Liftoff Controller Setup Manual
v0.3.3

Terminology

- Preset - A premade set of settings for a controller. It’s used to save and load the setup of a controller.
- Axis - A direction you can push a joystick in: horizontal or vertical
- Axes - Plural of Axis
- Throttle - The joystick that controls how much power you send to the propellers
- Yaw - The joystick that controls your heading, rotates left and right
- Pitch - The joystick that controls looking up and down
- Roll - The joystick that controls rolling sideways

Getting to the controller presets menu

You can access the controller setup menu from the main menu, under Options > Controls > Controller Presets. In this menu, you’ll find two options with regard to your controller. Under “Use a preset” you can select a controller preset from a list of built-in or installed controllers. The section “Create a preset” on the other hand will allow you to define new controller presets for your personal use or for sharing with other players. This document will walk you through these various options.
Selecting a preset

Selecting a preset is an easy way to quickly set up your controller. From the controller setup menu, go to Select Preset. This will open a screen with a list of presets. There are a number of ready-made presets in the game. If you are using one of these controllers, you’re in luck: just select the preset from the list. The drone visualization in the middle will now respond to your input. If it looks good, you can return to the start window with the back button.
If after selecting a preset for your controller the drone visualization doesn’t respond, you can try changing the controller slot. You can find buttons for this on the right side of the screen. Try this especially if you have multiple controllers plugged in or if you just switched controllers.

If your particular controller is not in the list, don’t worry. You can easily create your own preset or install presets created for you by other players.

**Creating a preset**

If you can't find your controller in the list of built-in or installed presets, you can create a new preset. There are two options for creating a controller preset: Assisted and Manual. The former will attempt to do some detection for you, whereas the latter will give you full control over which inputs should be used. Both options can be accessed from the controller setup menu.

**Creating a preset - Assisted**

When creating a new preset, this is a good starting point. The Assisted workflow allows you to quickly set up most controllers.

**Step One: Calibration**

Calibration is needed to find where the “edges” of your controller's joysticks are. You can start calibration by clicking the calibrate button. Rotate your sticks all the way around, making sure that you reach all the way to the outer edges. After you have done this, click the button again to finish calibrating.

**Step Two: Throttle, Yaw, Pitch and Roll**

In these steps you are asked to assign actions of the drone to their corresponding joystick
axes. Before you click the button to start detecting input, make sure your joysticks are centered. To assign a joystick, simply click the button and move the stick on your controller in the direction shown in the image. The game will detect the movement and assign the joystick. You can check if your joystick was detected correctly by looking at the drone visualization in the center of the screen.

If the result is accidentally inverted, make sure you center the stick before assigning.

If your sticks are not registering, perhaps your controller is not registered as being controller 1. Click the controller number buttons on the right of the screen to try selecting a different controller slot. You might have to recalibrate after doing this.

If you feel like something went wrong later in the process, you can always come back by clicking the desired axis in the top menu.

Step Three: Assign Buttons

This step is optional. Not all controllers (especially RC remotes) have assignable buttons, in which case this step can be skipped.

If your controller does have buttons (e.g., most game controllers) you can use this screen to furnish the preset you are creating with default controller button bindings. Note that you can override these as much as you like later on, but if, for instance, you intend on sharing your new preset, future users might appreciate it if you already provided sensible defaults.

Click the button behind the action you want to assign and press the corresponding button on the controller.
In this screen you also find the option to “Allow movement in menus and Track Editor”. By default this option is turned off, meaning that your controller won’t be usable in menus. We strongly recommend against using this option with an RC remote. The throttle stick on RC remotes generally does not snap back to the center, which will wreak havoc on your menu navigation.

The “Modes” that are mentioned in the drop-down selection below are different industry standards that decide which stick controls which action in drones. The game will use your selection for throttle, yaw, pitch and roll, together with the mode to determine how the sticks should be mapped in menus and the Track Builder. If you followed the images for setting up throttle, yaw, pitch and roll, you will be using Mode2 by default.
Step Four: Save

After you have set up your controller and you are happy with the result, you can save your new preset.

- The file name can be any valid file name on your system.
- Descriptive name can be any name. This will be shown in the preset selection menu.
- Mode is, as mentioned above, the way your joysticks are mapped to drone actions. Set this to unknown or Mode2 if you are uncertain.

Click “Save” and you will get a notification that saving was successful. You can now return to the start screen. Your new preset will now be available under “Select preset”.

Note: To ensure easy sharing of controller files, we remap all joysticks to the “Joystick 1” slot. It could be that after saving your controller doesn’t work. If so, select another joystick slot at the right side of the screen.

Creating a preset - Manual

If for some reason you are not able to set up your controller using the assisted workflow, you can try the MANual method. You can set exactly the same settings here as in the Assisted workflow, but you have more control over the process.

The only step that is different is Step 2. For the other steps, refer to the Assisted workflow above.

Step Two: Throttle, Yaw, Pitch and Roll

In these steps you are asked to assign your joysticks to the corresponding actions of the drone. Move the stick as shown in the image and right below you'll see what signals your
controller sends out across the ten available input channels. You should see movement in at least one of the channels. If there is no movement, try selecting a different controller slot on the right side of the screen. Click on the signal that you think represents the correct input in order to bind it to a drone action.

After selecting an axis, you have the option to invert it. Use this if the channel isn’t moving your drone in the expected direction.
Additional Settings

On the right side of the screen, below the controller slot selection, you’ll find some more sliders.

- **Zero Point** - This is the point below which the game will consider throttle input to be zero. You can set this slightly higher (e.g. 10%) if you have issues with arming the drone in-game. You can also use this with a game controller to use only a certain portion of the throttle input. For example, to use only the upper half of the throttle, set it to 50%.

- **Deadband** - Some controllers have an inaccurate center. This will cause you to start drifting to the side or turning randomly. In order to fix this, you can configure the deadband, a zone around the middle of your joystick which doesn’t return input. Ranges of 20% are not unusual for some game controllers. For RC remotes you will want this as low as possible.