**INTRODUCTION**

The Aura 8 Advanced Flight Control System (AFCS) is a powerful, yet flexible flight control system. This Quick Start Guide provides you with basic information to help you get your airplane in the air for most aircraft. However, advanced aircraft and flight performance tuning may require additional programming using the Aura PC Programming Application.

To learn about the full capabilities of the Aura 8, as well as access the latest information and guides, please visit [www.flexinnovations.com/aura](http://www.flexinnovations.com/aura).

**CONNECTING A RECEIVER**

The Aura 8 supports three separate connection methods - direct connection of up to (2) DSM2/DSMX remote receivers; data connection for Futaba S.Bus, JR XBus (Mode B), Graupner HOTT SUMD, Spektrum SRXL; and traditional PWM and PPM connections.

Quick Start programming only supports DSM2/DSMX remote receiver and serial bus/digital data feeds. Traditional PWM and PPM connections must be configured with the Aura PC programming app.

### I. DSM2/DSMX Remote Receiver(s)

1. A single remote receiver must always be connected to Mini Port 'A'. An additional remote receiver (optional, of matching type) may be plugged into Mini Port 'B'.
2. Insert a bind plug(s) in Port S8 on the Aura for DSMX remote receiver(s) OR into Ports S1 and S8 for DSM2 remote receivers.
3. Power the Aura with a 4.0VDC-10.0VDC power source. The LED on the remote receiver(s) will begin to blink rapidly indicating that the receiver(s) are in bind mode.
4. Put the transmitter in bind mode as described in the instructions in your transmitter manual. Binding is complete when the remote receiver LED is solid. Remove and store bind plug(s) to complete the binding process.

### II. Serial Bus / Digital Data Receiver

Below are some representative examples of typical serial bus/digital data feed receivers from major manufacturers. Please note that any serial data/digital data feed receivers MUST be bound and properly setup in the transmitter prior to connecting to Aura. Consult your manufacturer documentation for proper methods and procedures to bind your receiver.

### III. Traditional PWM or PPM

Traditional PWM and PPM receiver connections are supported with Aura but must be setup using the Aura PC Programming app and cannot be setup using the Radio Auto-Detect or Quick Setup method(s) detailed below.

**POWERING AURA 8**

Powering the Aura is very flexible. The Aura Servo Bus (S1 - S8 and Servo Port B) must be powered with 4VDC-10VDC. Simple electric models can power the Aura by plugging in the BEC directly to an Aura Servo Port. Power may also be passed directly from the Receiver to the Aura. More complex models may use additional connections or flight batteries for additional redundancy. Several examples are shown below. More examples can be found at [www.flexinnovations.com/aura](http://www.flexinnovations.com/aura).

**WARNING**

THE USER MUST PROVIDE AURA WITH A STABLE AND RELIABLE POWER SUPPLY. FAILURE TO DO SO COULD RESULT IN LOSS OF CONTROL OR CRASH.

Exercise extreme caution when plugging in any lead that could potentially supply power, or short power buses. It is possible to ‘reverse’ or ‘short’ a power connection by even partially plugging in a connector. Examples (but not limited to):

- Connecting multiple batteries or power leads. Use switches, extensions, and Y harnesses with extreme care.
- Check the polarity of each connection carefully. Consult your radio manufacturer’s manual for information regarding appropriate power supply connections.

**DSM2/DSMX REMOTE RECEIVER(S) WITH ESC/BEC**

The simplest setup is to provide system power through the ESC/BEC of an electric model. In the example below, the ESC/BEC is simply plugged into Aura Port S1, making note of the connection polarity.
REBUILD DSMM/DSMX POWERSAFE SRXL POWER

For redundant power input using a DSM PowerSafe SRXL receiver, simply connect a two-wire lead from any servo port to any Aura port (S1-S8).

PARALLEL BATTERY POWER

If Aura has no additional ports available for battery power, parallel power may be supplied by plugging both a servo and a battery into a single Aura port with a Y-harness. The signal wire should be removed from the ‘power’ lead in order to prevent any signal interference.

RADIO AUTO DETECT

Linking the Aura to the receiver is simple for supported radios. The Aura will auto detect the radio and adjust for the correct input reversing (servos may still require reversal depending on the linkage geometry of that particular setup), channel order, etc. Make sure your receiver is bound or linked to your transmitter.

For Aura to receive digital channel data in the correct slots, transmitter Wing Type must be set to conventional (single aileron) and transmitter Tail Type must also be set to conventional (single elevator and rudder).

For retrofit setups in complex aircraft, it is necessary to change these values back to default values (as they are in a new/reset model memory): Wing Type, Tail Type, Servo Reversing. These changes should be made before auto detect has configured Aura to your receiver.

RADIO AUTO DETECT WILL NOT DETECT TRADITIONAL PWM OR PPM CONNECTIONS.

1. Transmitter travels may be adjusted as required. For good results, transmitter travel is expected to be between 90% and 140%. 125% being ideal.
2. If only one aileron servo is being used, it should be connected into Port S4.
3. If only one elevator servo is being used, it should be connected into Port S3.

AURA LED LIGHT LAYOUT

CONFIGURE AURA

The Aura must be configured to properly set the servo ports (S1-S8), gyro gain, etc.

Complex aircraft should be configured using the Aura PC Programming App, however, many airplanes can be configured at the field with only a transmitter using the Aura Quick Setup feature. To use the Quick Setup feature, the airplane must meet the following criteria:

1. Digital receiver data feed, including any of these:
   - DSM2/DSMX remote receivers or SRXL connection
   - Futaba S.Bus
   - JR DMSS XBus (Mode B)
   - Graupner HOTT Sum D of 8
2. Conventional tail type (single elevator/rudder servo or matched pair with single input)
3. Conventional wing type using one or two aileron servos (or more if one or two inputs are used with Y-harnesses or servo matching device such as JR MatchBoxes)

4. A mini transmitter must be mounted with Mini Ports A & B oriented towards the nose of the aircraft. Pins for Ports S1-S8 may be oriented upright or inverted. (see instructions below)

5. CHS/Gear assigned to a 3-position switch (preferred) on the transmitter. A 2-position switch may be used, but Aura will be limited to (2) flight modes.

6. If your airplane adheres to the criteria above, follow the steps below to setup your airplane with the Aura 8 quickly at the field using Quick Setup mode and your transmitter.

Quick Setup mode is not recommended for retrofitting your an Aura 8 into complex aircraft such as those with multiple servo wing types or flaps. The Aura PC Programming App is more flexible and effective for complex aircraft.

AURA QUICK SETUP (VIA TRANSMITTER)

Quick Setup Servo Connections

S1 S2 S3 S4 S5 S6 S7 S8

Throttle
Left Aileron
Right Aileron
Left Elevator
Right Elevator (reversed)
Rudder
CH6/AUX1
CH7/AUX2

Any open ports (S1-S8) on Aura may be used to receive/supply battery power as required.

NOTICE

If only one aileron servo is being used, it should be connected into Port S3.
If only one elevator servo is being used, it should be connected into Port S4.

Enteri Quick Setup Mode

1. Turn on transmitter. With the throttle low, center the rudder/aileron/elevator sticks.
2. Insert bind plug into Aura Port S2.
3. Apply power to Aura and receiver.

If Aura has not detected the radio system being used, auto-detect will run, then quick setup mode will begin. If you did not intend to enter Quick Setup Mode, remove power before unplugging the bind plug to prevent any changes from being saved. Steps 1 & 2 may be adjusted back and forth in any order before continuing to step 3 and saving in step 4. The orange LED will be off in Quick Setup Mode. The blue, green and red LEDs will illuminate correspondent to the Quick Setup current settings programmed.

1. Setting Model Type

Two model types can be selected with pre-configured profiles that have been crafted over hundreds of test flights. CHS/Gear switch is used to toggle the model type; high position will select sport/scale mode and low position will select 3D mode. Check green LED (second from the right) to confirm you have selected the desired model type.

2. Enabling Master Gain (Optional)

Requires a transmitter proportional input assigned to transmitter Ch8/Aux3

Master gain is OFF upon each entry to Quick Setup mode. Master gain on CH8/Aux3 may be enabled by sweeping the CH8/AUX3 knob or slider. Check the RED LED (at the far right) to confirm you have master gain set as intended. If no adjustment is made, master gain will remain disabled.

3. Setting Orientation

Two orientations are available in Quick Setup mode: ‘Pins Up’ and ‘Pins Down’. Both orientations must have Mini Ports A and B toward the nose of the aircraft. The Aura must be aligned coincident to the axes of aircraft as shown below. After completing steps 1 and 2 above, place the Aura in the orientation it will be in upright flight before proceeding to Step 4. Check the Blue LED to confirm the intended orientation.

4. With aircraft upright, remove the bind plug from Aura Port S2 to save the settings from Steps 1 - 3. If saving the settings for these steps is not desired, remove power before removing the bind plug.
Quick Start Guide (Continued)

5. Reversing Servo Direction
1. Perform the transmitter command check to verify control surface movement corresponding to the control direction test chart below.
2. If reversing is required on aileron, elevator, or rudder, hold full stick deflection for that channel in any direction for a minimum of four seconds, at which point the channel will reverse. This process may be repeated as required for each channel. Servo reversing changes are saved automatically.

Throttle is not reversible in the Aura. If your model requires throttle channel reversing, it must be done in the transmitter.

<table>
<thead>
<tr>
<th>Transmitter Command</th>
<th>Proper Control Surface Deflection</th>
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<tbody>
<tr>
<td>Stick Left</td>
<td>![Aileron Stick Left]</td>
</tr>
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<td>![Aileron Stick Right]</td>
</tr>
<tr>
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<td>![Elevator Stick Forward]</td>
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6. Sensor Check
Rotate the airplane about each axis, 15° minimum. Use sensor check diagram below to verify that control surface moves in the correct direction to counter the motion. During Quick Setup mode, a special control mode executes and makes checking the sensor direction easier. Moving the sticks will reset the control surfaces to center, if required. If any of the axes fail the control sensor check but responds correctly to the transmitter commands, check the transmitter’s programming and ensure that all the directions are set to NORMAL Repeat the transmitter command test and sensor check until all surfaces move as intended.

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</tr>
<tr>
<td>![Rudder Movement]</td>
<td>![Rudder Control Surface]</td>
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In quick setup mode steps 5 and 6, if the airplane and transmitter are left unattended for a period of time, the sensor may accumulate errors and may move the control surfaces. Simply move the transmitter sticks to reset. **NOTE:** this only happens in quick setup configuration mode, and will not occur in normal (flying) mode.

7. Exiting Quick Setup Mode
Exit Quick Setup mode by removing power from the Aura. Confirm the bind plug has been removed from S2 prior to repowering the Aura. **You must power down the Aura to exit Quick Setup mode before flying.**

Repeat all control direction and sensing direction tests in normal mode (in highest gain setting) before flying. If any anomalies exist, correct before attempting flight.

**NOTICE:** QUICK TRIM MAY BE REPEATED AS NEEDED FOR FINE TUNING, OR IF CHANGES TO THE AIRCRAFT ARE MADE.

**NOTE:** ENSURE AILERON/ELEVATOR/RUDDER SUB TRIMS ARE ZERO BEFORE FLYING FOR QUICK TRIM PROCESS.

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