Quick Start Guide

Seascape Subsea – ROV-Controller

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1 Seascape Subsea ROV-Controller

The **Seascape ROV-Controller** is specifically designed for ROV Operations. Unlike general-purpose game controllers, it features a rugged, waterproof enclosure and an ergonomically arranged control layout optimized for marine environments. The device includes 15 industrial-grade pushbuttons, a 3-axis joystick, two rotary encoders, and an analogue thumbwheel enabling full control over complex ROV functions with precision and reliability.

The controller connects via a standard USB interface and requires no additional drivers or software, supporting plug-and-play operation across most PC systems. It is fully compatible with the **BlueRobotics BlueROV2**, and integrates seamlessly with control platforms such as **QGroundControl** and **BlueRobotics Cockpit**.

This Quick Start Guide covers the essential steps required for initial setup and operation, including:

- Functional mapping of buttons, joystick, and rotary controls
- Calibration and configuration in **QGroundControl**
- Setup and integration with **BlueRobotics Cockpit**
- Customization of **Z-axis (vertical) control** for ascend/descend functions

The information provided here is intended to ensure correct configuration and optimal performance in field deployments and test environments.

2 Button Layout

To understand the ROV-Controller a bit more, it's important to know how the buttons are numbered. The following figure will show how the buttons on the ROV-Controller are numbered.

In the following figure, the default Seascape Subsea mapping is viewed:

Button #:	Function:	Shift Function**:	Function Description:	Shift Function Description:
1	servo_3_min_momentary	input_hold_set	Open Gripper	Toggle Input Hold
2	servo_3_max_momentary	roll_pitch_toggle	Close Gripper	Toggle Roll and Pitch
3 (CCW)	lights1_brighter	trim_roll_inc	Lights Brighter	Trim Roll Right
4 (CW)	lights1_dimmer	trim_roll_dec	Lights Dimmer	Trim Roll Left
5 (CCW)	gain_inc	trim_pitch_inc	Increase Gain	Trim Pitch Forward
6 (CW)	gain_dec	trim Pitch_dec	Decrease Gain	Trim Pitch Backward
7	mount_tilt_up	*	Camera Up	*
8	mount_tilt_down	*	Camera Down	*
9	shift	shift	Shift	Shift
10	mode_manual	*	Manual Flight Mode	*
11	mode_stabilize	*	Stabilize Flight Mode	*
12	mode_depth_hold	*	Depth Hold Flight Mode	*
13	mode_poshold	*	Position Hold Flight Mode	*
14	arm	*	Arming ROV	*
15	disarm	*	Disarming ROV	*
16	*	*	*	*
17	*	*	*	*
18	*	*	*	*
19	*	*	*	*

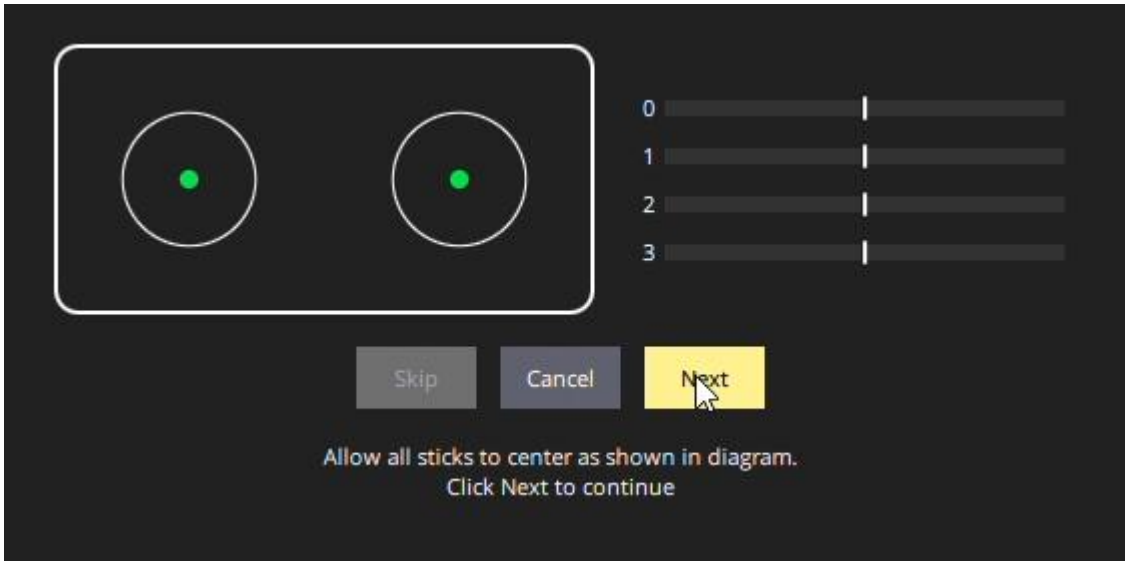
*** To be defined by the user**
**** Hold down Shift button (Button 9) to use the shift function**

3 QGroundControl Setup

To make sure the ROV-Controller works seamlessly in QGroundControl, the ROV-Controller's Axes need to be calibrated.

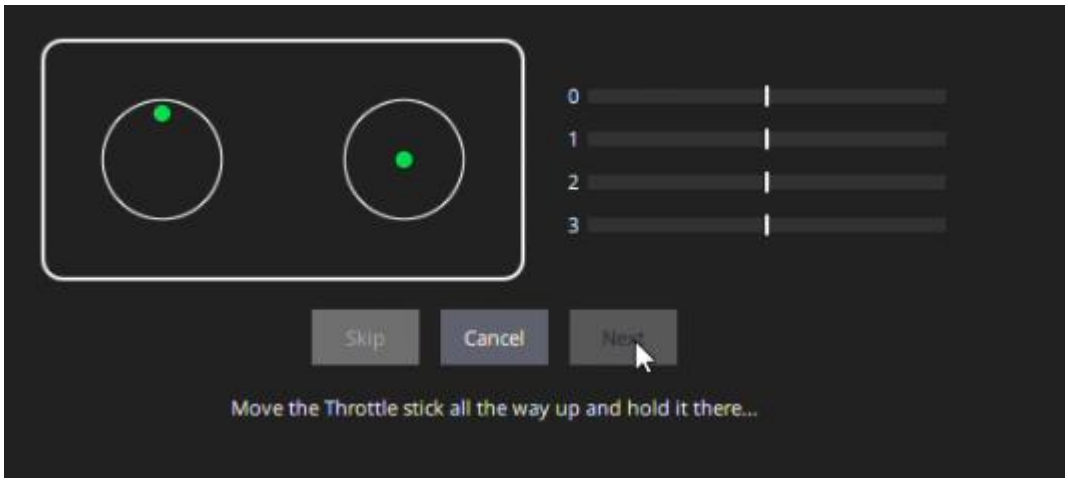
1. To calibrate the axes of the ROV-Controller in QGroundControl, you'll go to the **Q logo** (in the upper left of the screen) **> Vehicle Setup > Joystick > Calibration** and press **Start**.

2. **Calibrate the center:**
   QGroundControl will ask you to leave all sticks to the center, to determine it's center values.



3. **Calibrate the Z-Axis (Throttle or Ascending / Descending):**
At this step, it's important to decide for yourself whether you'd prefer to use the Z-Axis (Throttle or Ascending / Descending) as you would on a airplane (**pulling the joystick** towards yourself will let the ROV **ascend**, **pushing the joystick** away from you will let the ROV **descend**) **or** either you'd prefer to have the ROV ascend and descend like BlueRobotics does; **Joystick up, ROV ascends** (goes up), **Joystick Down, ROV descends** (goes down / dives).

The QGroundControl window will look like the following:

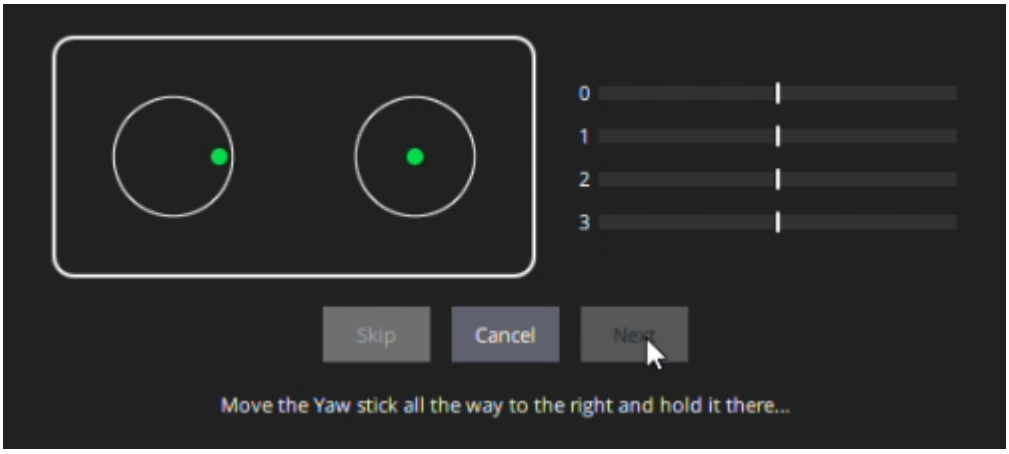


For 'Airplane Mode':

For ‘BlueRobotics Mode’:

(and do vice versa when QGroundControl asks for the opposite Z-Axis side)

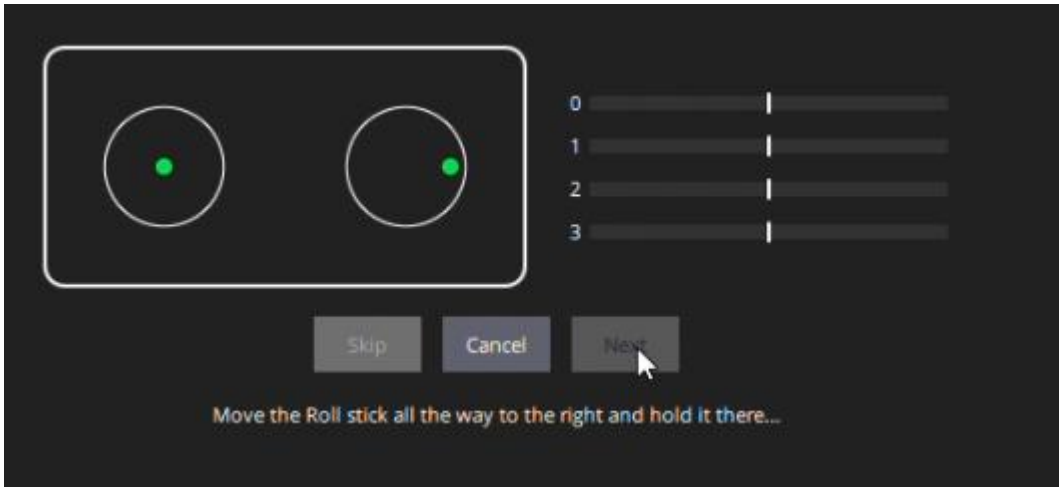
4. Calibrate the R-Axis (Yaw):



Turn the Joystick to the right (clockwise)

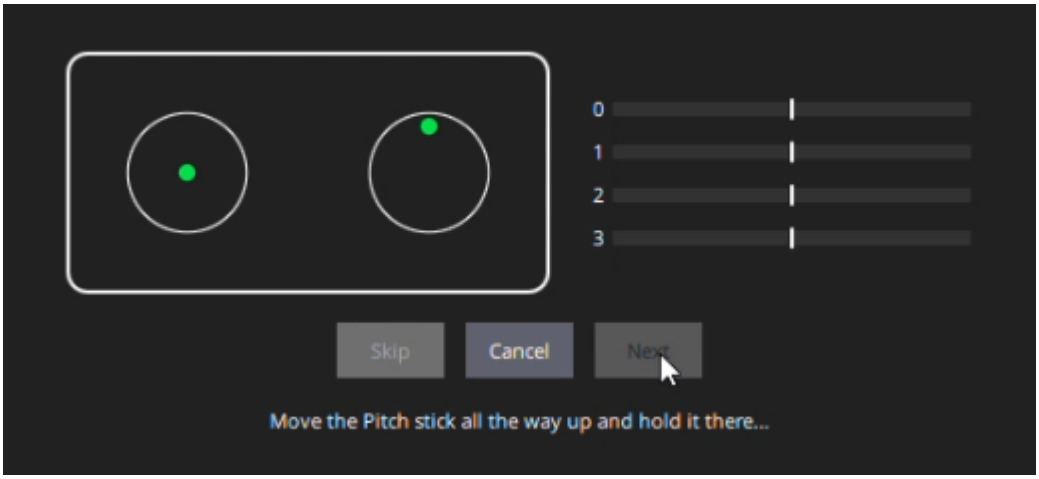
(and do vice versa when QGroundControl asks for the opposite Z-Axis side)

5. Calibrate the X-Axis (Lateral):



(and do vice versa when QGroundControl asks for the opposite Z-Axis side)

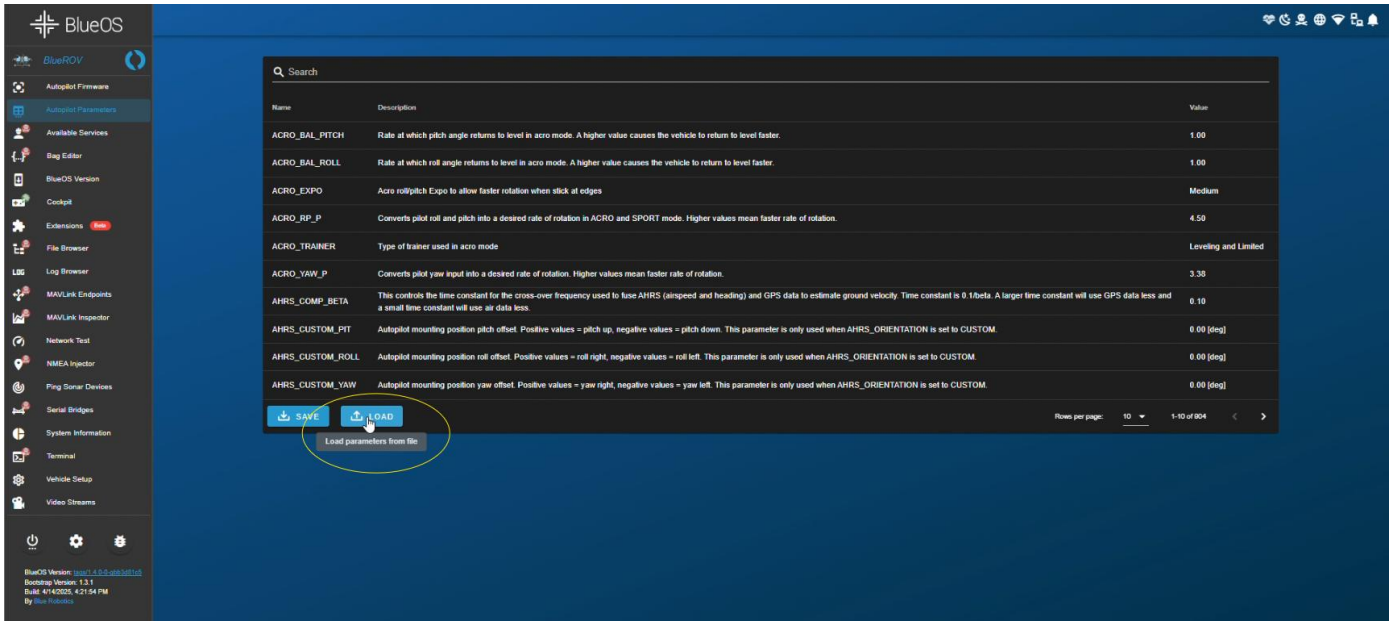
6. Calibrate the Y-Axis (Forward / Reverse)



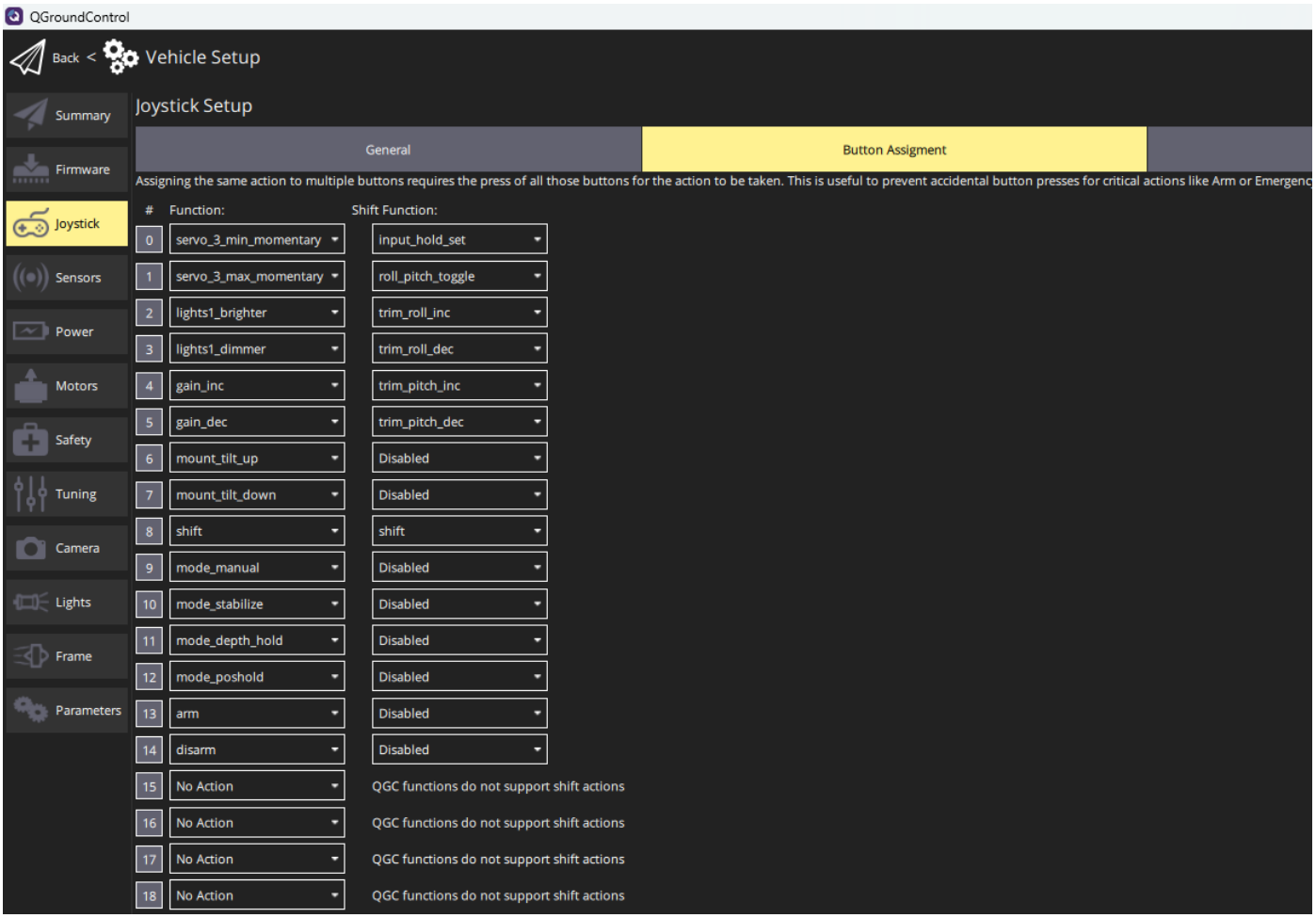
(and do vice versa when QGroundControl asks for the opposite Z-Axis side)

7. Button configuration

Seascape Subsea will provide a parameter file that could be uploaded to the BlueROV through the **Ardupilot Parameters** tab in **BlueOS**. This file is called: **SSROV-HC Mapping QGC.param**



Now QGroundControl should look like this when you go **Vehicle Setup >Joystick>Button Assignment**:



4 BlueRobotics Cockpit Setup

When using BlueRobotics Cockpit, the setup procedure will differ slightly from the QGroundControl set up procedure.

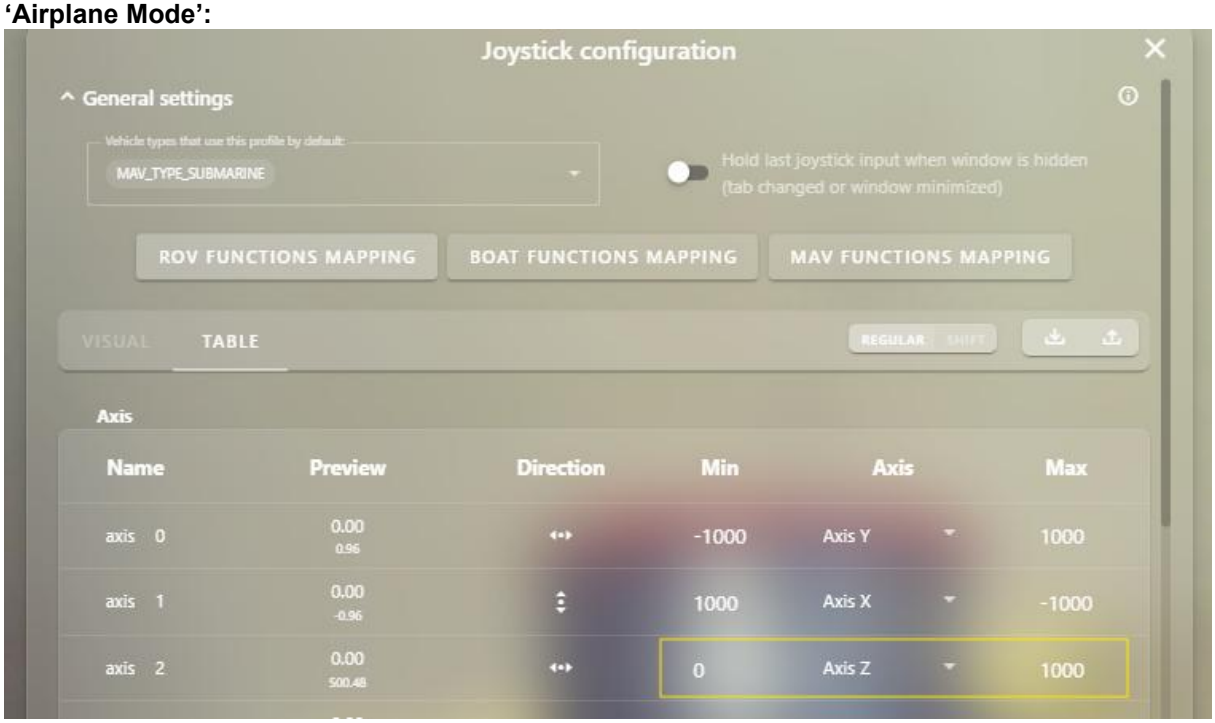
1. **Upload configuration file:**
   Seascape Subsea will provide a configuration file for cockpit so that all axis and buttons are mapped correctly. This file is called **SSROV-HC Mapping Cockpit.json.**

   This file could be uploaded in Cockpit under **Settings** > **Joystick** > and then press the **Load** button.

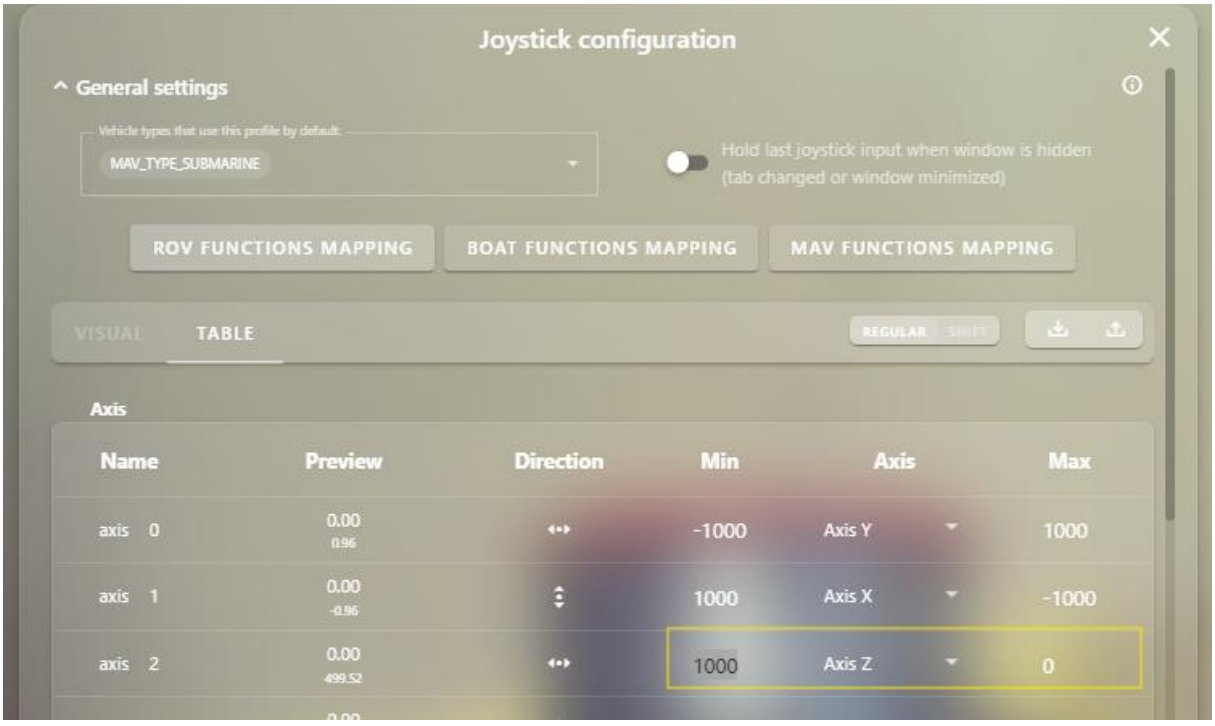
2. To swap the Z-axis:

The default configuration in Seascape's Cockpit mapping is with the Z-Axis configured as 'Airplane Mode'. To swap the axis for the Z-Axis in Cockpit, swap the following values:

From 'Airplane Mode':



To 'BlueRobotics Mode':



5 Help & Support

First, please read this manual thoroughly.

For technical support, contact Seascape Subsea BV.
Seascape Subsea BV is one of the distributors of BlueRobotics products.

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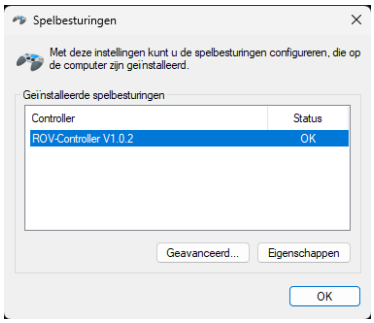
If you have cause to use our technical support service, please ensure that you have the following details at hand before calling:

- Serial Number (given on the front panel above the Seascape Subsea Logo)
- Firmware Version (given in the device name of the ROV-Controller on your OS)



- Fault description