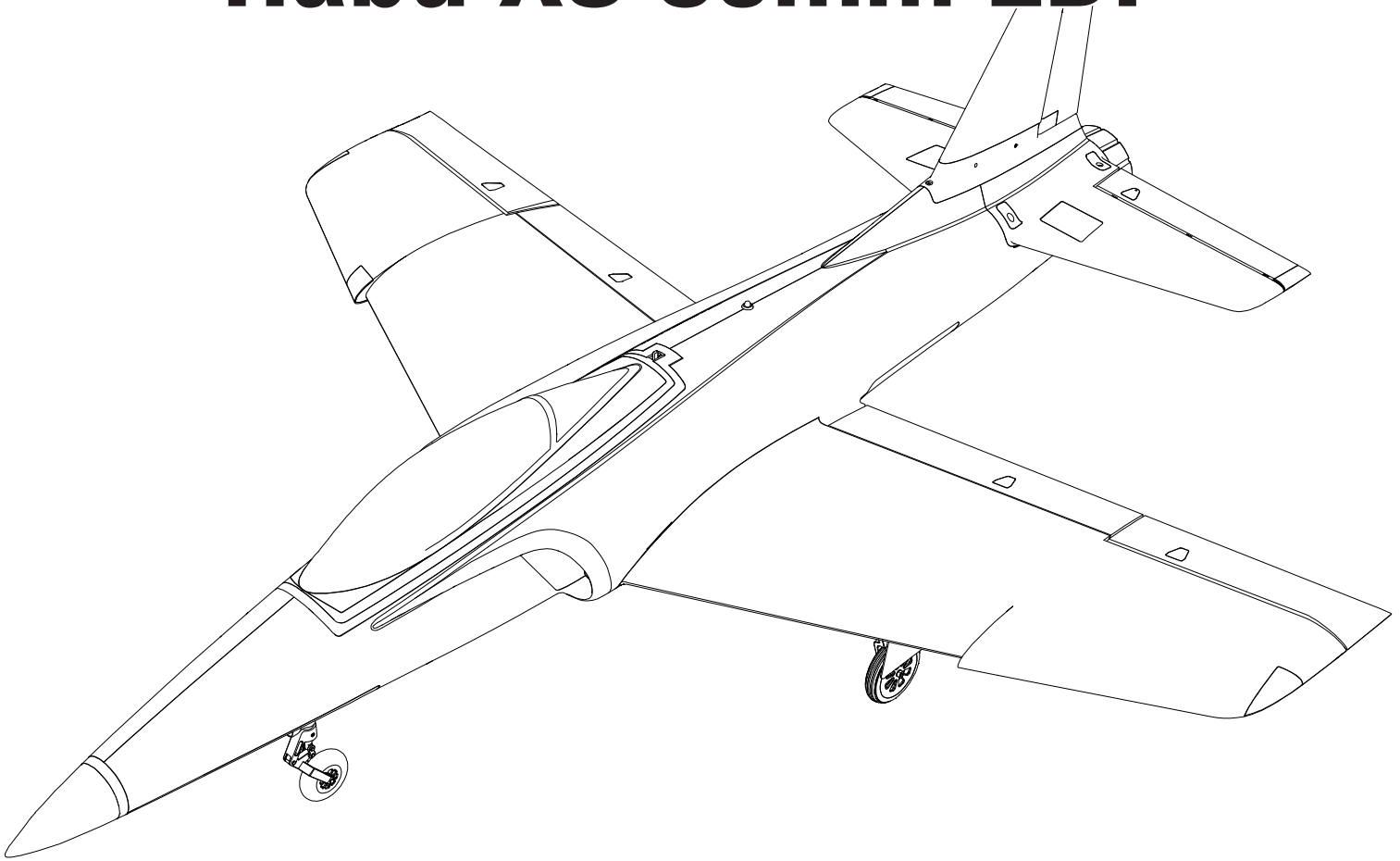


# Habu XS 80mm EDF



**Instruction Manual**  
**Bedienungsanleitung**  
**Manuel d'utilisation**  
**Manuale di Istruzioni**

Scan the QR code and select the Manuals and Support quick links from the product page for the most up-to-date manual information.

Scannen Sie den QR-Code und wählen Sie auf der Produktseite die Quicklinks Handbücher und Unterstützung, um die aktuellsten Informationen zu Handbücher.

Scannez le code QR et sélectionnez les liens rapides Manuals and Support sur la page du produit pour obtenir les informations les plus récentes sur le manuel.

Scannerizzare il codice QR e selezionare i Link veloci Manuali e Supporto dalla pagina del prodotto per le informazioni manuali più aggiornate.



EFL02450



EFL02475

**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](http://horizonhobby.com) or [towerhobbies.com](http://towerhobbies.com) and click on the support or resources 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:

**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.

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

**NOTICE:** Procedures, which if not properly followed, create a possibility of physical property damage AND little or no possibility of 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 use with incompatible components or alter this product in any way outside of the instructions provided by 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.

**AGE RECOMMENDATION: Not for children under 14 years. This is not a toy.**

**Safety Precautions and Warnings**

As the user of this product, you are solely responsible for operating in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

- Always keep a safe distance in all directions around your model to avoid collisions or injury. This model is controlled by a radio signal subject to interference from many sources outside your control. Interference can cause momentary loss of control.
- Always operate your model in open spaces away from full-size vehicles, traffic and people.
- Always carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.).
- Always keep all chemicals, small parts and anything electrical out of the reach of children.
- Always avoid water exposure to all equipment not specifically designed and protected for this purpose. Moisture causes damage to electronics.
- Never place any portion of the model in your mouth as it could cause serious injury or even death.
- Never operate your model with low transmitter batteries.
- Always keep aircraft in sight and under control.
- Always use fully charged batteries.
- Always keep transmitter powered on while aircraft is powered.
- Always remove batteries before disassembly.
- Always keep moving parts clean.
- Always keep parts dry.
- Always let parts cool after use before touching.
- Always remove batteries after use.
- Always ensure failsafe is properly set before flying.
- Never operate aircraft with damaged wiring.
- Never touch moving parts.

 **WARNING AGAINST COUNTERFEIT PRODUCTS:** If you ever need to replace your Spektrum receiver found in a Horizon Hobby product, always purchase from Horizon Hobby, LLC or a Horizon Hobby authorized dealer to ensure authentic high-quality Spektrum product. Horizon Hobby, LLC disclaims all support and warranty with regards, but not limited to, compatibility and performance of counterfeit products or products claiming compatibility with DSM or Spektrum technology.

## Registration

Register your product today to join our mailing list and keep up to date with product updates, offers and E-flite® news.



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## General Binding Tips and Failsafe

- The included receiver has been specifically programmed for operation of this aircraft. Refer to the receiver manual for correct setup if the receiver is replaced.
- Keep away from large metal objects while binding.
- Do not point the transmitter's antenna directly at the receiver while binding.
- The red LED on the receiver will flash rapidly when the receiver enters bind mode.
- Once bound, the receiver will retain its bind settings for that transmitter until you re-bind.
- If the receiver loses transmitter communication, the failsafe will activate. Failsafe moves the throttle channel to low throttle. Pitch and roll channels move to actively stabilize the aircraft in a descending turn.
- If problems occur, refer to the troubleshooting guide or if needed, contact the appropriate Horizon Product Support office.

## Low Voltage Cutoff (LVC)

When a Li-Po battery is discharged below 3V per cell, it will not hold a charge. The aircraft's ESC protects the flight battery from over-discharge using Low Voltage Cutoff (LVC). Once the battery discharges to 3V per cell, the LVC will reduce the power to the motor in order to leave adequate power to the receiver and servos to land the airplane.

When the motor power decreases, land the aircraft immediately and replace or recharge the flight battery.

## Specifications

<b>Wingspan</b>	43.8" (1113mm)
<b>Length</b>	49.3" (1252mm)
<b>Weight</b>	Without Battery: 69.56 oz (1972g) With Recommended 5000mAh 6S Battery: 96.72oz (2742g)

## Included Equipment

<b>Receiver</b>	Spektrum™ AR637TA+ 6-Channel AS3X+/SAFE Telemetry Receiver (SPM-1032)
<b>ESC</b>	Avian™ 130-Amp Smart Brushless ESC (SPMXAE1130A)
<b>Motor</b>	3665–2170Kv Brushless Inrunner 4-Pole (SPMX-1045)
<b>Servo</b>	(8) A347 9g Sub-Micro Metal-Geared Digital (SPMSA347)

## Recommended Equipment

<b>Transmitter</b>	Full Range 6-Channel 2.4GHz w/ Spektrum DSM2/DSMX® Technology
<b>Battery</b>	5000mAh 6S 22.2V Smart G2 LiPo 50C: IC5 (SPMX56S50)
<b>Battery Charger</b>	S2100 G2 2x100W AC Smart Charger (SPMXC2000)

Always disconnect and remove the Li-Po battery from the aircraft after each flight. Charge your Li-Po battery to about half capacity before storage. Make sure the battery charge does not fall below 3V per cell. Failure to unplug a connected battery will result in trickle discharge.

For your first flights, set your transmitter timer or a stopwatch to 5 minutes. Adjust your timer for longer or shorter flights once you have flown the model.

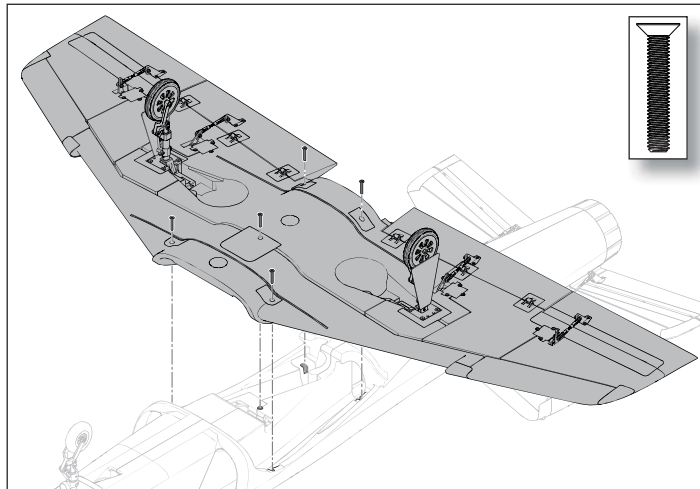
**NOTICE:** Repeated flying to LVC will damage the battery.

## Model Assembly

### Wing Installation

1. With fuselage inverted, fit the wing to the fuselage.
2. Secure the wing in place using a 2mm hex driver and five M3 x 16mm screws.

**IMPORTANT:** Do not overtighten the screws in the wing.



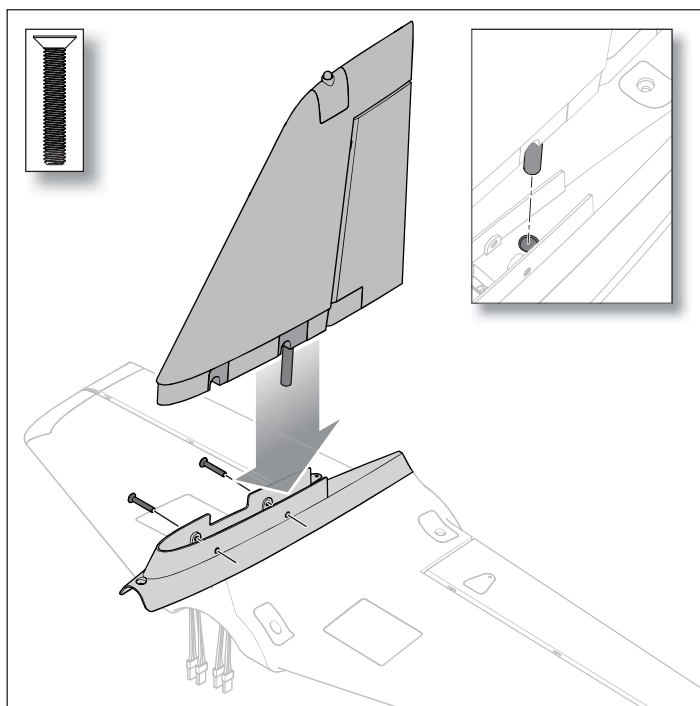
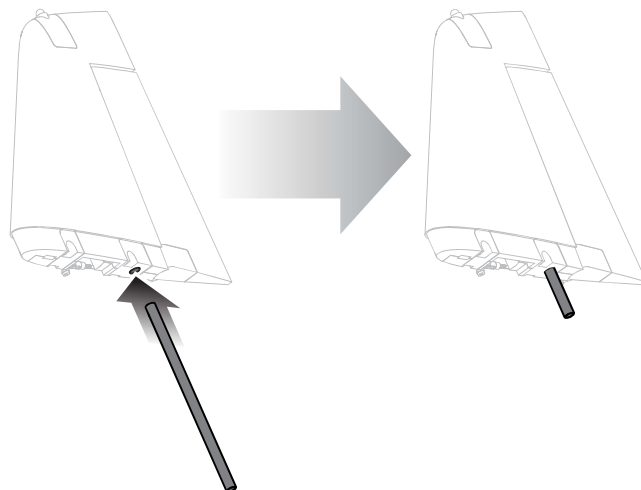
### Vertical Stabilizer Installation

1. Slide the carbon vertical stabilizer tube (6 x 124mm) through the hole in the vertical stabilizer.
2. With the aircraft upright, feed the LED wiring through the horizontal stabilizer.
3. Align the vertical stabilizer with the recess of the horizontal stabilizer, and fit the vertical stabilizer tube into the corresponding hole in the horizontal stabilizer.
4. Using a 2mm hex driver, install the two M3 x 16mm screws through the vertical stabilizer mount.

**IMPORTANT:** Do not over tighten the screws.

5. Connect the rudder and elevator servo connectors to the servo extensions. Each servo lead is labeled rudder (RUD) and elevator (ELE).

**IMPORTANT:** Ensure the LED connectors are plugged into the power side of the harness connectors. The red and black wires from the LEDs should connect to the red and brown wires of the harness respectively. If they are plugged in backwards, the vertical stabilizer light will not function.





## Model Assembly

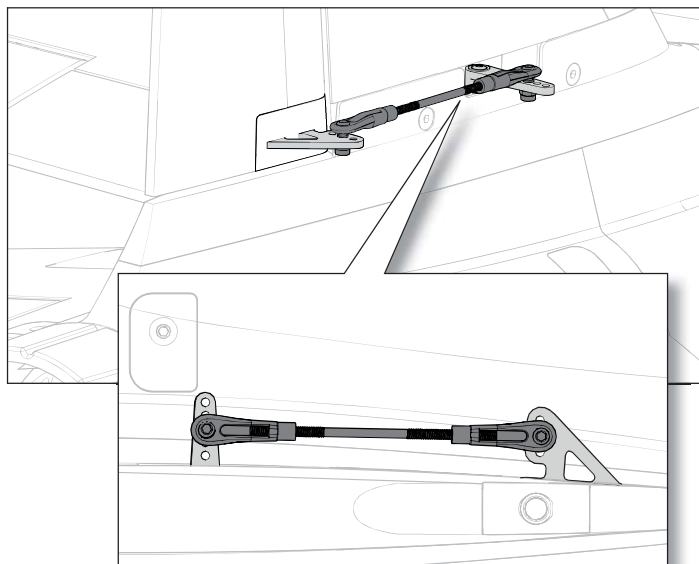
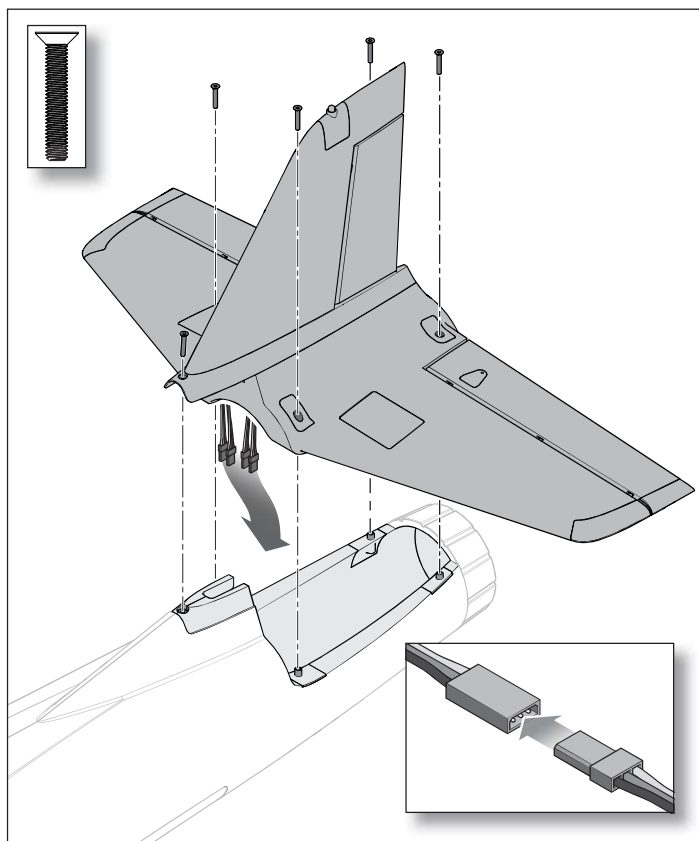
### Horizontal Stabilizer Installation

1. Secure all wires in the wire cavity in the fuselage.

**CAUTION:** DO NOT crush or damage the wiring when attaching the horizontal stabilizer assembly to the fuselage.

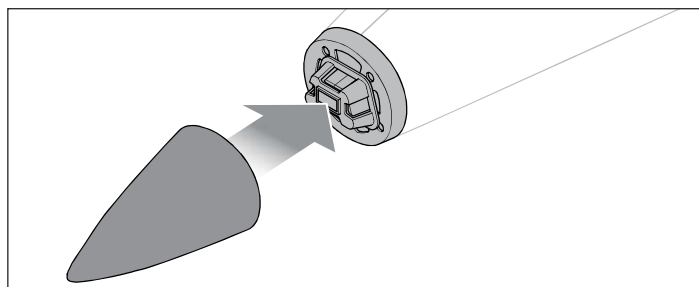
2. Secure the horizontal stabilizer to the fuselage using a 2mm hex driver and five M3 x 16mm screws.
3. Install the rudder linkage.

**IMPORTANT:** Do not over tighten the screws.



### Nose Cone Installation

Align and attach the nose cone to the fuselage. Magnets will secure the nose cone.



## Receiver Installation (PNP)

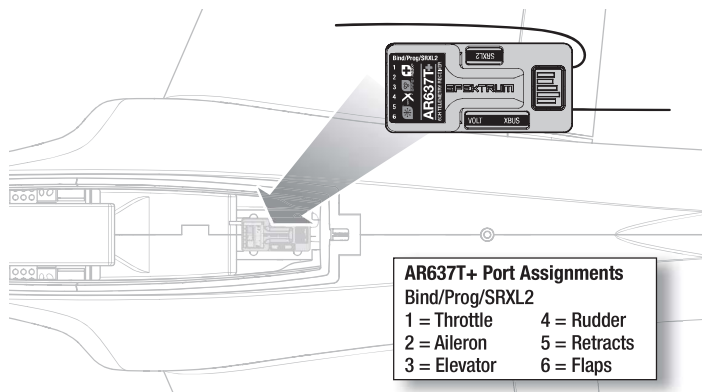
The Spektrum AR637T+ receiver is recommended for this airplane. If you choose to install another receiver, ensure that it is at least a 6-channel full-range receiver. Refer to your receiver manual for correct installation and operation instructions.

### Installation (AR637T+ shown)

1. Mount the receiver parallel to the length of the fuselage as shown. Use heavy duty double-sided servo tape.

**NOTICE:** Incorrect installation of the receiver could cause a crash.

2. Attach the appropriate control surfaces to their respective ports on the receiver using the chart in the illustration.
3. Route the receiver antenna, as shown.



## Auto Transmitter Setup (BNF Basic)

The AR637TA+ receiver, included with your aircraft, is programmed with an all-new version of AS3X+/SAFE. This includes a Smart transmitter file, with the setup developed specifically for this aircraft. This allows you to quickly import the settings for your transmitter directly from your receiver during the binding process.

### Supported Transmitters and Firmware Requirements

- All NX Transmitters (with firmware version 4.0.11+)
- iX14 (with app version 2.0.9+)
- iX20 (with app version 2.0.9+)

**IMPORTANT:** iX12 and DX transmitters do not support Smart transmitter file transfers at this time.

To load the Smart transmitter files:

1. Power ON the transmitter.
2. Create a new blank model file on your transmitter.
3. Power ON the receiver.
4. Press the bind button on the receiver.
5. Put the transmitter into bind mode. The model will bind normally.
6. Once binding is complete and telemetry has finished its auto configuration, the download screen will appear as shown at the right.
7. Select **LOAD** to continue.

The NOTICE screen, as shown at the right, is a warning that downloading will overwrite all the information of the current model. If this is a new “blank” model it will simply populate the transmitter parameters of the aircraft into the selected model and rename it EFL02450 Habu XS 80mm EDF.

**NOTICE:** Confirming will override any previously saved transmitter setups.

8. Press CONFIRM to continue.
9. Once the download is complete the file will be installed on your transmitter and the telemetry information will be loaded automatically.

Once loading is complete the radio will return to the home screen, and you will see “EFL02450 Habu XS 80mm EDF”.

Transmitter setup is now complete, and you are ready to fly your aircraft.

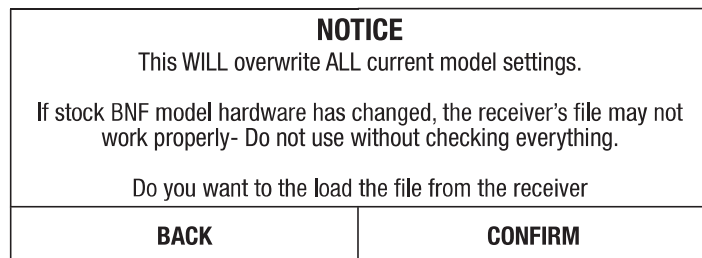
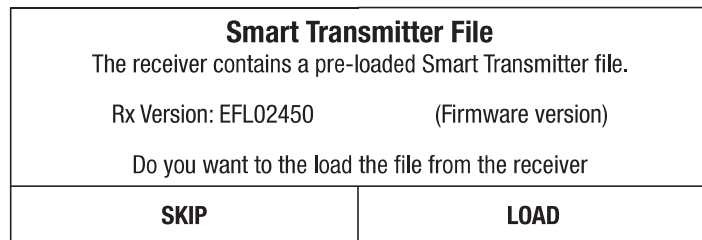
### Pre-Loaded Transmitter File Operation Notes

#### Flight Modes Active with Flap System

The imported file activates Flight Modes, setting them to the Flap switch (D). It also changes the trim setting from Common, to Flight Mode. This allows aileron, elevator, and rudder trims to be separately adjusted for each flap setting. In-flight trim for all three axes is now independent, which provides the ability to precisely trim the model for each flap position.

#### Trim for each Flight Mode Switch (D) position:

- POS 0: Trim all three axes for flaps up (normal)
- POS 1: Trim all three axes for partial flaps (take-off)
- POS 2: Trim all three axes for full flaps (landing)



## Manual Transmitter Setup (BNF Basic)

**IMPORTANT:** After you set up your model, always rebind the transmitter and receiver to set the desired failsafe positions.

The GEAR Channel (CH 5) controls the retractable landing gear. If you are using a 6 channel transmitter, The FLAP Channel (CH 6) can be used to toggle SAFE Select. With the values listed below it will turn SAFE on for half and full flap positions and AS3X+ will be on for no flaps position.

To use the flap channel for the SAFE Select switch the values must be set to +100 and -100 and the speed set to 0 temporarily to assign the safe switch in the flap system menu. Then change the flap systems values back to the listing in the transmitter setup. See the SAFE Select Switch Designation section of this manual to assign the switch for SAFE Select.

### NX Series Transmitter Setup

1. Power ON your transmitter, click on scroll wheel, roll to **System Setup** and click the scroll wheel. Select **YES**.
2. Go to **Model Select** and choose **Add New Model** near the bottom of the list. Select **Airplane Model Type** by choosing airplane image, select **Create**.
3. Set **Model Name**: Input a name for your model file.
4. Go to **Aircraft Type** and scroll to the wing selection, choose **Wing: 1 Ail 1 Flap Tail: Normal**
5. Select **Main Screen**, Click the scroll wheel to enter the **Function List**.
6. Go to **D/R (Dual Rate) and Expo** menu to set **D/R** and **Expo**.
7. Set **Rates and Expo: Aileron**  
Set **Switch: Switch F**  
Set **High Rates: 100%, Expo 10%** — **Low Rates: 70%, Expo 5%**
8. Set **Rates and Expo: Elevator**  
Set **Switch: Switch C**  
**High Rates: 100%, Expo 10%** — **Low Rates 70%, Expo 5%**
9. Set **D/R (Dual Rate) and Expo: Rudder**  
Set **Switch: Switch G**  
**High Rates: 100%, Expo 10%** — **Low Rates 70%, Expo 5%**
10. Set **Throttle Cut; Switch: Switch H, Position: -100%**
11. Select **Flap System**  
Set **Switch: Switch D**  
Set **Flaps: POS 0: 100%, POS 1: 65%, POS 2: 30%**  
Set **ELEV: POS 0: 0%, POS 1: 3%, POS 2: 7%**  
Set **Speed: 2.0 s**

### iX Series Transmitter Setup

1. Power ON your transmitter and begin once the Spektrum AirWare app is open. Select the orange pen icon in the screen's upper left corner, the system asks for permission to **Turn Off RF**, select **PROCEED**.
2. Select the three dots in the upper right corner of the screen, select **Add a New Model**.
3. Select **Model Option**, choose **DEFAULT**, select **Airplane**. The system asks if you want to create a new acro model, select **Create**.
4. Select the last model on the list, named **Acro**. Tap on the word Acro and rename the file to a name of your choice.
5. Press and hold the back arrow icon in the upper left corner of the screen to return to the main screen.
6. Go to the **Model Setup** menu. Select **Aircraft Type**. The system asks for permission to **Turn Off RF**, select **PROCEED**. Touch the screen to select wing. Select **1 Ail 1 Flap**.
7. Press and hold the back arrow icon in the upper left corner of the screen to return to the main screen.

## Dual Rates

**Attempt your first flights in low rate. For landings, use high rate elevator.**

**NOTICE:** To ensure AS3X+ technology functions properly, do not lower rate values below 50%. If less control deflection is desired, manually adjust the position of the pushrods on the servo arm

**NOTICE:** If oscillation occurs at high speed, refer to the Troubleshooting Guide for more information.

## Exponential

After first flights, you may adjust exponential in your transmitter.

### DX Series Transmitter Setup

1. Power ON your transmitter, click on scroll wheel, roll to **System Setup** and click the scroll wheel. Select **YES**.
2. Go to **Model Select** and choose **Add New Model** at the bottom of the list. The system asks if you want to create a new model, select **Create**.
3. Set **Model Type**: Select **Airplane Model Type** by choosing the airplane. The system asks you to confirm model type, data will be reset. Select **YES**.
4. Set **Model Name**: Input a name for your model file.
5. Go to **Aircraft Type** and scroll to the wing selection, choose **Wing: 1 Ail 1 Flap Tail: Normal**
6. Select **Main Screen**, Click the scroll wheel to enter the **Function List**.
7. Set **D/R (Dual Rate) and Expo: Aileron**  
Set **Switch: Switch F**  
Set **High Rates: 100%, Expo 10%** — **Low Rates: 70%, Expo 5%**
8. Set **D/R (Dual Rate) and Expo: Elevator**  
Set **Switch: Switch C**  
**High Rates: 100%, Expo 10%** — **Low Rates 70%, Expo 5%**
9. Set **D/R (Dual Rate) and Expo: Rudder**  
Set **Switch: Switch G**  
**High Rates: 100%, Expo 10%** — **Low Rates 70%, Expo 5%**
10. Set **Throttle Cut; Switch: Switch H, Position: -100%**
11. Select **Flaps**  
Set **Switch: Switch D**  
Set **Flaps: POS 0: 100%, POS 1: 65%, POS 2: 30%**  
Set **ELEV: POS 0: 0%, POS 1: 3%, POS 2: 7%**  
Set **Speed: 2.0 s**

### iX Series Transmitter Setup

8. Go to the **Model Adjust** menu.
9. Set **Dual Rates and Expo**: Select **Aileron**  
Set **Switch: Switch F**  
Set **High Rates: 100%, Expo 10%** — **Low Rates: 70%, Expo 5%**
10. Set **Dual Rates and Expo**: Select **Elevator**  
Set **Switch: Switch C**  
**High Rates: 100%, Expo 10%** — **Low Rates 70%, Expo 5%**
11. Set **D/R (Dual Rate) and Expo: Rudder**  
Set **Switch: Switch G**  
**High Rates: 100%, Expo 10%** — **Low Rates 70%, Expo 5%**
12. Select **Flap System**  
Set **Switch: Switch D**  
Set **Flaps: POS 0: 100%, POS 1: 65%, POS 2: 30%**  
Set **ELEV: POS 0: 0%, POS 1: 3%, POS 2: 7%**  
Set **Speed: 2.0 s**
13. Set **Throttle Cut; Switch: Switch H, Position: -100%**

## General Binding Tips and Failsafe

- The included receiver has been specifically programmed for operation of this aircraft. Refer to the receiver manual for correct setup if the receiver is replaced.
- Keep away from large metal objects while binding.
- Do not point the transmitter's antenna directly at the receiver while binding.
- The orange LED on the receiver will flash rapidly when the receiver enters bind mode.
- Once bound, the receiver will retain its bind settings for that transmitter until you re-bind.
- If the receiver loses transmitter communication, the failsafe will activate. Failsafe moves the throttle channel to low throttle. Pitch and roll channels move to actively stabilize the aircraft in a descending turn.
- If problems occur, refer to the troubleshooting guide or if needed, contact the appropriate Horizon Product Support office.

## Transmitter and Receiver Binding / Enable or Disable SAFE Select (BNF Basic)

The BNF Basic version of this airplane includes SAFE Select technology, enabling you to choose the level of flight protection. SAFE mode includes angle limits and automatic self leveling. AS3X+ mode provides the pilot with a direct response to the control sticks. SAFE Select is enabled or disabled during the bind process. With SAFE Select disabled the aircraft is always in AS3X+ mode. With SAFE Select enabled the aircraft will be in SAFE Select mode all the time, or you can assign a switch to toggle between SAFE Select and AS3X+ modes.

Thanks to SAFE Select technology, this aircraft can be configured for full-time SAFE mode, full-time AS3X+ mode, or mode selection can be assigned to a switch.

**IMPORTANT:** Before binding, read the transmitter setup section in this manual and complete the transmitter setup table to ensure your transmitter is properly programmed for this aircraft.

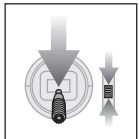
**IMPORTANT:** Move the transmitter flight controls (rudder, elevators, and ailerons) and the throttle trim to neutral. Move the throttle to low before and during binding. This process defines the failsafe settings.

You can use either the **bind button** on the receiver case **OR** a conventional **bind plug** to complete the binding and SAFE Select process.

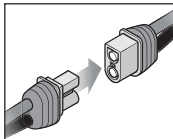
**SAFE can also be enabled via Forward Programming.**

### Using The Bind Button...

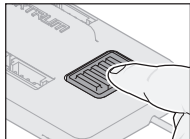
#### To Enable SAFE Select



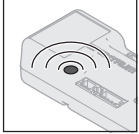
Lower Throttle



Connect Power



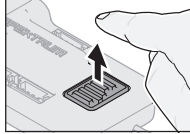
Press and hold Bind Button



Orange Flashing LED



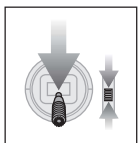
Bind TX to RX



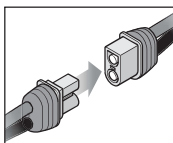
Release Bind Button

**SAFE SELECT ENABLED:** The control surfaces cycle back and forth **twice** with a slight pause at neutral position every time the receiver is powered on.

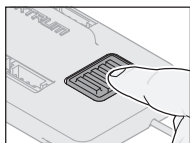
#### To Disable SAFE Select



Lower Throttle



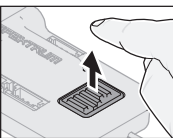
Connect Power



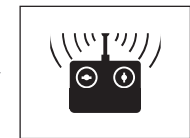
Press and hold Bind Button



Orange Flashing LED



Release Bind Button

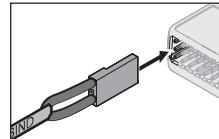


Bind TX to RX

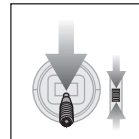
**SAFE SELECT DISABLED:** The control surfaces cycle back and forth **once** every time the receiver is powered on.

### Using The Bind Plug...

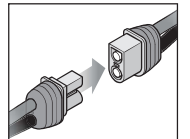
#### To Enable SAFE Select



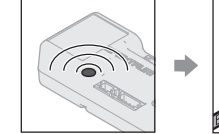
Install Bind Plug



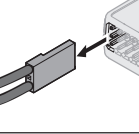
Lower Throttle



Connect Power



Orange Flashing LED



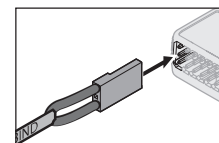
Remove Bind Plug



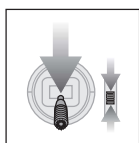
Bind TX to RX

**SAFE SELECT ENABLED:** The control surfaces cycle back and forth **twice** with a slight pause at neutral position every time the receiver is powered on.

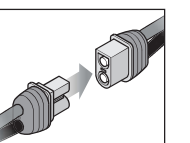
#### To Disable SAFE Select



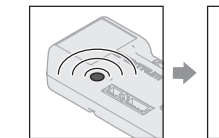
Install Bind Plug



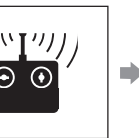
Lower Throttle



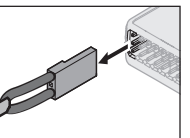
Connect Power



Orange Flashing LED



Bind TX to RX



Remove Bind Plug

**SAFE SELECT DISABLED:** The control surfaces cycle back and forth **once** every time the receiver is powered on.

## Battery Installation and ESC Arming

### Battery Selection

A 6S 4000–7000mAh LiPo battery is required. The Spektrum 5000mAh 6S 22.2V Smart G2 LiPo 50C IC5 battery (SPMX56S50) is recommended. Refer to the Optional Parts List for other recommended batteries. If using a battery other than those listed, the battery should be within the range of capacity, dimensions and weight of the Spektrum Li-Po battery packs to fit in the fuselage. Be sure the model balances within the recommended CG range before flying.

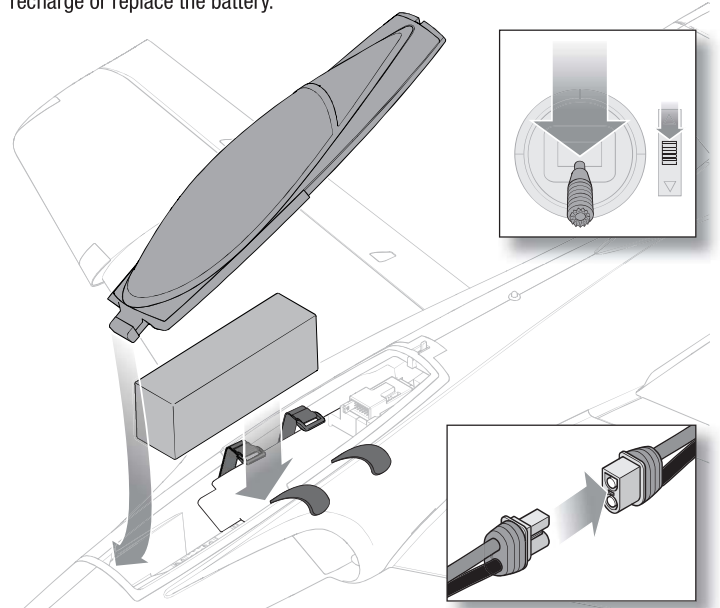
1. Lower the throttle to the lowest settings. Power on the transmitter, then wait 5 seconds.
2. Remove the battery hatch.
3. For added security, apply the loop side (soft side) of the optional hook and loop tape to the bottom of your battery, and the hook side to the battery tray.
4. Install the fully charged battery in the center of the battery compartment as shown. Secure using the hook and loop straps.
5. Connect the battery to the ESC. If you have not completed the bind sequence, do so at this time as outlined in this manual.

**CAUTION:** Always keep hands and loose items away from the fan intake. When armed, the motor will turn the rotor in response to any throttle movement.

6. Keep the aircraft immobile and away from wind or the system will not initialize.
  - The motor emits a chime when the battery is connected, then 6 even tones (indicating the number of connected cells) followed by a rising tone to indicate the ESC is armed.
  - An LED will light on the receiver when it is initialized.
7. Reinstall the battery hatch.

### ESC Tones

If the ESC sounds a continuous double beep after the flight battery is connected, recharge or replace the battery.



ESC Error Tones	Tone Meaning	Possible Problem
Continuous slow single tones	Abnormal throttle signal	Transmitter and receiver not bound
		Throttle lead damaged or not plugged into receiver
		Throttle lead plugged into receiver backward
Continuous rapid single tones	Throttle signal not at low position	Throttle stick not at low position
		Throttle travel reduced below 100%
		Throttle reversed
		Throttle trim raised
Continuous double tones	Battery voltage is beyond acceptable range	Verify battery is a 22.2V 6-cell LiPo
		Verify battery is fully charged

## SAFE® Select Technology

When flying in SAFE Select mode the aircraft will return to level flight any time the aileron and elevator controls are at neutral. Applying aileron or elevator control will cause the airplane to bank, climb or dive, and the amount the stick is moved will determine the attitude the airplane flies. Holding full control will push the aircraft to the pre-determined pitch and roll limits, but it will not go past those angles.

When flying with SAFE Select it is normal to hold the control stick deflected with moderate aileron input when flying through a turn. To fly smoothly with SAFE Select avoid making frequent control changes and don't attempt to correct for minor

deviations. With SAFE Select, holding deliberate control inputs will command the aircraft to fly at a specific angle and the model will make all corrections to maintain that flight attitude.

Return the elevator and aileron controls to neutral before switching from SAFE Select mode to AS3X+ mode. If you do not neutralize controls when switching into AS3X+ mode, the control inputs used for SAFE Select mode will be excessive for AS3X+ mode and the aircraft will react immediately.

### Differences Between SAFE and AS3X+ Modes

This section is generally accurate but does not take into account flight speed, battery charge status, and other limiting factors.

		SAFE Select	AS3X+
Control Input	Control stick is neutralized	Aircraft will self level	Aircraft will continue to fly at its present attitude
	Holding a small amount of control	Aircraft will bank or pitch to a moderate angle and maintain the attitude	Aircraft will continue to pitch or roll slowly
	Holding full control	Aircraft will bank or pitch to the predetermined limits and maintain the attitude	Aircraft will continue to roll or pitch rapidly



## SAFE® Select Switch Designation

SAFE® Select technology can be assigned to any open switch (2 or 3 position) controlling a channel (5–9) on your transmitter. Once assigned to a switch, SAFE select ON gives you the flexibility to choose SAFE technology or AS3X+ mode while in flight. If the aircraft is bound with SAFE select OFF, the aircraft will be in AS3X+ mode exclusively.

**IMPORTANT:** Before assigning your desired switch, ensure that the travel for that channel is set at 100% in both directions and the aileron, elevator, rudder and throttle are all on high rate with the travel at 100%.

**CAUTION:** Keep all body parts well clear of the rotor and keep the aircraft securely restrained in case of accidental throttle activation.

**TIP:** SAFE Select is assignable on any unused channels 5–9. See your transmitter manual for more information about assigning a switch to a channel.

**TIP:** Use your radio channel monitor to confirm that the four primary channels are showing 100% travel while assigning the switch.

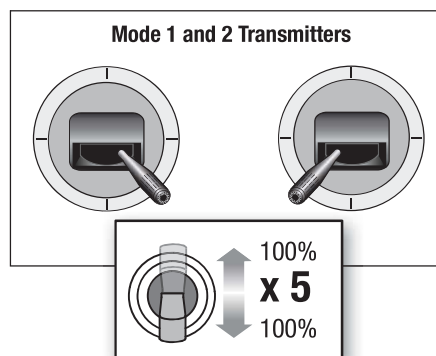
**TIP:** Use the channel monitor to make sure the switch you are assigning for SAFE Select is active and driving a channel between 5-9 and that it is traveling 100% in each direction.

**TIP:** Make sure your four primary channels are not reversed if you are having trouble assigning a SAFE Select switch.

### Assigning a Switch

1. Bind the aircraft to choose SAFE Select ON. This will allow the system to be assigned to a switch.
2. Hold both transmitter sticks to the inside bottom corners and toggle the desired switch 5 times (1 toggle = full up and down) to assign that switch. The control surfaces of the aircraft will move, indicating the switch has been selected.

Repeat the process to assign a different switch or to deactivate the current switch if desired.



## Control Direction Test

**WARNING:** Do not perform this or any other equipment test without turning on throttle cut. Serious injury or property damage could result from the motor starting inadvertently.

If the control surfaces do not respond as shown, **DO NOT FLY**. Refer to the *Troubleshooting Guide* for more information. If you need more assistance, contact the appropriate Horizon Hobby Product Support department.

1. Power on the transmitter.
2. Enable the throttle cut.
3. Connect the battery.
4. Use the transmitter to operate the aileron, elevator and rudder controls.

**NOTICE:** View the aircraft from the rear when checking the control directions.

### Ailerons

5. Move the aileron stick to the left. The left aileron should move up and the right aileron down, which will cause the aircraft to roll left.
6. Move the aileron stick to the right. The right aileron should move up and the left aileron down, which will cause the aircraft to roll right.

### Elevators

7. Pull the elevator stick back. The elevators should move up, which will cause the aircraft to pitch up.
8. Push the elevator stick forward. The elevators should move down, which will cause the aircraft to pitch down.

### Rudder

9. Move the rudder stick to the left. The rudder and the nose wheel should move to the left, which will cause the aircraft to yaw left.
10. Move the rudder stick to the right. The rudder and the nose wheel should move to the right, which will cause the aircraft to yaw right.

	Transmitter Command	Control Surface Response (viewed from the rear)
Aileron		
Elevator		
Rudder		




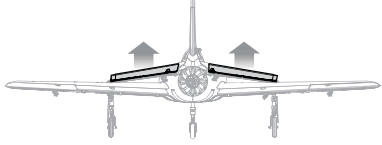



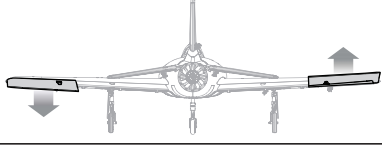
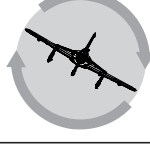
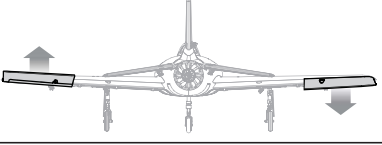
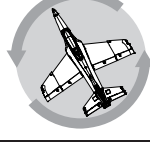
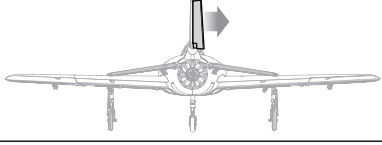
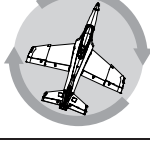
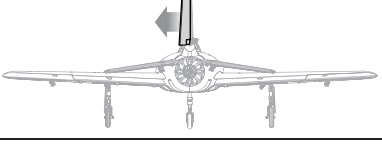
## AS3X+ Control Response Test (BNF Basic)

This test ensures that the AS3X+® control system is functioning properly. Assemble the aircraft and bind your transmitter to the receiver before performing this test.

1. Raise the throttle just above 25%, then lower the throttle to activate AS3X+ technology.

**CAUTION:** Keep all body parts, hair and loose clothing away from the air intake, as these items could become entangled.

2. Move the entire aircraft as shown and ensure the control surfaces move in the direction indicated in the graphic. If the control surfaces do not respond as shown, do not fly the aircraft. Refer to the receiver manual for more information. Once the AS3X+ system is active, control surfaces may move rapidly. This is normal. AS3X+ remains active until the battery is disconnected.

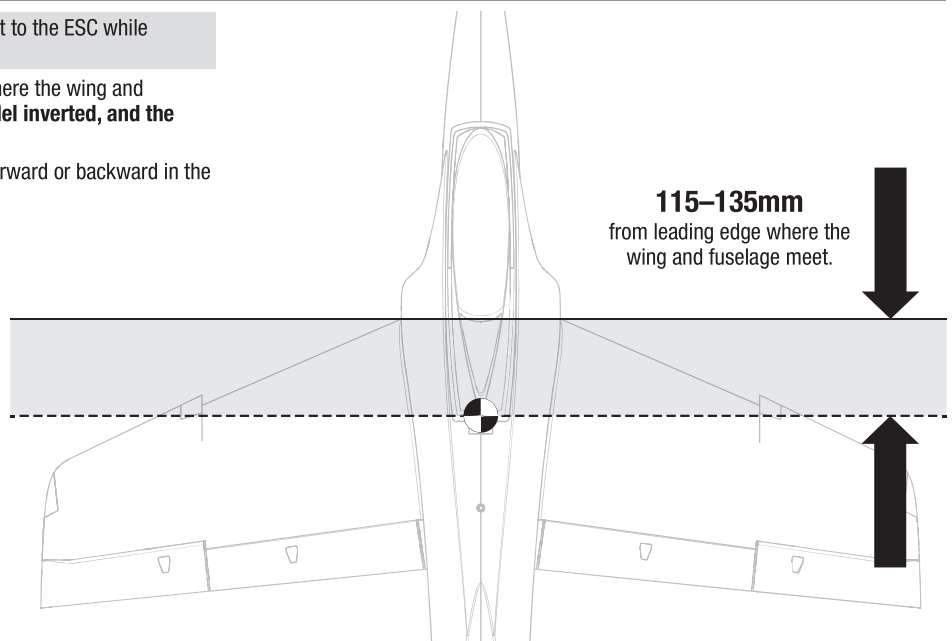
	Aircraft Movement	AS3X+ Reaction
Elevator		
		
Aileron		
		
Rudder		
		

## Center of Gravity

**WARNING:** Install the battery but do not connect it to the ESC while checking the CG. Personal injury may result.

The CG location is 115–135mm from the leading edge where the wing and fuselage meet. **Always check the CG location with model inverted, and the landing gear down.**

The CG location is adjusted by moving the battery pack forward or backward in the battery compartment.



## Control Horn and Servo Arm Settings

The table to the right shows the factory settings for the control horns and servo arms. Fly the aircraft at factory settings before making changes.

**NOTICE:** If control throws are changed from the factory settings, the AR637TA gain values may need to be adjusted. Refer to the Spektrum AR637T+ manual for adjustment of gain values.

After flying, you may choose to adjust the linkage positions for the desired control response. See the table to the right.

Factory Setting	Control Horns	Servo Arms
Elevator		
Rudder		
Aileron		
Flap		
Tuning	Control Horns	Servo Arms
More Control Throw		
Less Control Throw		

## Dual Rates and Control Throws

Program your transmitter to set the rates and control throws based on your experience level. These values have been tested and are a good starting point to achieve a successful first flight.

After flying, you may choose to adjust the values for the desired control response.

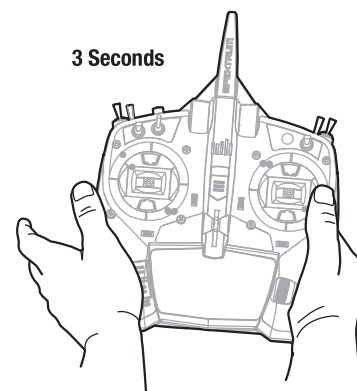
	Low Rate	High Rate
Aileron	18mm ▲ 18mm ▼	27mm ▲ 27mm ▼
Elevator	10mm ▲ 10mm ▼	14mm ▲ 14mm ▼
Rudder	27mm ◀▶	35mm ◀▶
Flap	11mm (Take-Off) 35mm (Landing)	

## In Flight Trimming (BNF Basic)

During your first flight, trim the aircraft for level flight. Make small trim adjustments with your transmitter's trim switches to straighten the aircraft's flight path.

After adjusting the trim, do not touch the control sticks for 3 seconds. This allows the receiver to learn the correct settings to optimize AS3X+ performance.

Failure to do so could affect flight performance.



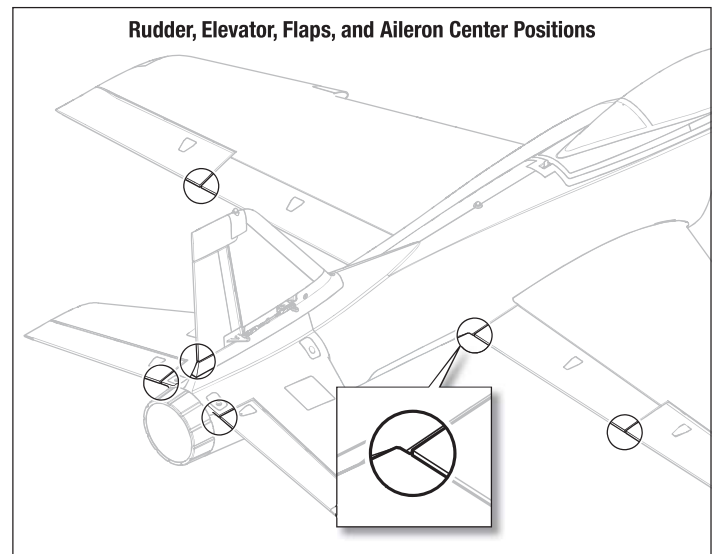
## Control Surface Centering

After assembly and transmitter setup, confirm that the control surfaces are centered. The model must be powered up and bound to the transmitter in AS3X+ mode, with the throttle left at zero. When enabled, SAFE mode is active at power up. AS3X+ mode is activated when the throttle is raised above 25% for the first time after being powered on. It is normal for the control surfaces to respond to aircraft movement if the aircraft is in AS3X+ or SAFE modes.

1. Verify the trims and subtrims on your transmitter are zero.
2. Power up the model in AS3X+ mode and leave the throttle at zero.

**NOTICE:** Be aware of the pushrod bottoming out in the ball linkage. Do not thread the pushrod too far into the ball link or the pushrod will damage the ball link and protrude into the area needed for the control ball.

3. Center the rudder with the bottom of the vertical stabilizer. If adjustment is required, turn the ball link on the linkage to change the length between the servo arm and the control horn until the rudder is straight.
4. With the flap switch in the 0 position, verify that the flaps are in the full up position, aligning the inboard flap ends with the fuselage wing fillet. Adjust the linkage length as in Step 3 as necessary.
5. Center the ailerons by aligning the inboard end of the aileron with the outboard end of the flap, after the flap has been centered. Adjust the linkage length as in Step 3 as necessary.
6. Center the elevators with the inside portion of the horizontal stabilizer trailing edge. Adjust the linkage length as in Step 3 as necessary.



## Service and Repairs

### Power Components Service

#### Disassembly

1. Remove the two screws (A) from the EDF cover.
2. Remove the four EDF screws (B) from the EDF housing.
3. Pull the fan unit (C) out of the fuselage and disconnect the motor leads from the ESC.

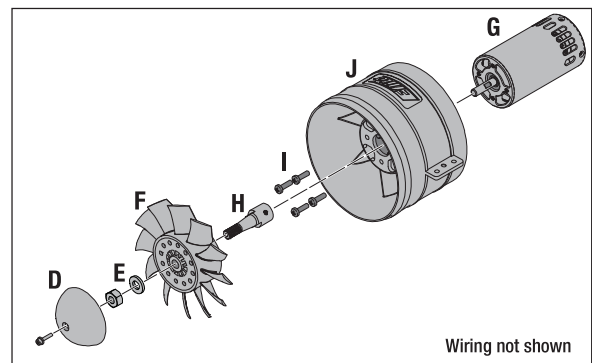
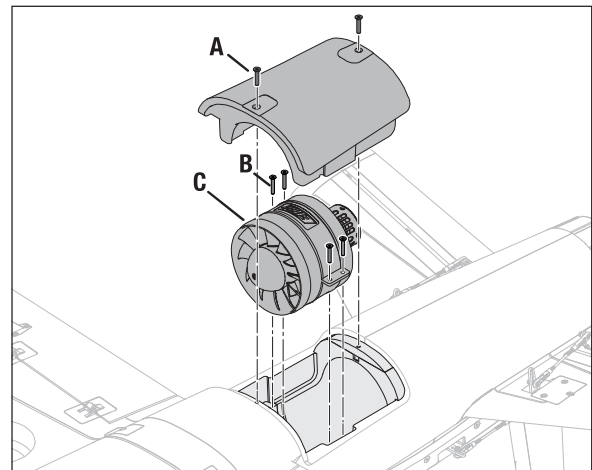
**NOTE:** Remove the ESC/motor wire cover plate. Important to re-install during assembly to prevent wires from interfering with rotor.

4. Remove the spinner (D) from the rotor using a 1.5mm hex driver.
5. Remove the rotor hex nut and washer (E) from the rotor shaft. Use a 4mm nut driver on the extended hex shaft (motor back) and a 10mm wrench on the front of the shaft to prevent the motor shaft from rotating.
6. Remove the rotor (F).
7. Remove the motor (G) from the rotor housing.
8. Remove the rotor shaft (H) from the motor.
9. Remove the four screws (I) to remove the motor from the fan shroud (J).

#### Assembly

Assemble in reverse order.

- Correctly align and connect the motor wire colors with the ESC wires.
- Reinstall the ESC/motor wire cover plate to prevent wires from interfering with rotor.
- Ensure the fan housing tabs are correctly installed as the fan unit can only be installed one way.
- Ensure the front of the rotor is installed facing the nose of the aircraft.
- Ensure the spinner is fully connected for safe operation.
- Ensure no wiring is pinched by any of the power components.



## Post Flight

Disconnect the flight battery from the ESC (required for safety and battery life).

Power OFF the transmitter.

Remove the flight battery from the aircraft.

Recharge the flight battery to storage voltage level.

Repair or replace all damaged parts.

Store the flight battery apart from the aircraft and monitor the battery charge.

Make note of the flight conditions and flight plan results, planning for future flights.

## Troubleshooting Guide AS3X+

Problem	Possible Cause	Solution
Oscillation	Damaged rotor or nose cone	Replace rotor or rotor cone
	Imbalanced rotor	Balance the rotor
	Motor vibration	Replace parts or correctly align fan unit or other parts and tighten fasteners as needed
	Loose receiver	Align and secure receiver in fuselage
	Loose aircraft controls	Tighten or otherwise secure parts (servo, arm, linkage, horn and control surface)
	Worn parts	Replace worn parts (especially rotor, rotor cone, or servo)
	Irregular servo movement	Replace servo
Inconsistent flight performance	Trim is not at neutral	If you adjust trim more than 8 clicks, adjust the ball link to remove trim
	Sub-Trim is not at neutral	No Sub-Trim is allowed. Adjust the servo linkage
	Aircraft was not kept immobile for 5 seconds after battery connection	With the throttle stick in lowest position. Disconnect battery, then reconnect battery and keep the aircraft still for 5 seconds
Incorrect response to the AS3X+ Control Direction Test	Incorrect direction settings in the receiver, which can cause a crash	DO NOT fly. Correct the direction settings (refer to the receiver manual), then fly

## Troubleshooting Guide

Problem	Possible Cause	Solution
Aircraft will not respond to throttle but responds to other controls	Throttle not at idle and/or throttle trim too high	Reset controls with throttle stick and throttle trim at lowest setting
	Throttle servo travel is lower than 100%	Make sure throttle servo travel is 100% or greater
	Throttle channel is reversed	Reverse throttle channel on transmitter
	Motor disconnected from ESC	Make sure motor is connected to the ESC
Excessive fan noise or excessive vibration	Damaged fan, nose cone, collet or motor	Replace damaged parts
	Fan is out of balance	Balance or replace fan
	Fan nut is loose	Tighten the fan nut
Reduced flight time or aircraft underpowered	Flight battery charge is low	Completely recharge flight battery
	Flight battery damaged	Replace flight battery and follow flight battery instructions
	Flight conditions may be too cold	Make sure battery is not cold before use (Do not apply heat to the battery)
	Battery capacity too low for flight conditions	Replace battery or use a larger capacity battery
Aircraft will not Bind (during binding) to transmitter	Transmitter too near aircraft during binding process	Move powered transmitter a few feet from aircraft, disconnect and reconnect flight battery to aircraft
	Aircraft or transmitter is too close to large metal object, wireless source or another transmitter	Move aircraft and transmitter to another location and attempt binding again
	The bind plug is not installed correctly in the bind port	Install bind plug in bind port and bind the aircraft to the transmitter
	Flight battery/transmitter battery charge is too low	Replace/recharge batteries
	Bind switch or button not held long enough during bind process	Power off transmitter and repeat bind process. Hold transmitter bind button or switch until receiver is bound
Aircraft will not connect (after binding) to transmitter	Transmitter too near aircraft during connecting process	Move powered transmitter a few feet from aircraft, disconnect and reconnect flight battery to aircraft
	Aircraft or transmitter is too close to large metal object, wireless source or another transmitter	Move aircraft and transmitter to another location and attempt connecting again
	Bind plug left installed in bind port	Rebind transmitter to the aircraft and remove the bind plug before cycling power
	Aircraft bound to different model memory (ModelMatch™ radios only)	Select correct model memory on transmitter
	Flight battery/Transmitter battery charge is too low	Replace/recharge batteries
	Transmitter may have been bound to a different aircraft using different DSM protocol	Bind aircraft to transmitter
Control surface does not move	Control surface, control horn, linkage or servo damage	Replace or repair damaged parts and adjust controls
	Wire damaged or connections loose	Do a check of wires and connections, connect or replace as needed
	Transmitter is not bound correctly or the incorrect airplanes was selected	Re-bind or select correct airplanes in transmitter
	Flight battery charge is low	Fully recharge flight battery
	BEC (Battery Elimination Circuit) of the ESC is damaged	Replace ESC
Controls reversed	Transmitter settings are reversed	Perform the Control Direction Test and adjust the controls on transmitter appropriately
Motor power pulses then motor loses power	ESC uses default soft Low Voltage Cutoff (LVC)	Recharge flight battery or replace battery that is no longer performing
	Weather conditions might be too cold	Postpone flight until weather is warmer
	Battery is old, worn out, or damaged	Replace battery
	Battery C rating might be too low	Use recommended battery
Rotor turns the wrong direction	ESC is incorrectly connected	Reverse any two of the three wires going from the ESC to the motor

## Replacement Parts

Part Number	Description
EFL-1298	90-Degree Electric Retract Unit
EFL-1301	90-Degree Nose Gear Retract Unit w/LED Landing Light Plug
EFL-1398	80mm 12-Blade EDF Unit
EFL-1399	12-Blade Rotor: 80mm EDF
EFL-1400	Spinner: 80mm EDF
EFL-1411	Main Gear Left Strut: Habu XS 80mm
EFL-1412	Main Gear Right Strut: Habu XS 80mm
EFL-1413	Nose Gear Strut Landing Gear Assembly: Habu XS 80mm
EFL-1414	Gear Doors: Habu XS 80mm
EFL-1415	Nose Cone: Habu XS 80mm
EFL-1416	Wheel Set Mains 60mm, Nose Wheel 44mm: Habu XS 80mm
EFL-1417	Landing Gear Axles: Habu XS 80mm
EFL-1401	Rotor Motor Shaft w/Nut: 80mm EDF
EFL-1402	Vertical Stabilizer w/LED: Habu XS 80mm
EFL-1403	Horizontal Stabilizer: Habu XS 80mm
EFL-1404	Canopy Hatch w/Pilot: Habu XS 80mm
EFL-1405	Wing Set w/hardware, LED: Habu XS 80mm
EFL-1406	Fuselage w/LED: Habu XS 80mm
EFL-1407	Linkage Set: Habu XS 80mm
EFL-1408	Screw Set: Habu XS 80mm

Part Number	Description
EFL-1409	Tail Cone: Habu XS 80mm
EFL-1410	A347 Servo Arms: Habu XS 80mm
EFL-1420	Fuselage EDF Hatch: Habu XS 80mm
EFL-1421	Air Intake Wire Cover: Habu XS 80mm
EFL-1422	Retract C-Clips, Rotation Pins and Set Screws: Habu XS 80mm
EFL-1423	Strut Piston Pins: Habu XS 80mm
EFL-1424	Nose Gear Steering Arm: Habu XS 80mm
EFL-1425	Nose Gear Landing LED Light w/Strut Mount: Habu XS 80mm
EFL-1426	Main Lower Gear Left Strut: Habu XS 80mm
EFL-1427	Main Lower Gear Right Strut: Habu XS 80mm
EFL-1428	Front Lower Landing Gear Strut Assembly: Habu XS 80mm
EFL-1429	Main Landing Gear Leg Spring Housing: Habu XS 80mm
EFL-1430	Front Landing Gear Leg Spring Housing: Habu XS 80mm
EFL-1431	Servo Covers: Habu XS 80mm
EFL-1432	Hands-Free Mounts w/Servo Extensions: Habu XS 80mm
EFL-2568	Retract Strut Pins, Main Gear and Nose Gear: Habu XS 80mm
SPMX-1045	Brushless Inrunner Motor; 3665–2170Kv 4-Pole
SPMSA347	Servo: A347 9g Sub-Micro Metal-Geared Digital
SPM-1032	AR637T+ DSMX 6-Channel AS3X+ & SAFE Telemetry Receiver
SPMXAE1130A	Avian 130 Amp Brushless Smart ESC Ver: A, 3S–6S

## Recommended Parts

Part Number	Description
SPMR8210	NX8+ 20-Channel DSMX Transmitter Only
SPMX56S50	5000mAh 6S 22.2V Smart G2 LiPo 50C; IC5

Part Number	Description
SPMXC2000	S2100 G2 2x100W AC Smart Charger

## Optional Parts

Part Number	Description
ONXT1000	Ultimate Air/Surface Startup Tool Set
SPM6730	Smart Charger Case
SPMR7110	NX7e+ 14-Channel Transmitter Only
SPMX46S50	4000mAh 6S 22.2V Smart G2 LiPo 50C; IC5

Part Number	Description
SPMX326S30	3200mAh 6S 22.2V Smart G2 LiPo 30C; IC5
SPMXBC100	XBC100 Smart Battery Checker & Servo Driver
SPMXCA300	Smart Lipo Bag, 16 x 7.5 x 6.5 cm
SPMXC2040	Smart S1400 G2 AC Charger, 1 x 400W

## Important Federal Aviation Administration (FAA) Information



Use the QR code below to learn more about the **Recreational UAS Safety Test (TRUST)**, as was introduced by the 2018 FAA Reauthorization Bill. This free test is required by the FAA for all recreational flyers in the United States. The completed certificate must be presented upon request by any FAA or law enforcement official.



If your model aircraft weighs more than .55lbs or 250 grams, you are required by the FAA to register as a recreational flyer and apply your registration number to the outside of your aircraft. Use the QR code to learn more about registering with the FAA.



According to FAA regulation, all unmanned aircraft flying in United States airspace are required to either fly within an FAA-Recognized Identification Area (FRIA) or continually transmit an FAA-registered remote identification from a Remote ID broadcast module, such as the Spektrum™ Sky™ Remote ID module (SPMA9500). Use the QR code to learn more about the FAA Remote ID regulations.

## AMA National Model Aircraft Safety Code

### Effective January 1, 2018

A model aircraft is a non-human-carrying device capable of sustained flight within visual line of sight of the pilot or spotter(s). It may not exceed limitations of this code and is intended exclusively for sport, recreation, education and/or competition. All model flights must be conducted in accordance with this safety code and related AMA guidelines, any additional rules specific to the flying site, as well as all applicable laws and regulations.

As an AMA member I agree:

- I will not fly a model aircraft in a careless or reckless manner.
- I will not interfere with and will yield the right of way to all human-carrying aircraft using AMA's See and Avoid Guidance and a spotter when appropriate.
- I will not operate any model aircraft while I am under the influence of alcohol or any drug that could adversely affect my ability to safely control the model.
- I will avoid flying directly over unprotected people, moving vehicles, and occupied structures.
- I will fly Free Flight (FF) and Control Line (CL) models in compliance with AMA's safety programming.
- I will maintain visual contact of an RC model aircraft without enhancement other than corrective lenses prescribed to me. When using an advanced flight system, such as an autopilot, or flying First-Person View (FPV), I will comply with AMA's Advanced Flight System programming.
- I will only fly models weighing more than 55 pounds, including fuel, if certified through AMA's Large Model Airplane Program.
- I will only fly a turbine-powered model aircraft in compliance with AMA's Gas Turbine Program.
- I will not fly a powered model outdoors closer than 25 feet to any individual, except for myself or my helper(s) located at the flightline, unless I am taking off and landing, or as otherwise provided in AMA's Competition Regulation.
- I will use an established safety line to separate all model aircraft operations from spectators and bystanders.



## 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](http://www.horizonhobby.com), submit a Product Support Inquiry, 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](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 LiPo batteries to Horizon. If you have any issue with a LiPo 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](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.

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## Contact Information

Country of Purchase	Horizon Hobby	Contact Information	Address
United States of America	Horizon Service Center (Repairs and Repair Requests)	<a href="http://servicecenter.horizonhobby.com/RequestForm/">servicecenter.horizonhobby.com/RequestForm/</a>	2904 Research Rd Champaign, Illinois, 61822 USA
	Horizon Product Support (Product Technical Assistance)	<a href="mailto:productsupport@horizonhobby.com">productsupport@horizonhobby.com</a> 877-504-0233	
	Sales	<a href="mailto:websales@horizonhobby.com">websales@horizonhobby.com</a> 800-338-4639	
European Union	Horizon Technischer Service Sales: Horizon Hobby GmbH	<a href="mailto:service@horizonhobby.eu">service@horizonhobby.eu</a> +49 (0) 4121 2655 100	Hanskampring 9 D 22885 Barsbüttel, Germany

## FCC Information

### FCC ID: BRWTIARLGTNG1

This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and/or antenna and your body (excluding fingers, hands, wrists, ankles and feet). This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

### Supplier's Declaration of Conformity

**FCC EFL Habu XS 80mm EDF BNF Basic (EFL02450)**  
**EFL Habu XS 80mm EDF PNP (EFL02475)**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



**CAUTION:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Horizon Hobby, LLC  
 2904 Research Rd.,  
 Champaign, IL 61822  
 Email: [compliance@horizonhobby.com](mailto:compliance@horizonhobby.com)  
 Web: [HorizonHobby.com](http://HorizonHobby.com)

## IC Information

### CAN ICES-3 (B)/NMB-3(B)

### IC: 6157A-TIARLGTNG1

This device contains license-exempt transmitter(s)/receivers(s) that comply with Innovation, Science, and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following 2 conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

## Compliance Information for the European Union



### EU Compliance Statement:

**EFL Habu XS 80mm EDF BNF Basic (EFL02450):** Hereby, Horizon Hobby, LLC declares that the device is in compliance with the following: EU EMC Directive 2014/30/EU, RoHS 2 Directive 2011/65/EU, RoHS 3 Directive - Amending 2011/65/EU Annex II 2015/863.

**EFL Habu XS 80mm EDF PNP (EFL02475):** Hereby, Horizon Hobby, LLC declares that the device is in compliance with the following: EU Radio Equipment Directive 2014/53/EU, RoHS 2 Directive 2011/65/EU, RoHS 3 Directive - Amending 2011/65/EU Annex II 2015/863.

The full text of the EU declaration of conformity is available at the following internet address: <https://www.horizonhobby.com/content/support-render-compliance>.

**NOTE:** This product contains batteries that are covered under the 2006/66/EC European Directive, which cannot be disposed of with normal household waste. Please follow local regulations.

### Wireless Frequency Range and Wireless Output Power:

2402 – 2478 MHz  
 19.95dBm



### EU Manufacturer of Record:

Horizon Hobby, LLC  
 2904 Research Road  
 Champaign, IL 61822 USA

### EU Importer of Record:

Horizon Hobby, GmbH  
 Hanskampring 9  
 22885 Barsbüttel Germany

### WEEE NOTICE:



This appliance is labeled in accordance with European Directive 2012/19/EU concerning waste of electrical and electronic equipment (WEEE). This label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.