

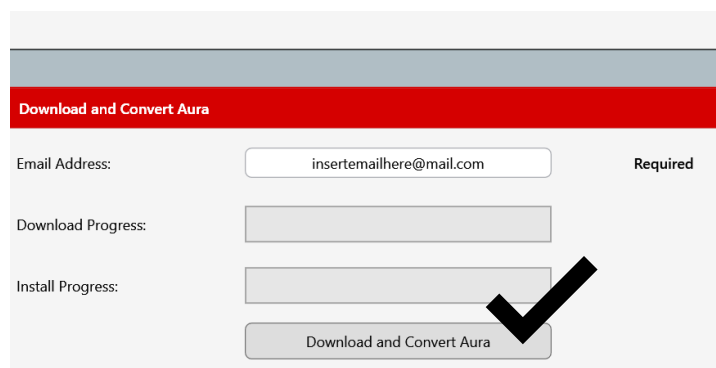
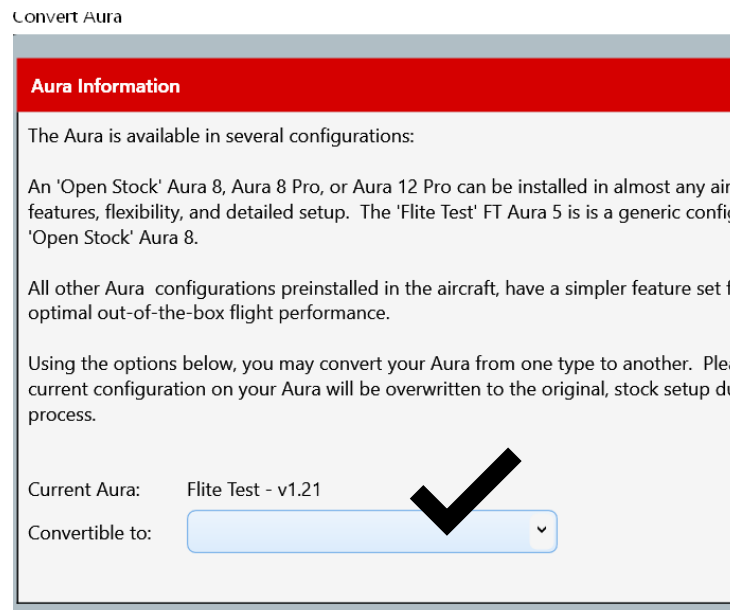
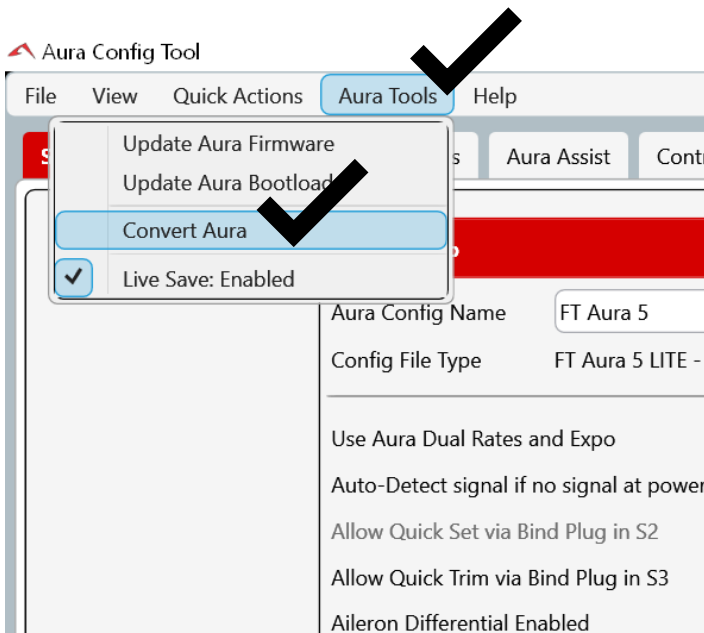
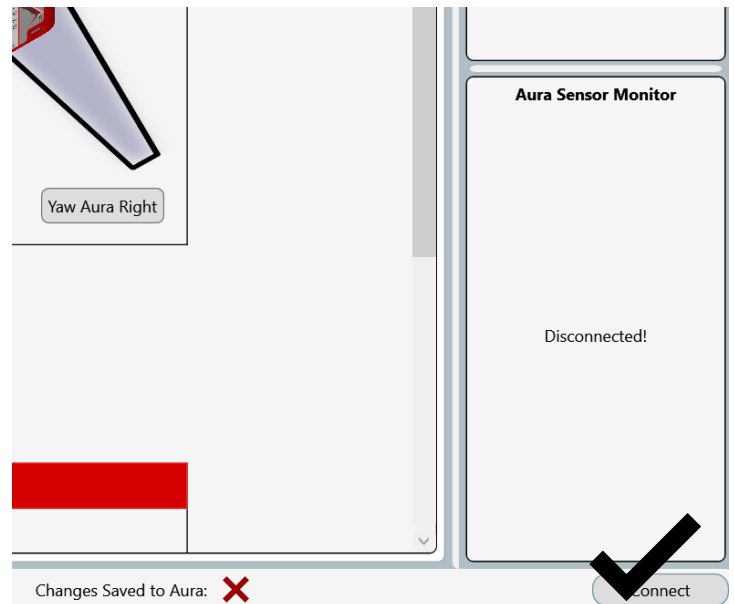
# FP SERIES AIRPLANE / AURA 5 ADDENDUM

The Aura 5 Lite Advanced Flight Control System (AFCS) takes your FP Series airplane to the next level! By adding the Aura 5 to your airplane, your airplane will fly "bigger" with even more stability and precision while eliminating advanced transmitter setup, and have 3-Flight Modes expertly tuned by Jase "The Ace" Dussia, including Launch/Catch Flight Mode! The Aura 5 Lite can be purchased with the specific FP model config file preinstalled on the Aura 5 Lite directly from Flex Innovations.

**Note, This addendum supercedes ALL radio settings mentioned in the FP Series airplane assembly manual if using the Aura 5 AFCS with your FP Series airplane.**

## AURA 5 CONFIG FILE INSTALLATION

1. If you purchased your Aura 5 with a preinstalled config file, please proceed to Page 2.
2. If you need to install the specific FP model config file you can do so via the Aura Config Tool and the following steps:
3. Open the Aura Config Tool.
4. Connect the Aura 5 Lite to the device using the provided USB cable.
5. Click connect on the **Connect** button on the lower right corner of the Aura Config Tool.
6. Select "Convert Aura" from **Aura Tools** Tab.
7. Select the desired Config file.
8. Click Download and Convert Aura and follow any remaining prompts:



## ⚠ WARNING

**DO NOT ATTEMPT RADIO SETUP WITH PROPELLER INSTALLED. INADVERTENT POWER UP COULD CAUSE DEATH OR SERIOUS INJURY.**

## TRANSMITTER SETUP

The Aura 5 Lite AFCS is designed to work seamlessly with all major transmitter and receiver brands, however, trasnmittter setup is significantly different than when setting up the Ultimate FP without Aura. Follow these steps:

1. Start with a new model memory in your transmitter. Reset it to be certain it is set to defaults.
2. Adjust your transmitter settings according to the Transmitter Configuration Guide below.
3. **Make ONLY the changes shown in the Transmitter Configuration Guide.** No other changes are required.
4. Should you want to make any adjustments to the Aura Config File, Please use the Aura Config tool, which is free to download, and can be used on any Windows-based PC or Windows Tablet.
5. Download at: [www.flexinnovations.com/aura-config-tool-install/](http://www.flexinnovations.com/aura-config-tool-install/)

| TRANSMITTER CONFIGURATION GUIDE         |                                              |             |                                 |             |                                 |
|-----------------------------------------|----------------------------------------------|-------------|---------------------------------|-------------|---------------------------------|
|                                         | Spektrum, Futaba, JR <sup>1</sup> & Graupner |             | FrSky                           |             | Jeti                            |
| Wing/Tail Type                          | 1 Aileron, 1 Elevator, 1 Rudder              |             | 1 Aileron, 1 Elevator, 1 Rudder |             | 1 Aileron, 1 Elevator, 1 Rudder |
| End Points<br>(Travel Adjust<br>or ATV) | Ail/Ele/Rud                                  | <b>125%</b> | Ail/Ele/Rud                     | <b>100%</b> | Ail/Ele/Rud <b>100%</b>         |
|                                         | Thro/Gear                                    | <b>100%</b> | Thro/Gear                       | <b>84%</b>  | Thro/Gear <b>80%</b>            |
| Reversing <sup>2</sup>                  | None Required <sup>2</sup>                   |             |                                 |             |                                 |
| Sub Trim                                | Verify at zero, NOT ALLOWED                  |             |                                 |             |                                 |
| Trim Levers                             | Verify at zero                               |             |                                 |             |                                 |
| CH. 5 (Gear) - Flight Mode              | Assigned to a 3-position switch              |             |                                 |             |                                 |
| CH. 6 (Aux 1) - Gyro On/Off             | Assigned to a 2-position switch              |             |                                 |             |                                 |
| Timer <sup>3</sup>                      | Set to 4:00 for initial flights              |             |                                 |             |                                 |

1. JR Customers should use JR XBUS Mode A, and follow the chart above. This is the preferred JR DMSS connection to Aura.
2. If you are using a Futaba trasnmittter, please note that some Futaba transmitters have the throttle set to reverse by default. We recommend that you leave the reversing set to the defaults and reverse it if needed after testing. NOTE, do all throttle testing with the prop removed!
3. This time is a safe starting point for most pilots. This aircraft can fly between 4-5 minutes (with 2S 600mAh LiPo), depending on an individual's flying style.

**FOR CUSTOMERS USING TRANSMITTERS OTHER THAN WHAT IS LISTED IN THE CHART ABOVE, PLEASE VISIT OUR WIKI PAGE FOR INSTRUCTIONS SPECIFIC TO YOUR TRANSMITTER AND RECEIVER BRAND**

HITEC

General Flex Wiki

[wiki.flexinnovations.com/wiki/Aura/HitecSbusUse](http://wiki.flexinnovations.com/wiki/Aura/HitecSbusUse)

[wiki.flexinnovations.com](http://wiki.flexinnovations.com)

## RECEIVER SETUP

Aura will auto-detect modern serial receiver connections. For use in the FP Series airplanes and Aura we recommend a lightweight serial receiver connection or a single Spektrum Remote Receiver. A few of our recommended receivers for the FP Series with Aura 5 are listed below, however this is not a complete list of compatible receivers, rather a short list to assist your receiver selection

**Spektrum Remote Receiver** - SPM9745

**Spektrum SRXL2** - SPM4650C, SPM4651T

**Futaba S.Bus** - R2000SBM, R3104SB

**FrSky S.Bus** - TD MX, Access Archer Plus RS (requires soldering)

**Jeti** - R3 REX, R4I

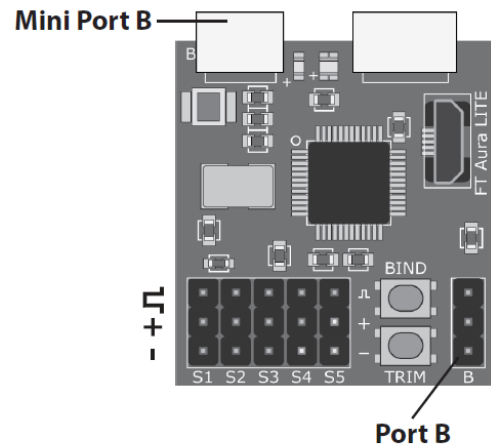


# RECEIVER INSTALLATION / SERVO CONNECTIONS

Aura will auto-detect modern digital receiver connection(s). Using a modern digital receiver connection gives the Aura access to precise data of each channel for additional gyro-enabled outputs, simplifies wiring, and allows for more advanced features. To connect a modern digital receiver connection, follow the steps on this page.

## DEFAULT AURA SEVO CONNECTIONS

|           |                           |
|-----------|---------------------------|
| <b>S1</b> | <b>Throttle (ESC/BEC)</b> |
| <b>S2</b> | <b>Aileron</b>            |
| <b>S3</b> | <b>Elevator</b>           |
| <b>S4</b> | <b>Rudder</b>             |
| <b>S5</b> | <b>Open</b>               |

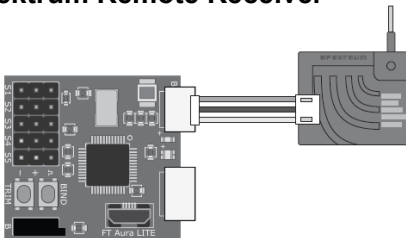


## Connecting Your Receiver to Aura

### Digital Receiver Connections

1. While Spektrum and Futaba usually output their digital data stream, it may be necessary for JR DMSS, Graupner HOTT, and Jeti users to program the transmitter/receiver to output the correct digital format listed on the previous page. Consult your transmitter and receiver manuals for further details.
2. Bind your transmitter and receiver per your manufacturer's instructions.
3. Connect the included male to male servo extension to the receiver's data port (ex: S.Bus, SRXL etc.) and connect to servo port 'B' on the face of the Aura. Refer to your radio manufacturer's instructions for specific information on appropriate serial port connections and system settings.
4. With the transmitter powered, power up the aircraft. Aura will search (sweeping LEDs) and lock onto the signal. You will then see solid orange (power and calibrated sensor) plus solid green (valid radio source), and have control of the model.

### Spektrum Remote Receiver



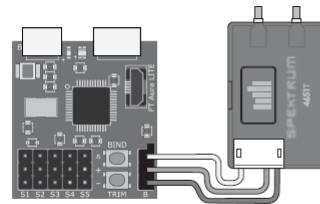
#### Binding a Remote Receiver

1. With your transmitter and receiver powered OFF, press and hold the bind button on the Aura 5 Lite.
2. Power on the Aura 5 Lite and your aircraft by connecting the flight battery to the ESC.
3. Release the bind button the Aura 5 Lite, and confirm that the remote receiver is rapidly flashing orange.
4. Follow your transmitter's manual for binding. This is typically done by holding the bind button on your transmitter while simultaneously powering it on.

### Serial Receivers

If using a standard serial receiver, connect a male to male cable to your receiver's serial port. Connect the other end of the cable to Aura Port B noting proper polarity.

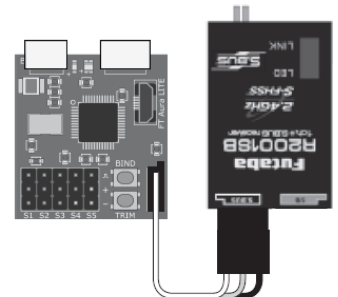
#### Spektrum Serial Receiver



Note: The Spektrum 4651T & 4650C receivers require the use of a different cable to connect to the Aura. The cable is included with the receiver when it is purchased directly from Flex Innovations. You can also purchase the cable itself at [flexinnovations.com](http://flexinnovations.com) (FPZA1039)

#### Futaba Serial Receiver

Note: If you are using Futaba S.Bus, be sure to use the proper S.BUS port in your receiver. **DO NOT** use the S.BUS2 port, as it is not supported with the FT Aura 5 Lite. Refer to your manufacturer's instructions for proper S.Bus use.



Note: If you are using Futaba S.Bus, be sure to use the proper S.Bus port in your receiver. **DO NOT** use the S.Bus 2 port, as it is not supported for use with the Aura 8. Refer to your manufacturer's instructions for proper S.Bus use.

### Binding your Serial Receiver

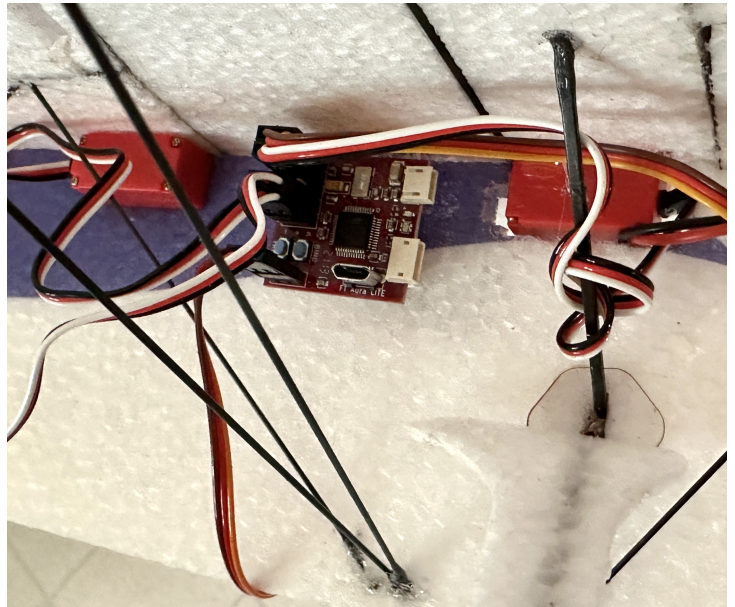
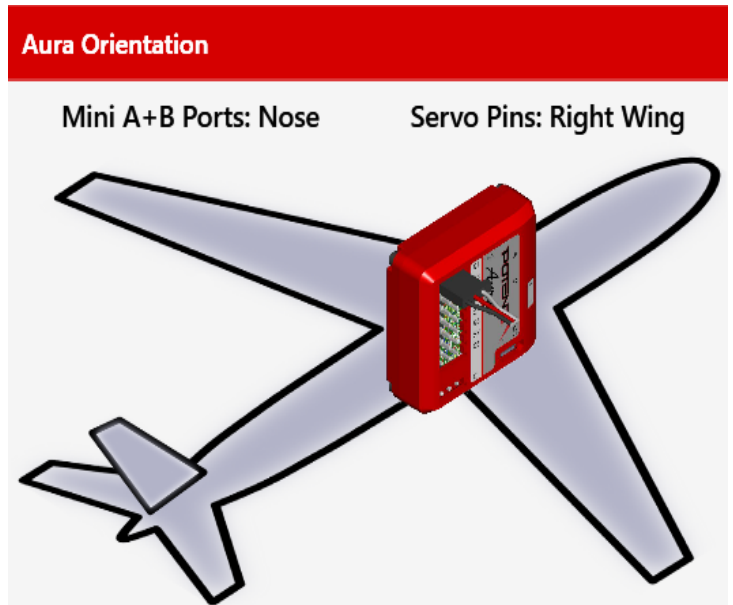
Bind your receiver to your transmitter per your receiver and transmitter manufacturer's instructions.

# AURA 5 INSTALLATION

1. **Note, the Aura 5 MUST be mounted in the correct orientation, otherwise the gyro corrections will be incorrect.**
2. The correct orientation is servo pins closest the aft end of the airplane, and the Mini USB port mounted closest to the landing gear.
3. Mount the Aura 5 to the vertical fuselage below the horizontal fuselage. We recommend mounting near the Center Wing Spar as shown below:
4. Use Double-Sided tape provided with the Aura 5, or glue (building adhesive or hot glue are excellent options) to mount the Aura 5 to the FP airframe. **Note, do NOT use CA glue or "hook and loop" material to mount the Aura to the airframe.**

Note, we recommend mounting the receiver to the opposite side of vertical fuselage relative to the Aura. This is to maintain lateral CG.

Note, be mindful of carbon fiber bracing and USB port of Aura.



## Description of Pre-Loaded Aura Flight Modes (FM)

### Mode 1 (Launch/Catch Mode):

6-Axis Level Assist is activated to assist in Launching and Hand-catching the airplane. Airplane is set to hold a 55-degrees pitch up with wings level with no transmitter input (hands off). This mode is only for launch and catching the airplane. General / Sport / XA flying is not possible in this mode.

### Mode 2 (Sport):

Gyro gains are moderate and tuned for comfortable feel/best performance for general flight. All rates are set to low for general flight. Exponential is tuned for comfortable flight.

### Mode 3 (XA):

Gyro gains are moderate and tuned for XA/3D flight. All rates are set to highest. Exponential is tuned for comfortable flight. Each of the modes has been tuned by Jase "The Ace" Dussia to offer a solid start. Because tastes in control feel are unique, if changes in rates and expo are needed, adjustments should be made through the Aura.

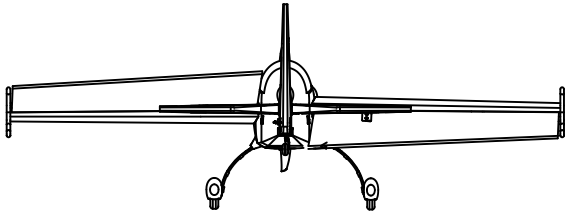
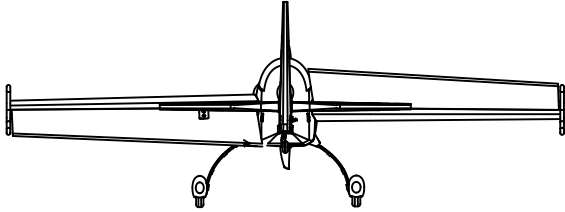
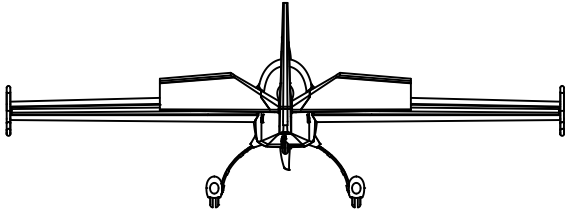
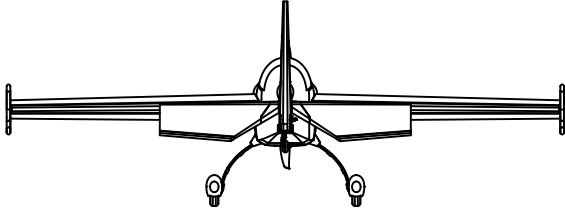
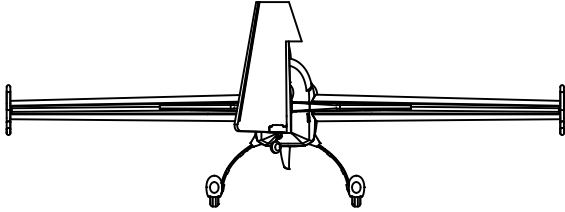
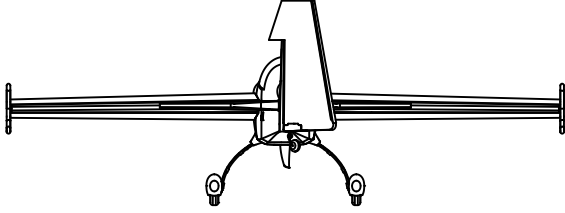
Changes in gain value can only be made through the Aura.

# TRANSMITTER CONTROL DIRECTION TEST

Refer to the chart below to determine the proper control surface directions.

**Use Flight mode 2 and Flight Mode 3 to test.** If controls are reversed, DO NOT REVERSE CONTROLS IN THE TRANSMITTER OR THE AURA CONFIG TOOL. Email us at [support@flexinnovations.com](mailto:support@flexinnovations.com) for corrective action. Note that BOTH the Transmitter Control Direction Test AND the Flight Controller Sensor Direction Test **MUST BOTH BE PASSED! IF ONE DOES NOT PASS, DO NOT FLY!**

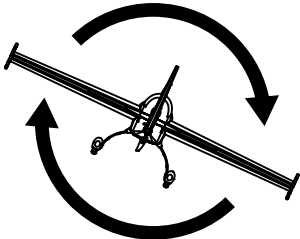
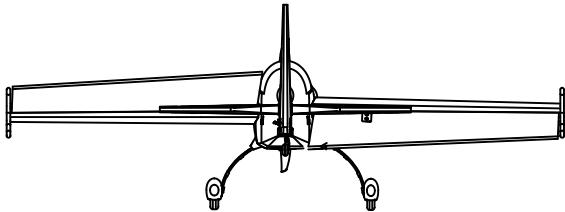
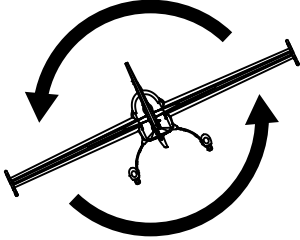
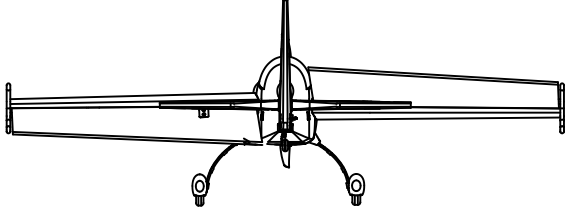
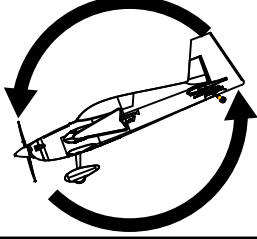
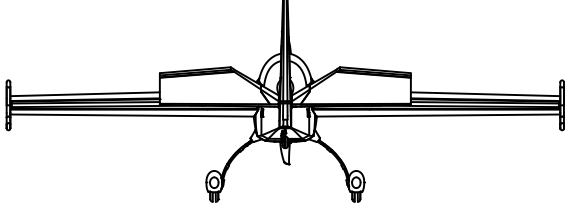
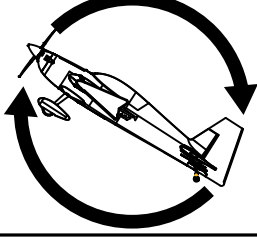
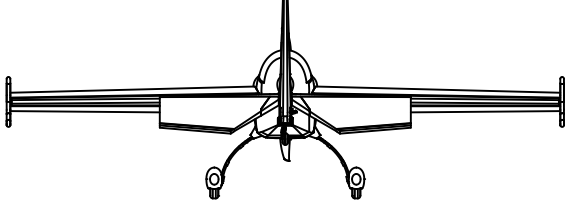
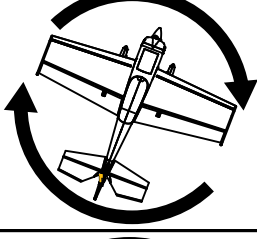
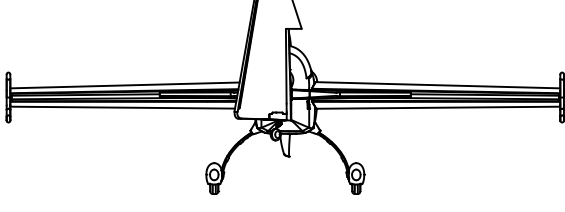
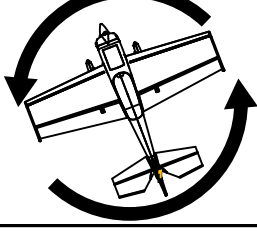
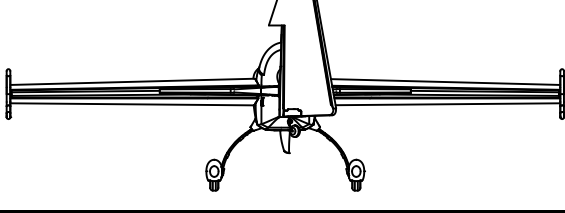
Note, movements have been exaggerated in the drawings below for clarity

| Stick Movement |               | Proper Control Surface Deflection                                                    |
|----------------|---------------|--------------------------------------------------------------------------------------|
| AILERON        | Stick Left    |    |
|                | Stick Right   |    |
| ELEVATOR       | Stick Aft     |   |
|                | Stick Forward |  |
| RUDDER         | Stick Left    |  |
|                | Stick Right   |  |

AURA SENSOR DIRECTION TEST

Perform a test of the gyro system to verify the corrections made for a given movement are correct. If any of the tests do not result in the correct reaction for the airplane's gyro system, **DO NOT FLY THE AIRPLANE**, and contact us by email at [support@flexinnovations.com](mailto:support@flexinnovations.com).

The flight control system activates with RF broadcast. Perform these tests in Mode 3 (higher gain) for better visibility, and then again in Mode 2. (By default, Mode 1 is set to 6-axis level assist mode and should not be used for sensor direction test.) Control surface deflections are exaggerated in the drawings below for clarity. Please note that the control surfaces will move **ONLY** while the aircraft is **ROTATING**.

| Aircraft Movement |                                                                                     | Proper Control Surface Deflection                                                    |
|-------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| AILERON           |    |    |
|                   |    |    |
| ELEVATOR          |   |   |
|                   |  |  |
| RUDDER            |  |  |
|                   |  |  |

# WARNING!