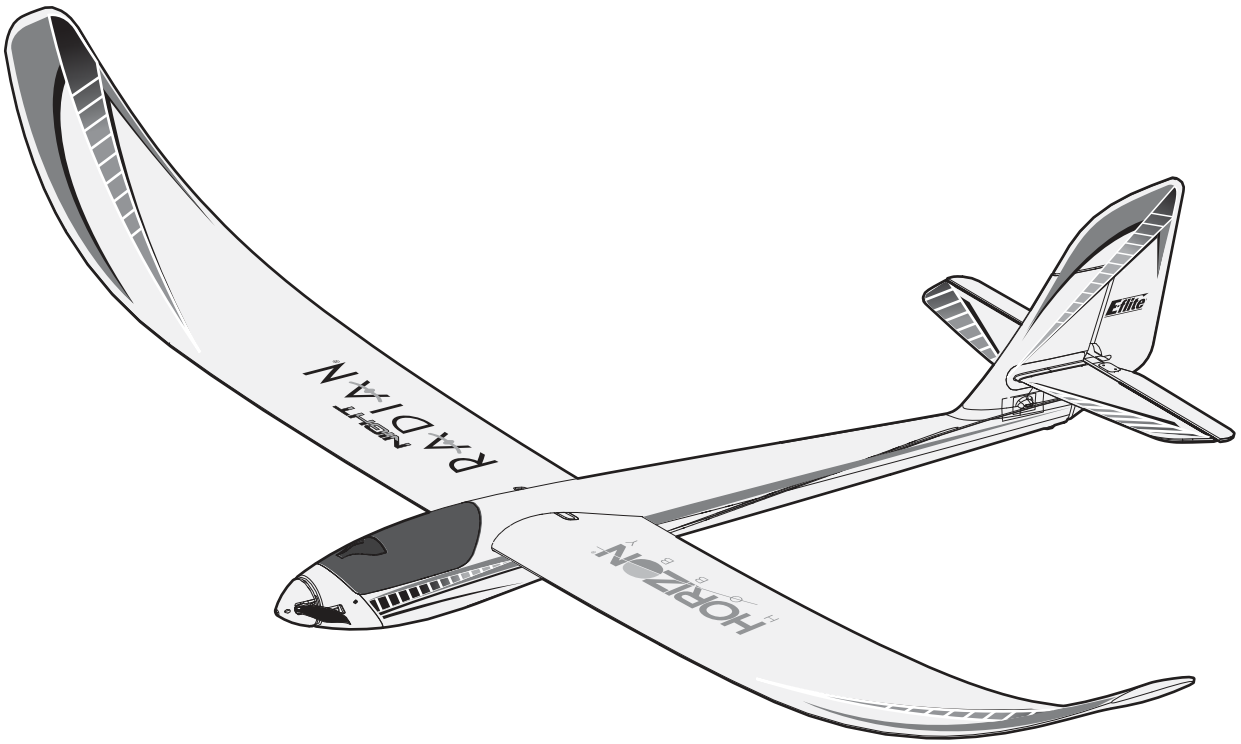
E-flite®
ADVANCING ELECTRIC FLIGHT

Night Radian 2.0m



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.

BNF® BASIC

EFL36500

PNP® PLUG-N-PLAY®

EFL36750

Instruction Manual
Bedienungsanleitung
Manuel d'utilisation
Manuale di Istruzioni

HORIZON® HOBBY

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 or 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

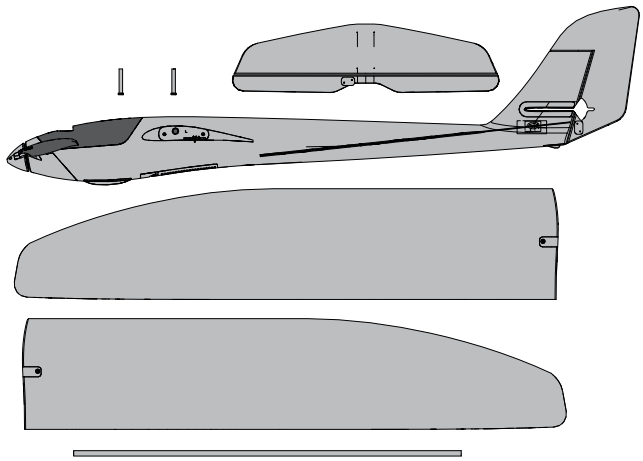
As the user of this product, you are solely responsible for operating in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

- 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.

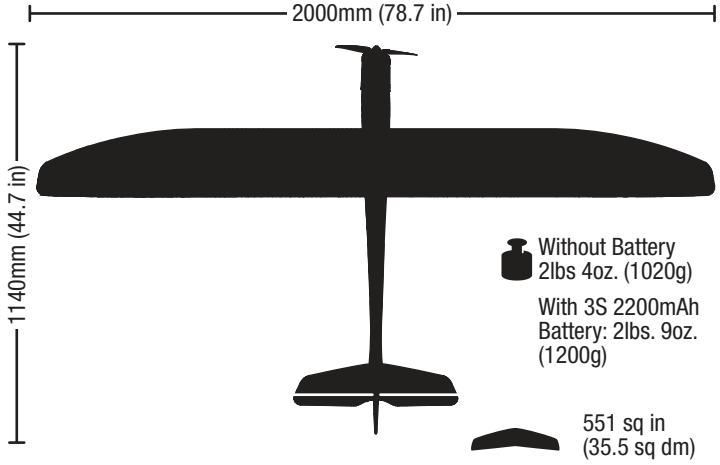
Quick Start Information			
Transmitter Setup	Set up your transmitter using the transmitter setup chart		
Dual Rates		**High Rate**	**Low Rate**
	Elevator:	100% ▲13mm ▼13mm	70% ▲10mm ▼10mm
	Rudder:	100% ▶40mm ◀ 40mm	70% ▶33mm ◀ 33mm
Exponential	**Elevator:**	10%	5%
	Rudder:	10%	5%
Center of Gravity (CG)	80mm(+/– 5mm) from leading edge at wing root.		
Flight Timer Setting	8 minutes		

Box Contents



Specifications

	BNF BASIC	PNP PLUG-N-PLAY
Motor: 480 Brushless Outrunner; 960Kv, 14-Pole (EFL4716)	**Installed**	**Installed**
ESC: 30-Amp ESC (EFLA1030E)	**Installed**	**Installed**
Receiver: Spektrum™ AS3X/SAFE Receiver (SPMAR631)	**Installed**	**Required**
Servos: Rudder: 9g Sub-Micro Servo (EFL1060); 280mm Lead Elevator: 9g Sub-Micro Servo (EFL1060); 280mm Lead	**Installed**	**Installed**
Recommended Battery: 2200mAh 3S 11.1V Smart 30C; IC3 (SPMX22003S30)	**Required**	**Required**
Recommended Battery Charger: 3-cell Li-Po battery balancing charger	**Required**	**Required**
Recommended Transmitter: Full range 6-channel 2.4GHz with Spektrum DSM2/DSMX® technology with adjustable Dual Rates.	**Required**	**Required**



If you own this product, you may be required to register with the FAA. For up-to-date information on how to register with the FAA, please visit https://registermyuas.faa.gov/.
For additional assistance on regulations and guidance on UAS usage, visit knowbeforeyoufly.org/.

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SAFE® Select Technology

The BNF Basic version of this airplane includes SAFE Select technology which can offer an extra level of protection in flight. Use the following instructions to make the SAFE Select system active and assign it to a switch. When enabled, SAFE Select prevents the airplane from banking or pitching past predetermined limits, and automatic self-leveling keeps the airplane flying in a straight and level attitude when the aileron, elevator and rudder sticks are at neutral.

SAFE Select is enabled or disabled during the bind process. When the airplane is bound with SAFE Select enabled, a switch can be assigned to toggle between SAFE Select mode and AS3X mode. AS3X® technology remains active with no banking limits or self leveling any time SAFE Select is disabled or OFF.

SAFE Select can be configured three ways;

- SAFE Select Off: Always in AS3X mode
- SAFE Select On with no switch assigned: Always in SAFE Select mode
- SAFE Select On with a switch assigned: Switch toggles between SAFE Select mode and AS3X mode

Preflight

1. Remove and inspect contents.
2. Read this instruction manual thoroughly.
3. Charge the flight battery.
4. Setup Transmitter using transmitter setup chart.
5. Fully assemble the airplane.
6. Install the flight battery in the aircraft (once it has been fully charged).
7. Check the Center of Gravity (CG).
8. Bind the aircraft to your transmitter.

9. Make sure linkages move freely.
10. Perform the Control Direction Test with the transmitter.
11. Perform the AS3X Control Direction Test with the aircraft.
12. Adjust flight controls and transmitter.
13. Perform a radio system Range Test.
14. Find a safe open area to fly.
15. Plan flight for flying field conditions.

Transmitter Setup (*BNF Basic*)

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

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 (Expo)

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

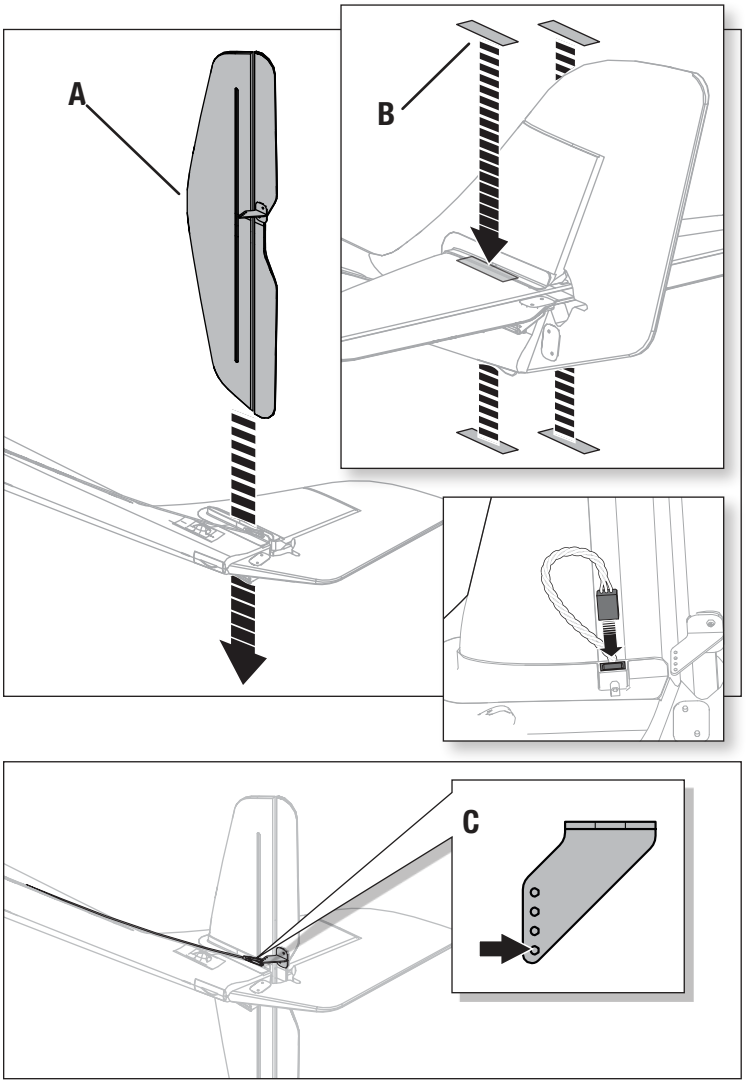
† Some of the terminology and function locations used in the iX12 and iX20 programming may be slightly different than other Spektrum AirWare™ radios. The names given in parentheses correspond to the iX12 and iX20 programming terminology. Consult your transmitter manual for specific information about programming your transmitter.

Computerized Transmitter Setup			
Start all transmitter programming with a blank ACRO model (perform a model reset), then name the model.			
Set Dual Rates to		HIGH 100%	LOW 70%
Set Servo Travel to		100%	
Set Throttle Cut to		-100%	
Set Elevator Expo to		High Rate 10%	Low Rate 5%
Set Rudder Expo to		High Rate 10%	Low Rate 5%
DXe	Refer to spektrumrc.com for the appropriate download setup.		
DX7S DX8	1. Go to the SYSTEM SETUP		
	2. Set MODEL TYPE: AIRPLANE		
	3. Set WING TYPE: 1 AIL		
DX6e DX6 (Gen2) DX7 (Gen2) DX8e DX8 (Gen2) DX9 DX10t DX18 DX20 iX12 iX20 NX6 NX8 NX10	1. Go to the SYSTEM SETUP (Model Utilities)†		
	2. Set MODEL TYPE: AIRPLANE		
	3. Set AIRCRAFT TYPE (Model Setup, Aircraft Type)†: WING: 1 AIL (Normal)		
	4. Set CHANNEL ASSIGN (Model Setup, Channel Assign)†: (Default switch assignments with a new model setup) Gear (CH5): SWITCH A		

Model Assembly

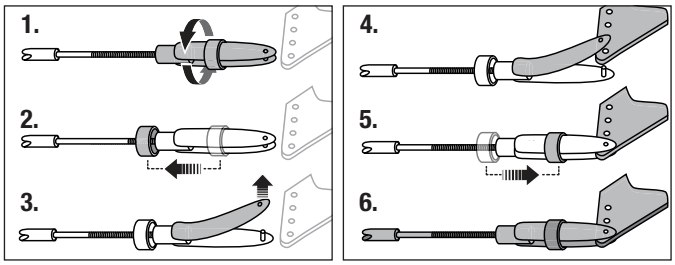
Tail Installation

1. Slide the horizontal stabilizer (**A**) into the slot of the fuselage.
2. Center the horizontal stabilizer and then secure into place with the 4 included pieces of tape (**B**).
3. Connect the LED connector of the horizontal tail into the LED connector installed in the fuselage. The orange signal wire is furthest forward.
4. Connect the clevis to the elevator control horn (**C**) as shown.



Connecting a Clevis

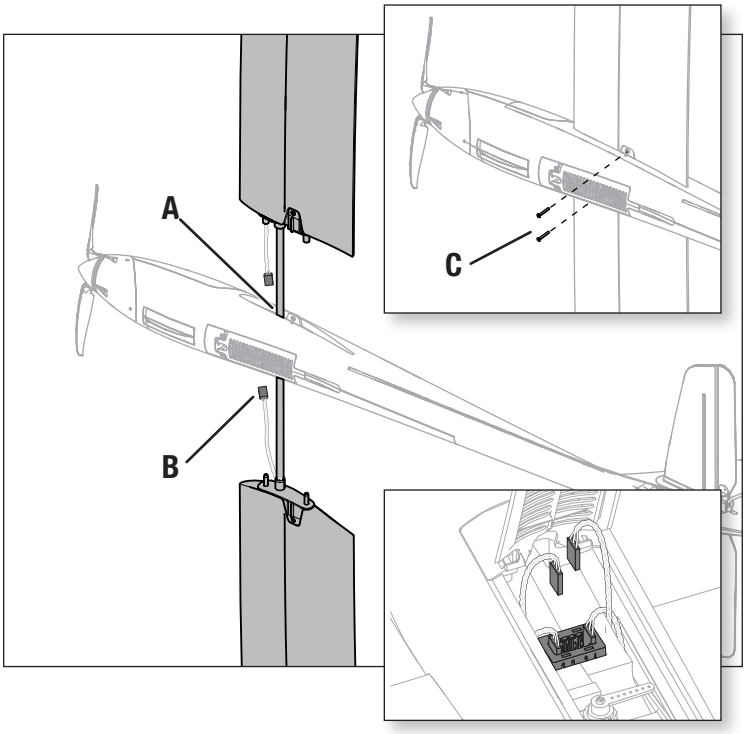
1. Pull the tube from the clevis to the linkage.
2. Carefully spread the clevis, then insert the clevis pin into the desired hole in the control horn.
3. Move the tube to hold the clevis on the control horn



Wing Installation

1. Slide the wing tube (**A**) into the fuselage.
2. Install the left and right wing over the wing tube.
3. Guide the LED connectors **(B**) from both wings into the fuse and toward the bottom hatch.
4. Seat the wings in the slot of the fuselage. Be careful not to pinch any wires.
5. Secure the wings to the fuselage using the included 2 screws (**C**) as shown.
6. Connect the LED connectors to the connector block as shown. The LED connectors can be in any port of the block.

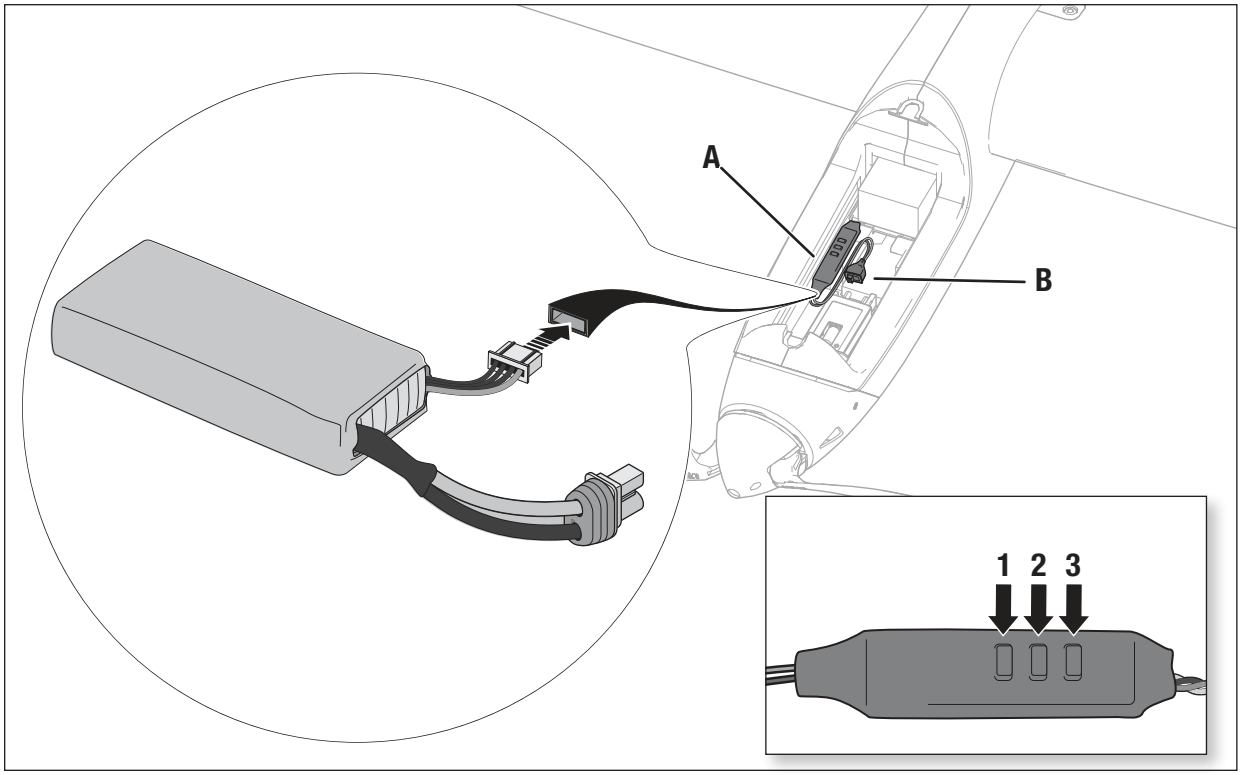
Disassemble in reverse order.



LED Controller

The LED controller (**A**) offers the ability to change the light pattern and speed as well as turn the lights on and off with the attached on/off switch (**B**).

1. Button 1 moves backward in the LED pattern list.
2. Button 2 cycles through the 7 speed settings
3. Button 3 moves forward in the LED pattern list.
4. Turn lights on or off with the attached On/Off switch.



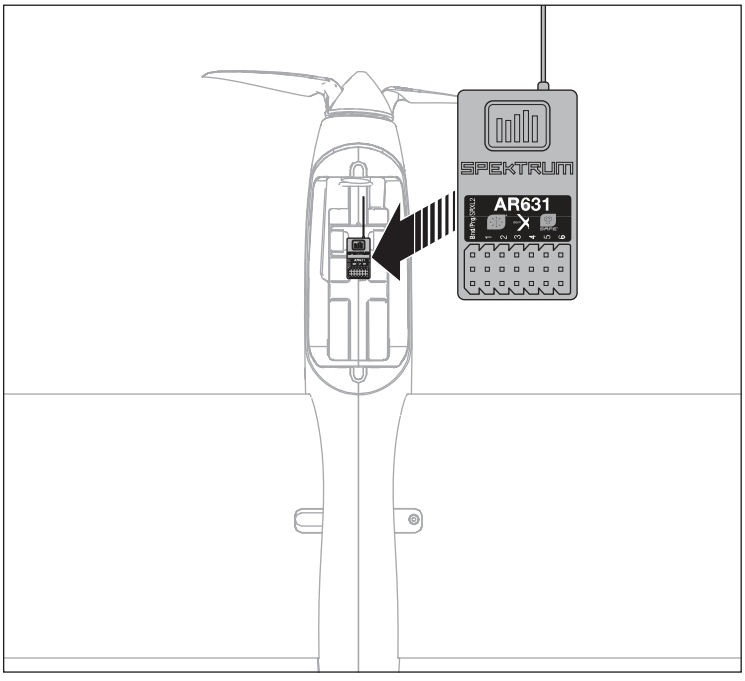
PNP Receiver Selection and Installation

The Spektrum AR631 receiver is recommended for ths airplane. If you choose to install another receiver, ensure that it is at least a 6-channel full range (sport) receiver. Refer to your receiver manual for correct installation and operation instructions.

Installation

1. Remove the canopy from the fuselage.
2. Mount the receiver parallel to the length of the fuselage. Use double-sided servo tape.
3. Attach the appropriate control surfaces to the their respective ports on the receiver using the chart in the illustration.

CAUTION: Incorrect installation of the receiver could cause a crash.



AR631 Port Assignments

BND/PRG = BIND	4 = NA
1 = Throttle	5 = Lights
2 = Rudder	6 = NA
3 = Elevator	

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 / Switching ON and OFF SAFE Select

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.

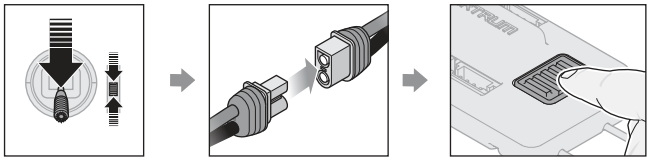
IMPORTANT: Before binding, read the transmitter setup section in this manual and complete the transmitter setup table to ensure your transmitter is properly programmed for this aircraft.

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.

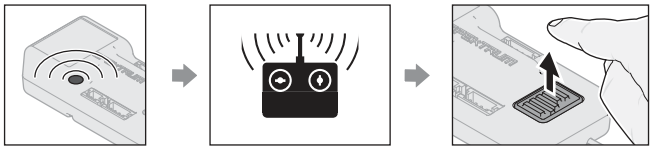
You can use either the **bind button** on the receiver case **OR** a conventional **bind plug** to complete the binding and SAFE Select process.

Using The Bind Button...

To Enable SAFE Select



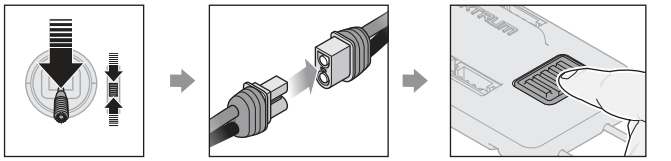
Lower Throttle | Connect Power | Press and hold Bind Button



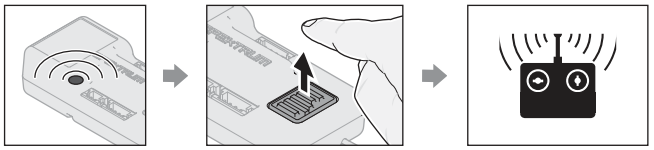
Orange Flashing LED | Bind TX to RX | Release Bind Button

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

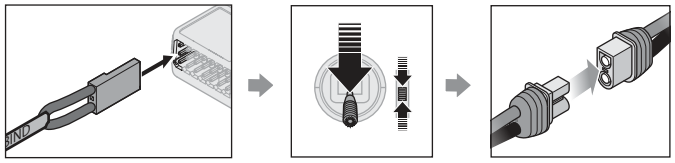


Orange Flashing LED | Release Bind Button | Bind TX to RX

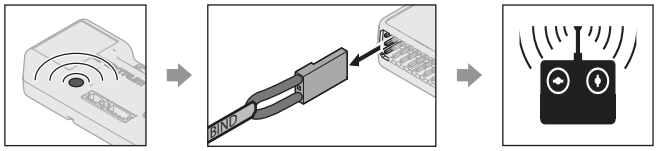
SAFE SELECT DISABLED: The control surfaces cycle back and forth **once** every time the receiver is powered on.

Using The Bind Plug...

To Enable SAFE Select



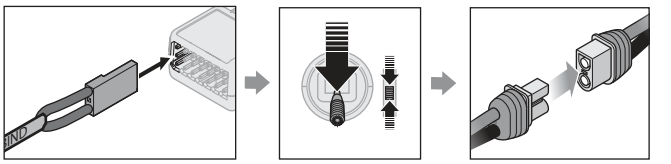
Install Bind Plug | Lower Throttle | Connect Power



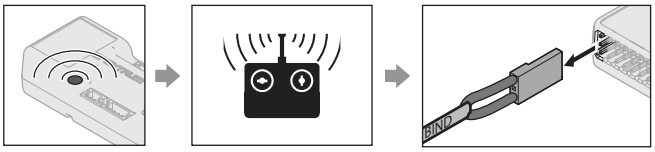
Orange Flashing LED | Remove Bind Plug | Bind TX to RX

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

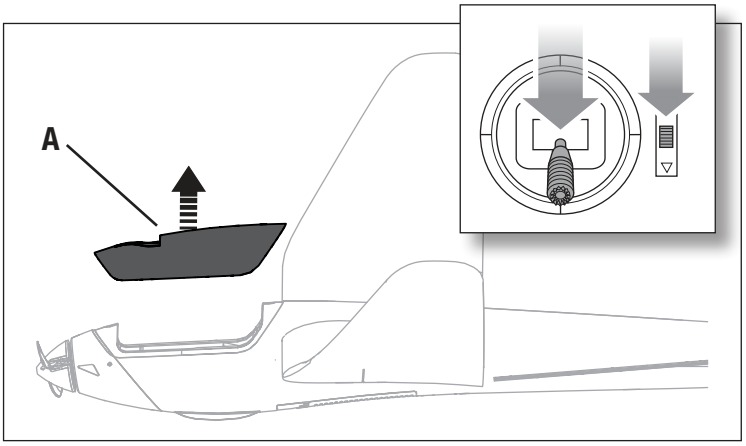
Battery Selection

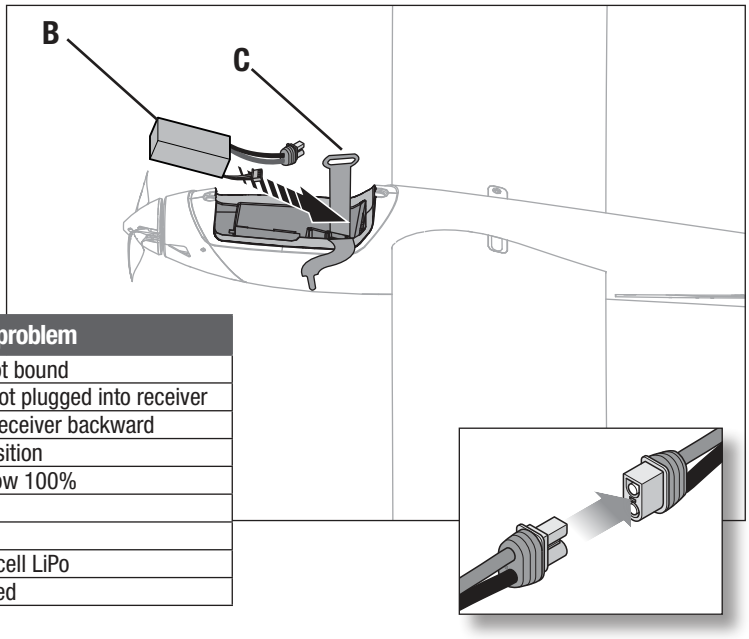
A 3S 2200mAh LiPo battery is required. The Spektrum 2200mAh 11.1V 3S 30C IC3 LiPo battery (SPMX22003S30) is recommended. Refer to the Optional Parts List for other recommended batteries. If using a battery other than those listed, the battery should be within the range of capacity, dimensions and weight of the Spektrum Li-Po battery packs to fit in the fuselage. Be sure the model balances at the recommended CG before flying.

1. Lower the throttle and throttle trim to the lowest settings. Power on the transmitter, then wait 5 seconds.
2. Carefully lift the canopy hatch (**A**) to remove.
3. Install a fully charged battery B) and secure it into place using the hook an loop strap (**C**). *See the Adjusting the Center of Gravity instructions for more information.*
4. 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 away from the propellers. When armed, the motor will turn the propellers in response to any throttle movement.

5. Keep the aircraft immobile and away from wind or the system will not initialize.
   - The motor will emit a series of rising tones when the battery is connected, and then tones indicating the number of cells connected.
   - An LED will light on the receiver when it is initialized
6. 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 11.1V 3-cell LiPo
		Verify battery is fully charged

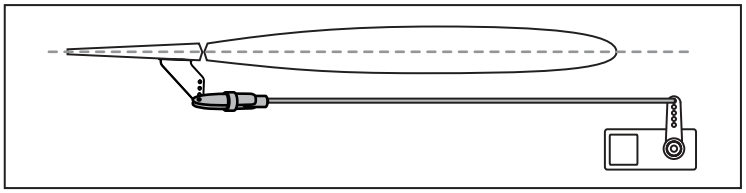
Control Surface Centering

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.

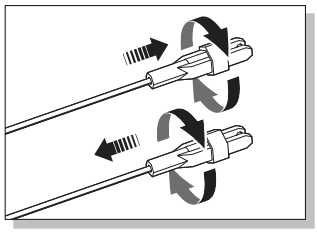
1. Verify the trims and subtrims on your transmitter are zero
2. Power up the model in AS3X mode and leave the throttle at zero

NOTICE: Be aware of the pushrod bottoming out in the clevis. Do not thread the pushrod too far into the clevis or the pushrod will damage the clevis.

3. Center the rudder with the vertical stabilizer. If adjustment is required, turn the clevis on the linkage to change the length between the servo arm and the control horn until the rudder is straight.
4. Center the elevator by aligning the elevator with the horizontal stabilizer. If adjustment is required, adjust the linkage length as in step 3 as necessary.



- Turn the linkage clockwise or counterclockwise until the control surface is centered.
- Attach the linkage to the servo arm or control horn after adjustment

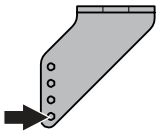
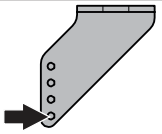


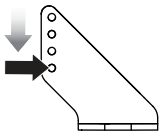
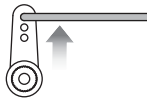
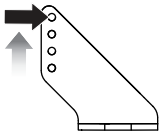
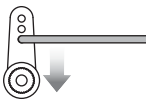
Control Horn and Servo Arm Settings

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 AR631 gain values may need to be adjusted. Refer to the Spektrum AR631 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		

Tuning	Control Horns	Servo Arms
More control throw		
Less control throw		

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.

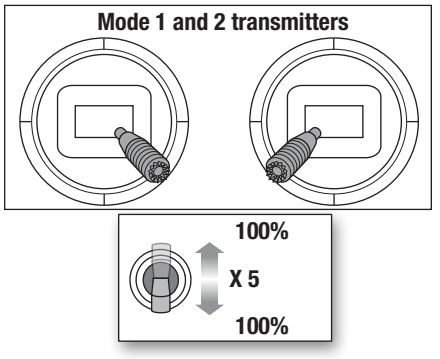
TIP: Use your radio channel monitor to confirm that the four primary channels are showing 100% travel while assigning the switch.

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.

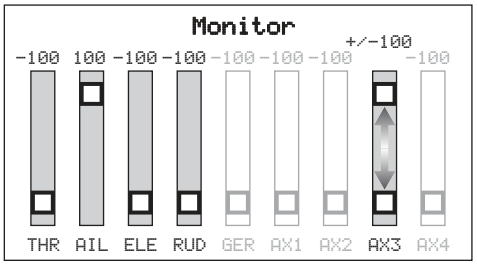
Assigning a switch

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.

TIP: Use the channel monitor to verify channel movement.



This example of the channel monitor shows the stick positions for assigning a switch, the switch selection on Aux3, and +/- 100% travel on the switch.

Smart Technology Telemetry

This aircraft includes Spektrum Smart Technology in the ESC and receiver, which can provide telemetry information such as battery voltage and ESC temperature. To take advantage of Smart Technology, you will need a compatible transmitter. A firmware update for your transmitter may be required.

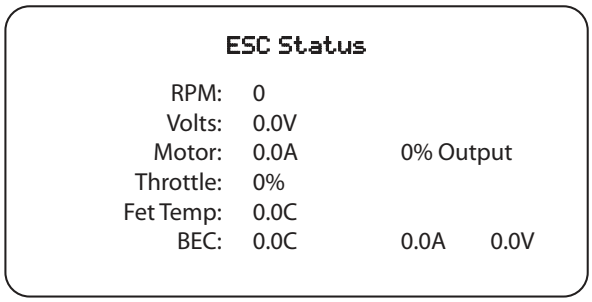
To access all the available features of Smart Technology, use Spektrum Smart batteries to power this aircraft. In addition to ESC data, Spektrum Smart batteries can communicate detailed battery data through the Smart Technology system.

To View Smart Telemetry:

1. Begin with the transmitter bound to the receiver
2. Power on the transmitter.
3. Power on the aircraft.
4. The Smart Logo appears under the battery logo on the home page. A signal bar appears in the top left corner of the screen.*
5. Scroll past the servo monitor to view Smart technology screens.

* If the transmitter that you intend to use with this aircraft is not displaying telemetry data, visit spektrumrc.com and update your firmware. With the latest firmware installed on your transmitter the telemetry option should now be functional on your transmitter.

For more information about compatible transmitters, firmware updates, and how to use the Smart Technology on your transmitter, visit spektrumrc.com.



Control Surface Direction

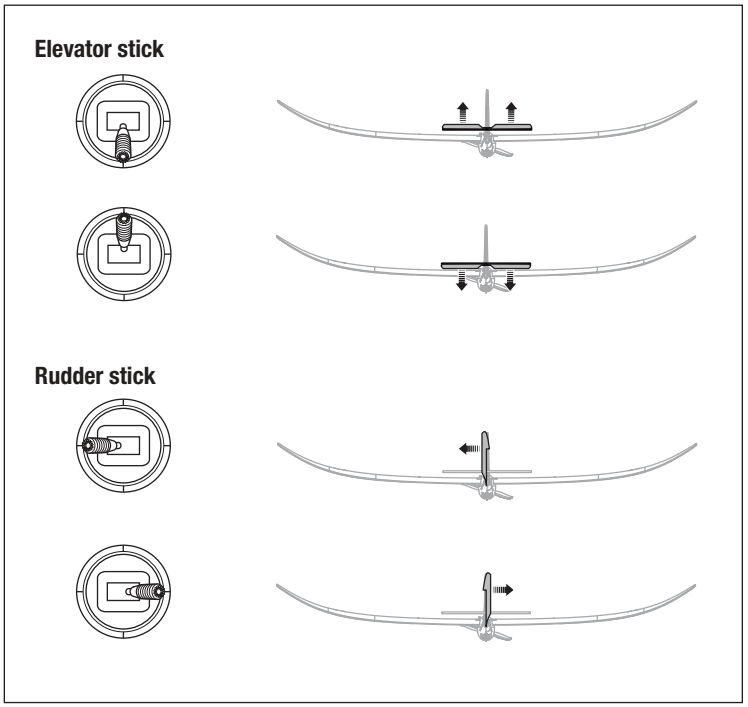
Switch on the transmitter and connect the battery. Use the transmitter to operate the aileron, elevator, and rudder controls. View the aircraft from the rear when checking the control directions.

Elevators

1. Pull the elevator stick back. The stabilators should move up, which will cause the aircraft to pitch up.
2. Push the elevator stick forward. The stabilators should move down, which will cause the aircraft to pitch down.

Rudder

1. 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.
2. 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.



AS3X Control Response Test

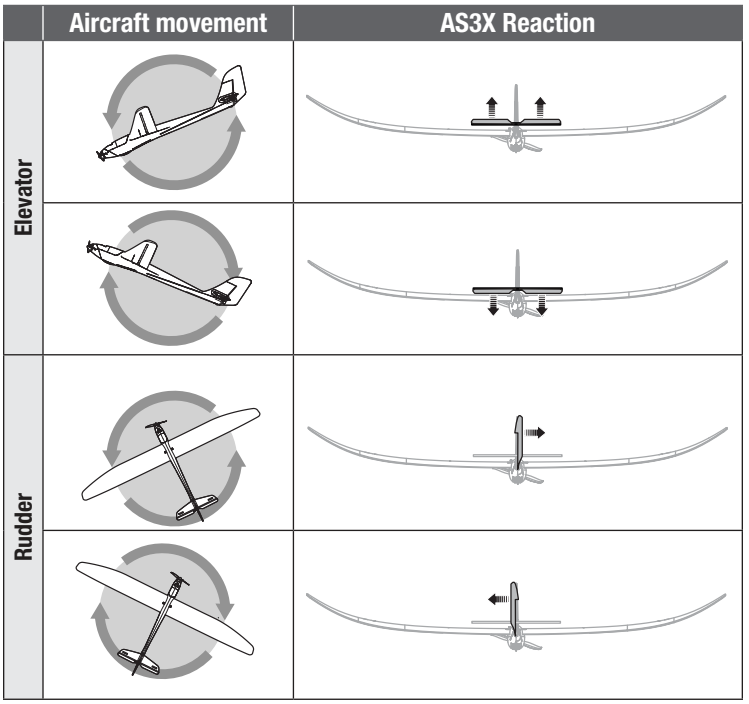
This test ensures that the AS3X control system is functioning properly. Assemble the aircraft and bind your transmitter to the receiver before performing this test.

1. Raise the throttle to any setting above 25%, then lower the throttle to activate AS3X technology.

CAUTION: Keep all body parts, hair and loose clothing away from the Propeller, 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.

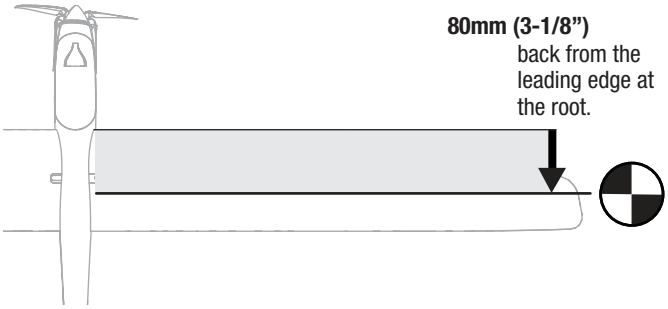
Once the AS3X system is active, control surfaces may move rapidly. This is normal. AS3X remains active until the battery is disconnected.



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 measured from the leading edge of the wing at the root. This CG location has been determined with the recommended Li-Po battery (SPMX22003S30) installed all the way forward in the battery compartment.



Dual Rates

To obtain the best flight performance, we recommend using a DSM2/DSMX radio capable of adjustable Dual Rates. The suggested settings shown here are the recommended starting settings. Adjust according to the individual preferences after the initial flight.

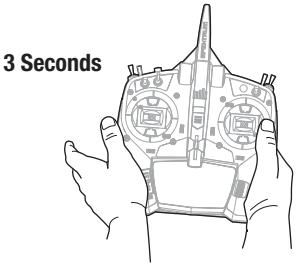
NOTICE: Do not set your transmitter travel adjust over 100%. If the TRAVEL ADJUST is set over 100%, it will not result in more control movement, it will overdrive the servo and cause damage.

Tip: For the first flight, fly the model in low rate.

	Low Rate	High Rate
Elevator	70%	100%
	70%	100%

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.



Flying Tips and Repairs

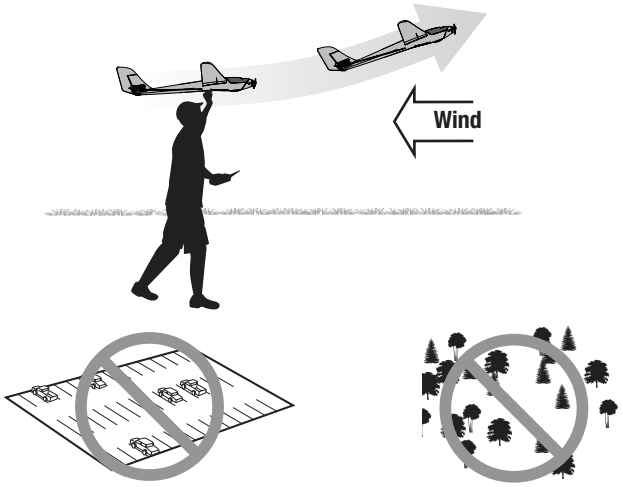
Consult local laws and ordinances before choosing a flying location.

Range Check your Radio System

Before you fly, range check the radio system. Refer to your specific transmitter instruction manual for range test information.

Hand Launch

Set your dual rate switches to low rate. Hold the aircraft fuselage under the wing and gradually increase the throttle to ¾. Launch the aircraft into the wind with the wings level. Allow the aircraft to climb to a comfortable altitude.



Flying

Always choose a wide-open space for flying your aircraft. It is recommended that you fly at a designated RC flying field. Always avoid flying near houses, trees, wires and buildings. Avoid flying in areas where there are many people, such as parks, schoolyards, or soccer fields.

Oscillation

Once the AS3X system is active (after advancing the throttle for the first time), you will normally see the control surfaces react to aircraft movement. In some flight conditions you may see oscillation (the aircraft rocks back and forth on one axis due to overcontrol). If oscillation occurs, refer to the Troubleshooting Guide for more information.

After landing, adjust the linkages mechanically to account for trim changes and then reset the trims to neutral. Ensure the aircraft will fly straight and level with no trim or sub-trim.

Landing

For your first flights with the recommended battery pack (SPMX22003S30), set your transmitter timer or a stopwatch to 8 minutes. After 8 minutes, land the aircraft. Adjust your timer for longer or shorter flights once you have flown the model. **If at any time the motor pulses, land the aircraft immediately to recharge the flight battery.** See the Low Voltage Cutoff (LVC) section for more details on maximizing battery health and run time.

Make sure to land into the wind. Due to the high lifting efficiency of the sailplane design, landing requires a large landing area. While on your downwind leg, remember that the sailplane glides much better than other aircraft. You will need to setup for landing lower and with a more shallow descent than you may be used to. As you are on approach for landing, ensure that the model is descending slowly, but also not accelerating. Maintain this descent and speed, and, as the model nears the ground (approximately 6 inches (15 cm)), slowly apply a small amount of up elevator. Before the aircraft touches down, always fully decrease throttle to avoid damage to the propeller, motor, ESC or other components.

WARNING: Always decrease throttle at propeller strike.

NOTICE: If a crash is imminent, reduce the throttle and trim fully. Failure to do so could result in extra damage to the airframe, as well as damage to the ESC and motor.

NOTICE: After any impact, always ensure the receiver is secure in the fuselage. If you replace the receiver, install the new receiver in the same orientation as the original receiver or damage may result.

NOTICE: Crash damage is not covered under warranty.

NOTICE: When you are finished flying, never leave the aircraft in direct sunlight or in a hot, enclosed area such as a car. Doing so can damage the aircraft.

Low Voltage Cutoff (LVC)

When a Li-Po battery is discharged below 3V per cell, it will not hold a charge. The ESC protects the flight battery from over-discharge using Low Voltage Cutoff (LVC). Before the battery charge decreases too much, LVC removes power supplied to the motor. Power to the motor pulses, showing that some battery power is reserved for flight control and safe landing.

Disconnect and remove the Li-Po battery from the aircraft after use to prevent trickle discharge. Charge your Li-Po battery to about half capacity before storage. During storage, make sure the battery charge does not fall below 3V per cell. LVC does not prevent the battery from over-discharge during storage.

NOTICE: Repeated flying to LVC will damage the battery.

Tip: Monitor your aircraft battery's voltage before and after flying by using a Li-Po Cell Voltage Checker (SPMXBC100, sold separately).

Repairs

Thanks to the EPO foam material in this aircraft, repairs to the foam can be made using virtually any adhesive (hot glue, regular CA, epoxy, etc).

When parts are not repairable, see the Replacement Parts List for ordering by item number. For a listing of all replacement and optional parts, refer to the list at the end of this manual.

NOTICE: Use of CA accelerant on your aircraft can damage paint. DO NOT handle the aircraft until accelerant fully dries.

SAFE Select Flying Tips

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 bank 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 Select and AS3X modes

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

- In SAFE Select mode the aircraft will self level when the control stick is neutralized.
  In AS3X mode the aircraft will continue to fly at its present attitude when the control stick is neutralized.
- In SAFE Select mode holding a small amount of control will result in the model banking or pitching to a moderate angle and remaining at that angle as long as the control stick doesn't move.
  In AS3X mode holding a small amount of control will result in the model continuing to pitch or roll at a slow rate as long as the control stick doesn't move.
- In SAFE Select mode holding full control will result in the airplane banking or pitching to the predetermined limits and the aircraft will keep flying at that attitude as long as the control stick is fully deflected.
  In AS3X mode holding full control will result in the aircraft pitching or rolling as fast as possible, and it will continue to rapidly change attitude as long as the control stick is fully deflected.

Post Flight

1. Disconnect the flight battery from the ESC (required for safety and battery life).
2. Power OFF the transmitter.
3. Remove the flight battery from the aircraft.
4. Recharge the flight battery to storage voltage level.
5. Repair or replace all damaged parts.
6. Store the flight battery apart from the aircraft and monitor the battery charge.
7. Make note of the flight conditions and flight plan results, planning for future flights.

Power System Service

Disassembly

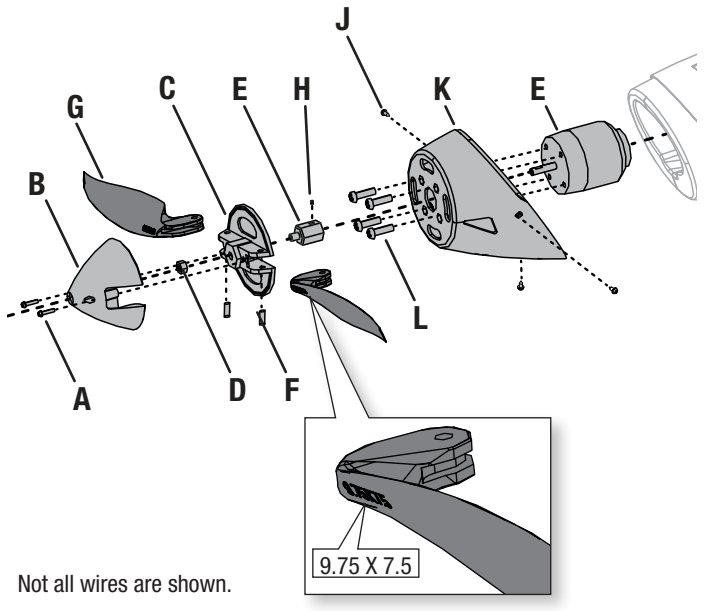
CAUTION: DO NOT handle the motor while the flight battery is connected. Personal injury could result.

1. Remove the 2 screws (**A**) and spinner (**B**) from the spinner backplate (**C**).
2. Remove the propeller nut (**D**), backplate from the prop adapter (**E**). You will need a tool to loosen the spinner nut.
3. Push the propeller pins (**F**) from the spinner backplate to remove the propeller blades (**G**).
4. Remove the set screw (**H**) from the prop adapter and remove it from the motor shaft.
5. Remove the 3 cowl screws (**J**) from the motor mount/cowling (**K**) and remove it from the fuselage.
6. Remove the 4 screws (**L**) and motor (**M**) from the motor mount/cowling.
7. Disconnect the motor wires from the ESC wires.

Assembly

Assemble in reverse order.

- Correctly align and connect the motor wire colors with the ESC wires.
- The propeller size numbers (9.75x 7.5) must face forward toward the nose of the aircraft for correct propeller operation.
- A tool is required to tighten the lock nut on the collet.



Not all wires are shown.

Troubleshooting Guide AS3X

Problem	Possible Cause	Solution
Oscillation	Damaged propeller or nose cone	Replace propeller or nose cone
	Imbalanced propeller	Balance the propeller
	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 propeller, nose 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 clevis 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 propeller noise or Excessive vibration	Damaged propeller, nose cone, collet or motor	Replace damaged parts
	Propeller is out of balance	Balance or replace propeller
	Propeller nut is too loose	Tighten the propeller 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 (ModelMatchTM 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

Replacement Parts

Part #	Description
EFL1018	Prop Apt & Spnr Set: Radian/Pro
EFL1060	9g Sub-Micro Servo; 280mm Lead
EFL3614	Firewall with Screws: Radian/Pro
EFL36501	Pushrod Set; Night Radian
EFL36502	Decal Sheet; Night Radian
EFL36503	Wing Tube; Night Radian
EFL36504	Control Horn Set; Night Radian
EFL36505	LED Controller; Night Radian
EFL36507	Wing Set: Night Radian 2.0
EFL36506	Fuse w/lights: Night Radian 2.0
EFL36508	Horizontal Stab: Night Radian 2.0
EFL3655	Transparent Hatch: Night Radian
EFL4716	480BL Otrn Motor; 960Kv 14-Pole
EFLA1030E	30-Amp ESC: Conscendo E
EFLA630	Multicolor LED set: Night Radian
EFLP97575F	Prop 9.75 x 7.5_1: Radian/Pro
SPMAR631	AR631 6CH AS3X/SAFE Receiver

Recommended Parts

Part #	Description
SPMR6655	DX6e 6 Channel Transmitter Only
SPMX22003S30	2200mAh 3S 11.1V Smart 30C; IC3
SPMXBC100	Smart Battery & Servo Tester
SPMXC1070	Smart S150 AC/DC Charger, 1x50W

Optional Parts

Part #	Description
SPM6722	Spektrum Single Aircraft TX Case
SPMR6775	NX6 6 Ch Transmitter Only
SPMR8105	DX8e 8 Channel Transmitter Only
SPMR8200	NX8 8 Ch DSMX Transmitter Only
SPMX22003S30	2200mAh 3S 11.1V Smart 30C; IC3
SPMXC1000	Smart S1200 DC Charger, 1x200W
SPMXC10202	16A 380W Power Supply
SPMXC1080	Smart S1100 AC Charger, 1x100W

AMA National Model Aircraft Safety Code

Academy of Model Aeronautics
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 aircraftusing 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, 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. 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.

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)	servicecenter.horizonhobby.com/RequestForm/	2904 Research Rd Champaign, Illinois, 61822 USA
	Horizon Product Support (Product Technical Assistance)	productsupport@horizonhobby.com 877-504-0233	
	Sales	websales@horizonhobby.com 800-338-4639	
European Union	Horizon Technischer Service	service@horizonhobby.de	Hanskampring 9 D 22885 Barsbüttel, Germany
	Sales: Horizon Hobby GmbH	+49 (0) 4121 2655 100	

FCC Information

Supplier's Declaration of Conformity

EFL Night Radian BNF Basic and PNP (EFL36500/EFL36750)

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
Web: HorizonHobby.com

IC Information

IC: 6157A-SPMSR6200A
CAN ICES-3 (B)/NMB-3(B)

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 Night Radian BNF Basic (EFL36500); 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

EFL Night Radian PNP (EFL36750); 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

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

Wireless Frequency Range and Wireless Output Power:
2404 – 2476 MHz
5.58dBm

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.

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

Australia/New Zealand:

E328

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US 8,672,726. US 9,056,667. US 9,753,457. US 10,078,329. US 9,930,567. US 10,419,970. US 10,849,013.
https://www.horizonhobby.com