

# Quick Start Guide

OUTLAND ROV 3000

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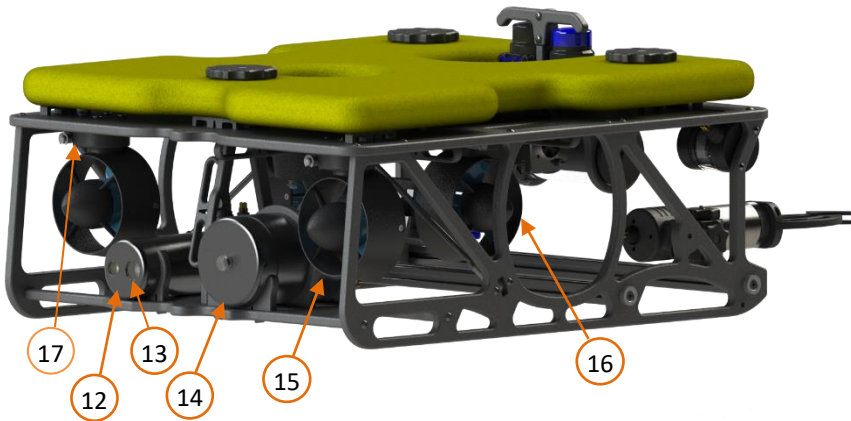
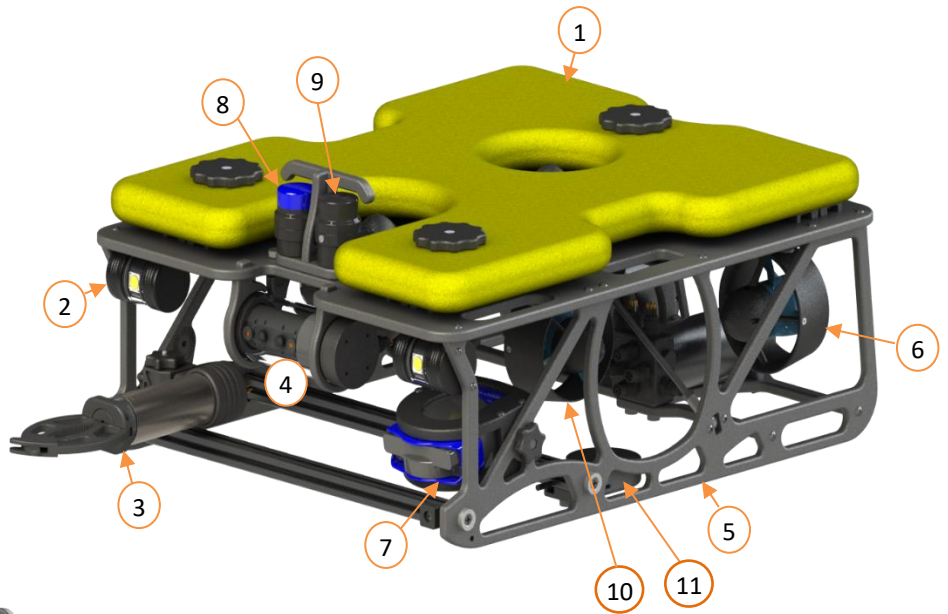
## Contents

Contents .....	2
Outland ROV 3000 .....	3
Control Console .....	4
Control Bottle .....	5
Power Supply .....	6
Hand Controller .....	7
ROV Cable and Reel .....	7
Using the Outland ROV .....	8
<b>1. Setup ROV System</b> .....	8
<b>2. Screen Overlay and Recorder</b> .....	9
Overlay Setup .....	9
DVR Setup .....	12
<b>3. Controls and Flight Options</b> .....	14
Summary .....	14
Joystick Controls .....	14
Depth and Auto Pitch Control .....	15
Auto Heading Controls .....	17
Camera Control .....	17
Light Control .....	18
Manipulator Control .....	18
Perform Preflight Check .....	19
Closing Statement .....	20

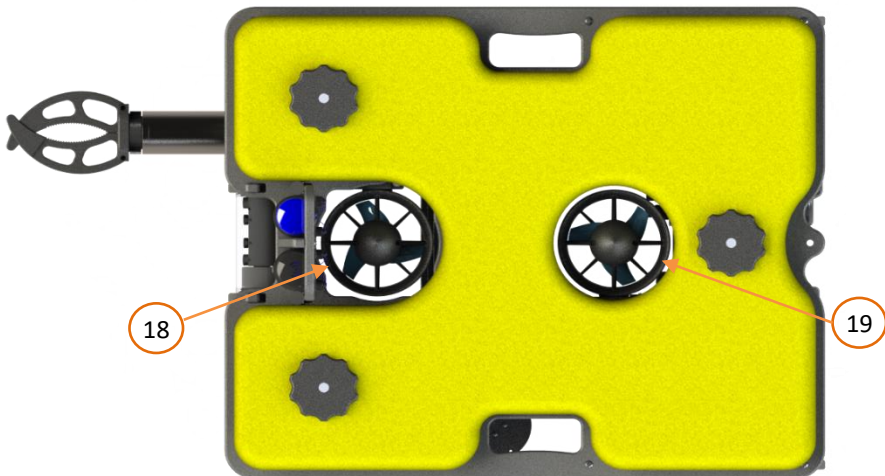
# Outland ROV 3000

The Outland ROV systems are robust, powerful Class II vehicles capable of handling harsh conditions. System components have been designed for maximum reliability while incorporating the latest technology. The robust frame allows for additional sensors and equipment to be mounted and integrated into the vehicle. The tether allows for simultaneous streaming of up to 3 cameras with lengths of 1000+ feet. Options such as Sonar, VDSL, CP probe, etc.

- 1. Flotation Cell
- 2. Front Lights (x2)
- 3. Manipulator (Optional)
- 4. Front Camera (360° Rotating with scaling lasers)
- 5. ROV Frame
- 6. Thruster (Port Fwd/Rev CCW)
- 7. Multibeam Sonar (Optional)
- 8. USBL (Optional)
- 9. Scanning Sonar (Optional)
- 10. Thruster (Port Lateral CCW)
- 11. DVL (Optional)



- 12. Control Bottle
- 13. Rear Camera
- 14. Power Bottle
- 15. Thruster (Starboard Fwd/Rev CW)
- 16. Thruster (Starboard Lateral CW)
- 17. Thruster Quick Release (x6)

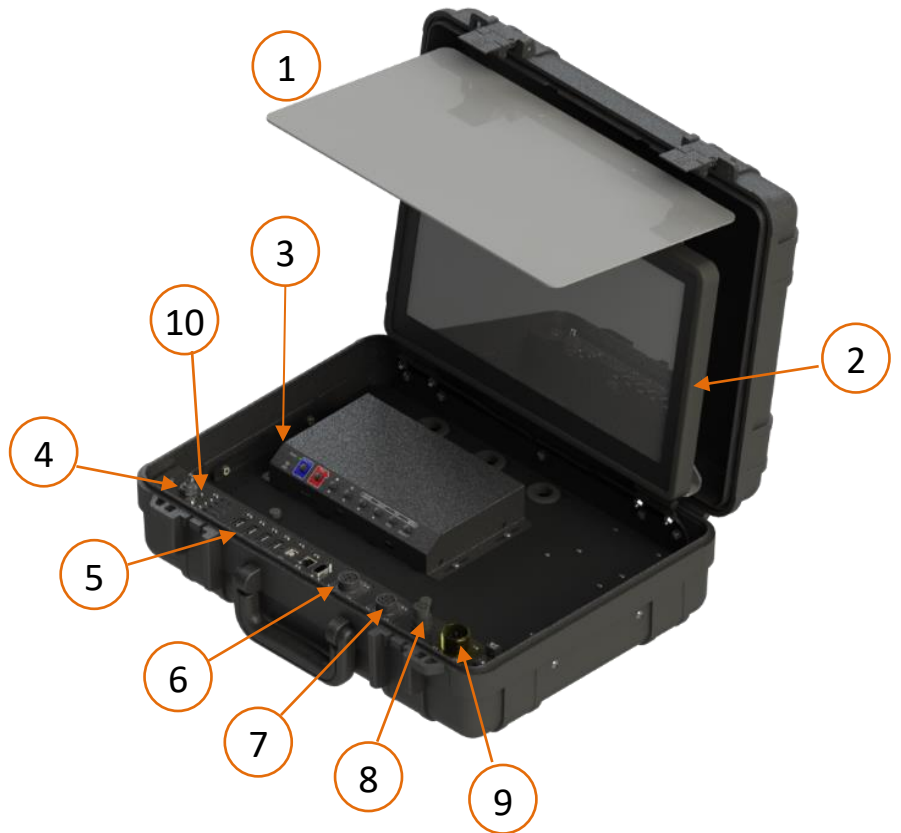


- 18. Thruster (Front Vertical CW)
- 19. Thruster (Rear Vertical CCW)

# Control Console

The ROV Control console (CON-1500) connects the operator to the vehicle and displays ROV video and data.

1. Sun Shield
2. Monitor
3. DVR
4. Power Switch
5. USB keyboard connections
6. Hand Controller Connection
7. Auxiliary Controller Connection
8. Tether Connection
9. Power Supply Connection
10. GFI Trip Indication Light

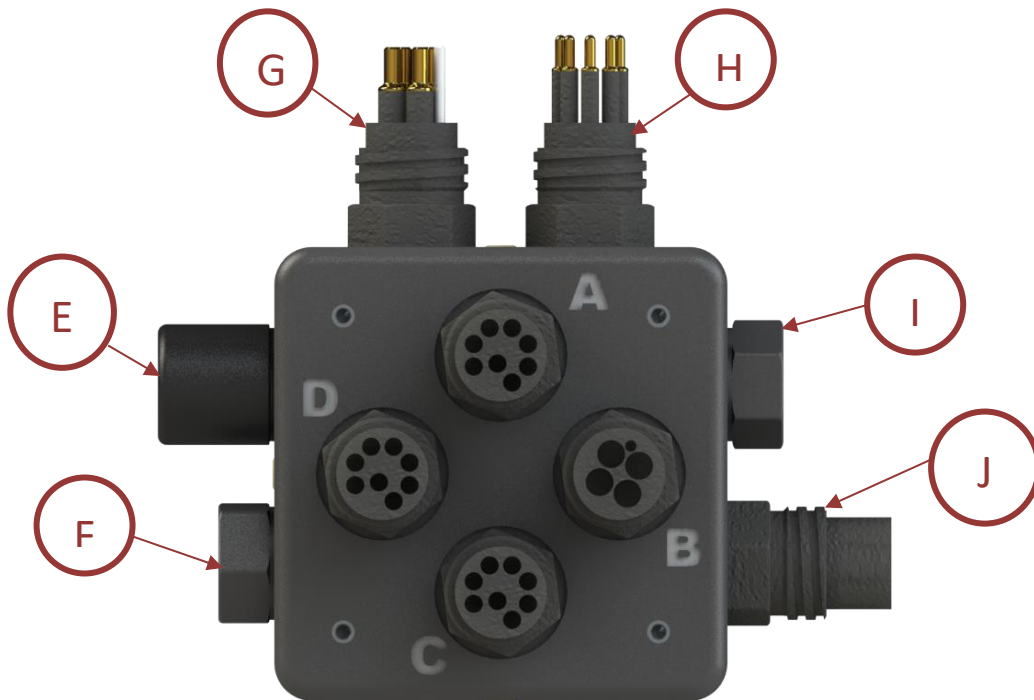


## Control Bottle

This section will explain, in short, what each plug on the control bottle does to make it simple for the user to understand where to plug in the equipment they are using. All the letters that are called out on the picture in this section are engraved onto the control bottle.

### Plug identification list:

- A. Sonar/IP (8 Pin)
- B. Manipulator and Lights (4 Pin)
- C. Camera (8 Pin)
- D. CP Probe (8 Pin)
- E. Pressure and Temp Sensor (No Pins)
- F. Spare #1 (Varies)
- G. Link between power bottle and control bottle (4 Pin)
- H. ROV cable (8 Pin)
- I. Spare #2 (Varies)
- J. DVL (8 Pin)



Note: Since the manipulator and the lights plug into the same port on the control bottle there will be a whip that plugs into the manipulator and splits off to the lights.

Note: See manual for connector grease instructions.

**Important Note:** Any time you unplug a port and do not plug anything back into it you must put a dummy plug into that port there are some of these in the spares box.

**Important Note:** Be sure to power down with console switch before connecting or disconnecting plugs.

# Power Supply

The ROV Power Supply (PS-3500) supplies the necessary power to the ROV and the Console.



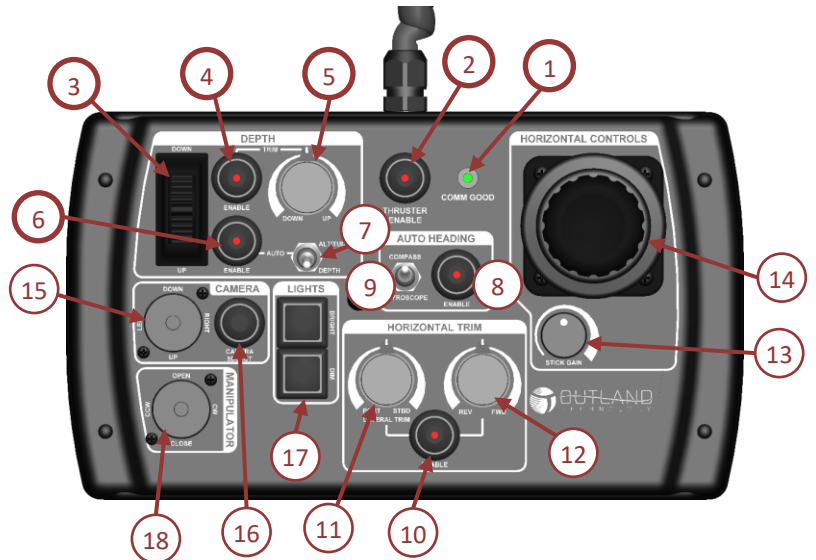
- |                                     |                              |
|-------------------------------------|------------------------------|
| 1. High Voltage<br>Indication Light | 5. Console Power Supply Plug |
| 2. GFI Test Switch                  | 6. Tether Power Supply Plug  |
| 3. LCD Screen                       | 7. 120V/220V AC Power Input  |
| 4. Cooling Fans                     | 8. Ground Lug                |

**Important Note:** Both lids must be removed, as seen in images during operation.



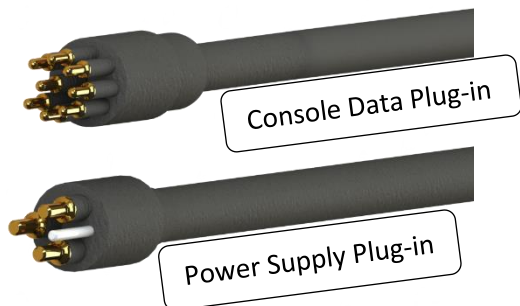
# Hand Controller

1. COMM Good LED
2. Thruster Enable Button
3. Depth Thumbwheel
4. Depth Trim Enable
5. Depth Trim Knob
6. Auto Depth/Altitude Enable Button
7. Auto Depth Mode Switch
8. Auto Heading Enable Button
9. Auto Heading mode Switch
10. Horizontal Trim Enable Button
11. Lateral Trim Knob
12. Forward/Reverse Trim Knob
13. Stick Gain Knob
14. Horizontal Control Joystick
15. Camera Control
16. Camera Select Switch
17. Light intensity control
18. Manipulator Control



# ROV Cable and Reel

1. Cable Case (shown with optional reel)
2. C-3407 Cable



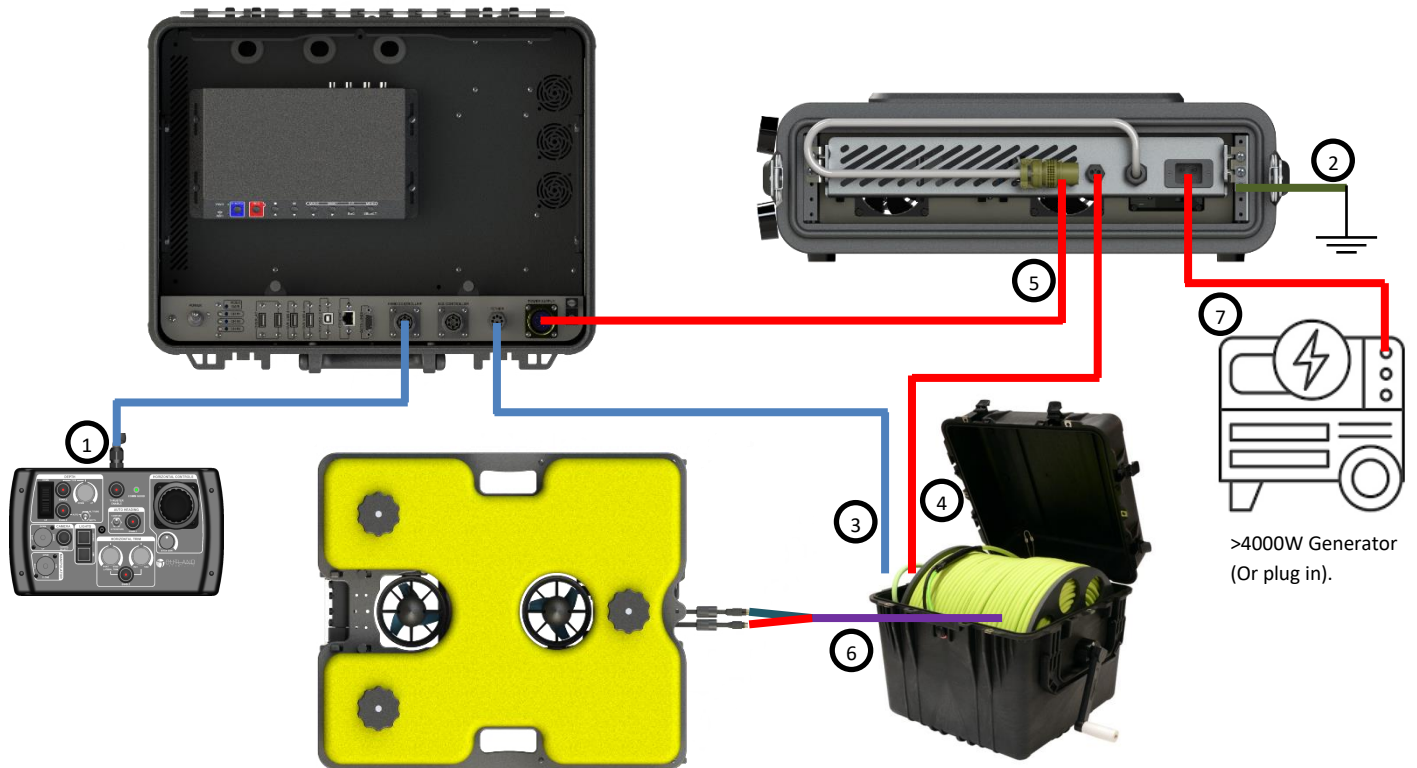
There will **not** be a locking sleeve on this end. Also, If reel is included this side on the tether will be fixed.



This side plugs into the ROV, will be the non-fixed side of the reel, and will have locking sleeves.

# Using the Outland ROV

## 1. Setup ROV System



- ❖ Connect Hand Controller. (1)
- ❖ Connect ground lug to earth ground. (2)
- ❖ Connect tether data cable to console. (3)
- ❖ Connect tether power cable to power supply. (4)

- ❖ Connect power supply cable to console. (5)
- ❖ Connect tether cables to ROV. (6)
- ❖ Connect power supply power cable to >4000W power source (i.e. generator). (7)



Ensure power switch is off prior to connecting to power source.



Warning: Once power supply is connected to input power source AC voltage is present on the console connection cable



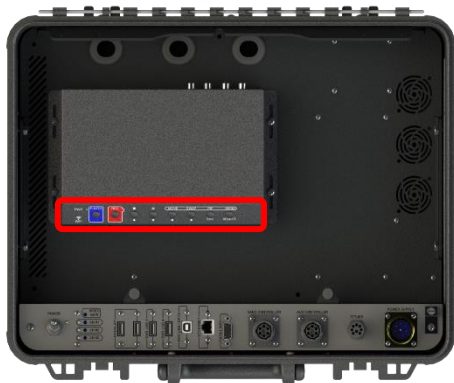
## 2. Screen Overlay and Recorder

Before starting this section make sure you have everything plugged in and ready to go from section Setup ROV System. Next power on the entire system from the power switch on the console. When you power on the console you should here the ROV sing a tune. Wait for the overlay to completely load.

### Overlay Setup

This section will explain step by step how to get the overlay setup and configure the ROV to fly properly.

**Step 1:** Hit swap on the DVR control panel until the camera with the overlay present shows on the monitor (See image directly below).



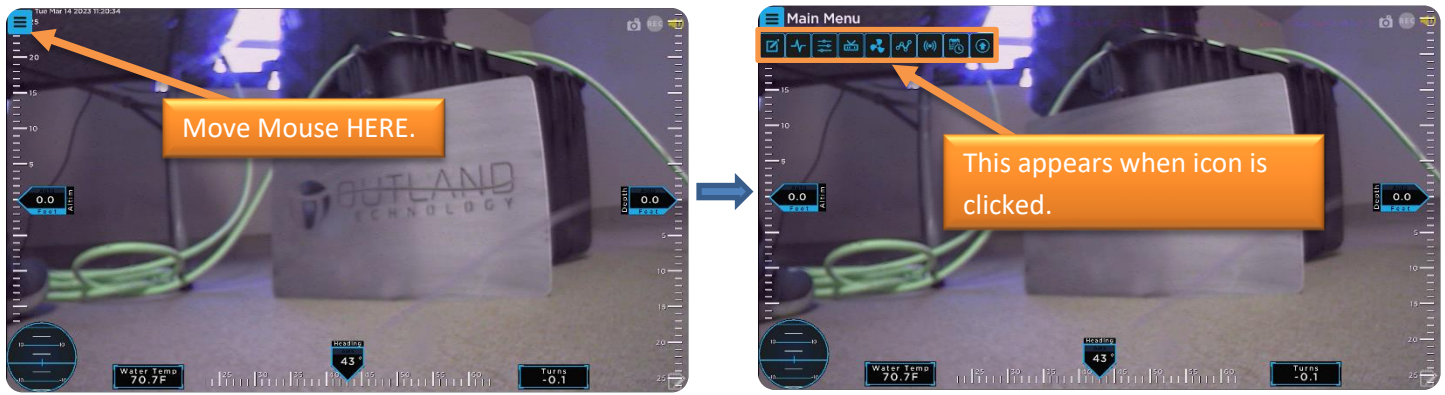
**Step 2:** Plug a mouse into the USB port labeled overlay on the console (see pictures below).



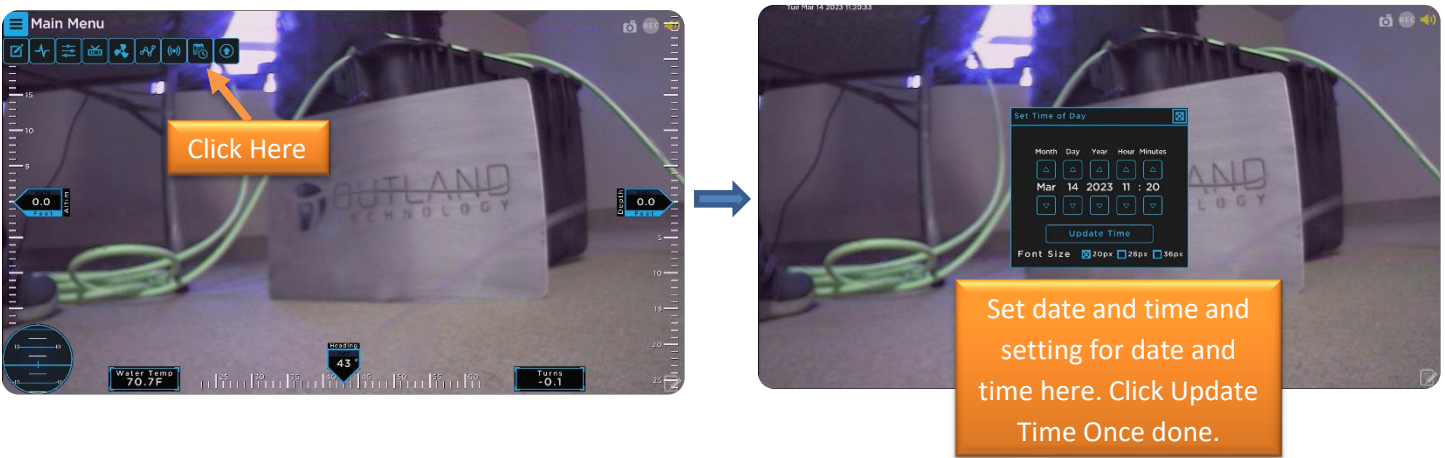
Overlay Control



**Step 3:** Move the mouse to the TOP LEFT of the screen and a 3 line icon will appear. Click on it.

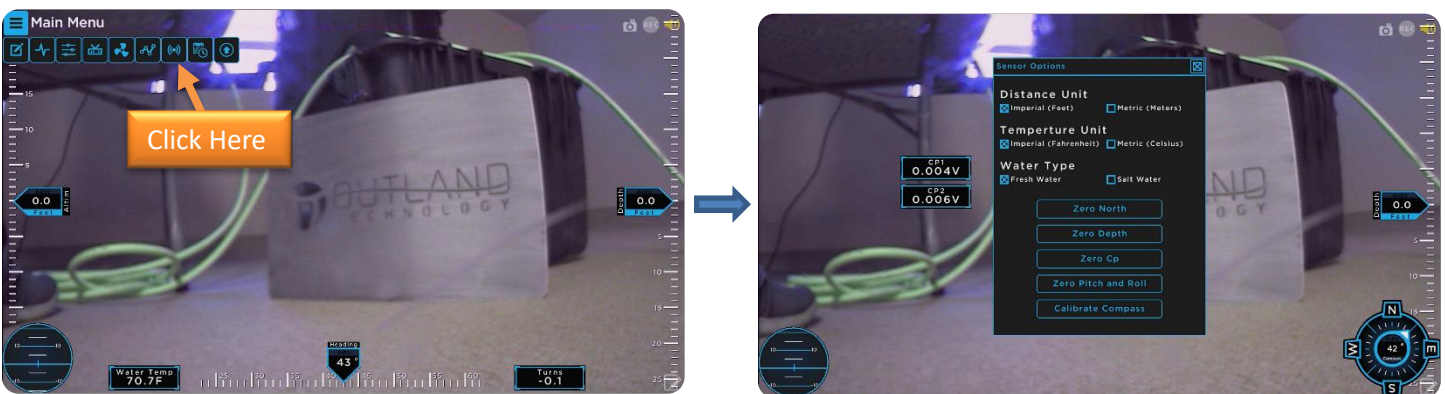


**Step 4:** Set Date and Time



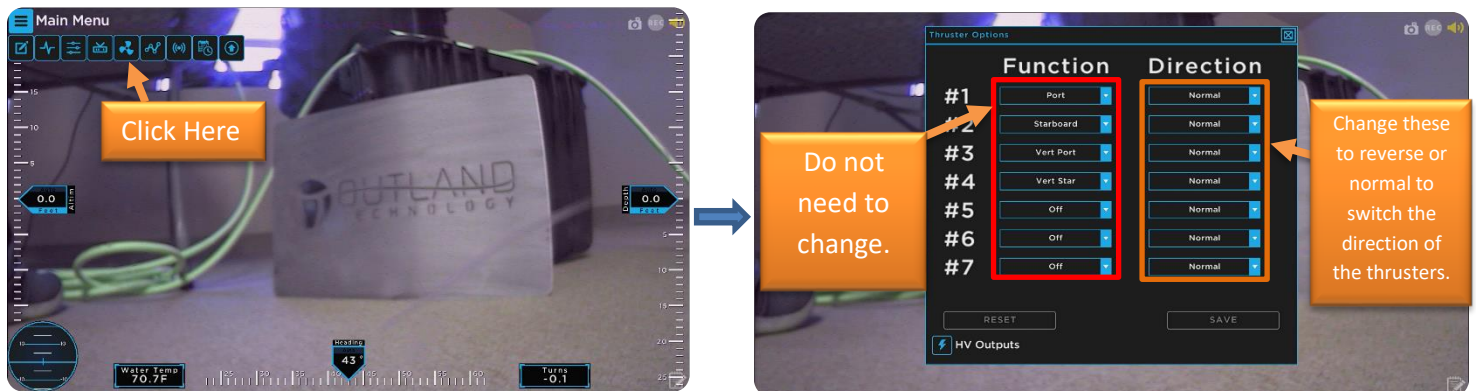
**Step 5:** Set Sensor Options

There are a few calibration setups in here that are explained in the manual. Most are fairly self-explanatory. Change between units here.



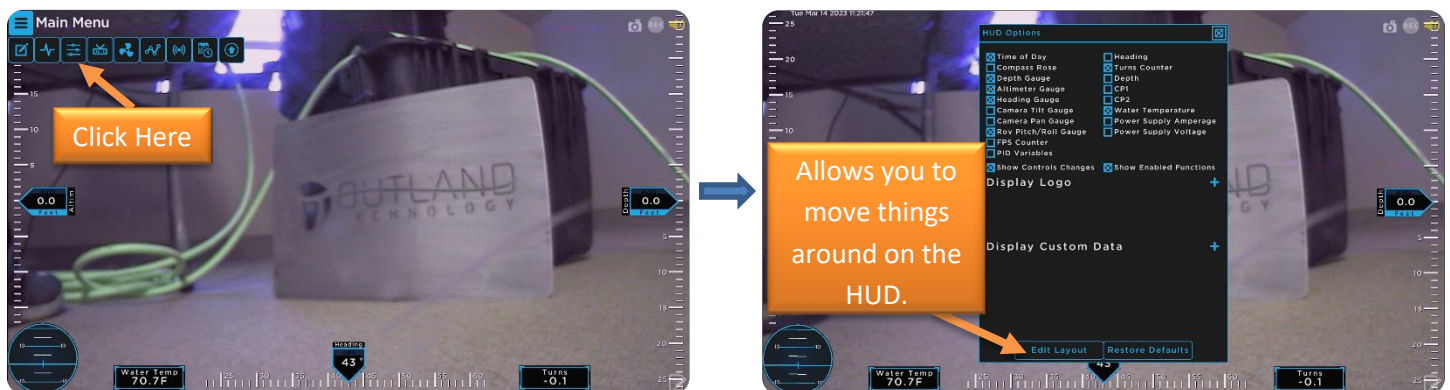
## Step 6: Thruster Settings

These are preconfigured before sending to the customer; however, occasionally these can get flipped. For example, up is down and down is up. If you have such issues on start up go into this menu.



## Step 7: HUD Settings

There are tons of ways to set the overlay or head up display (HUD) on the monitor. Please feel free to play with different display options to pick your favorite. Click a check box and then that sensor will show up on screen. To move things around on the HUD hit Edit Layout and you can then click and drag.

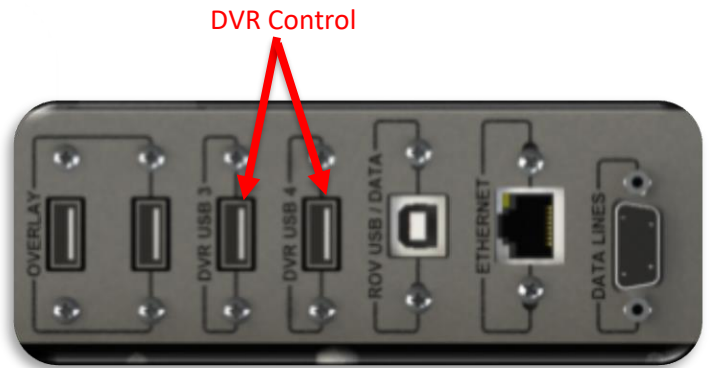




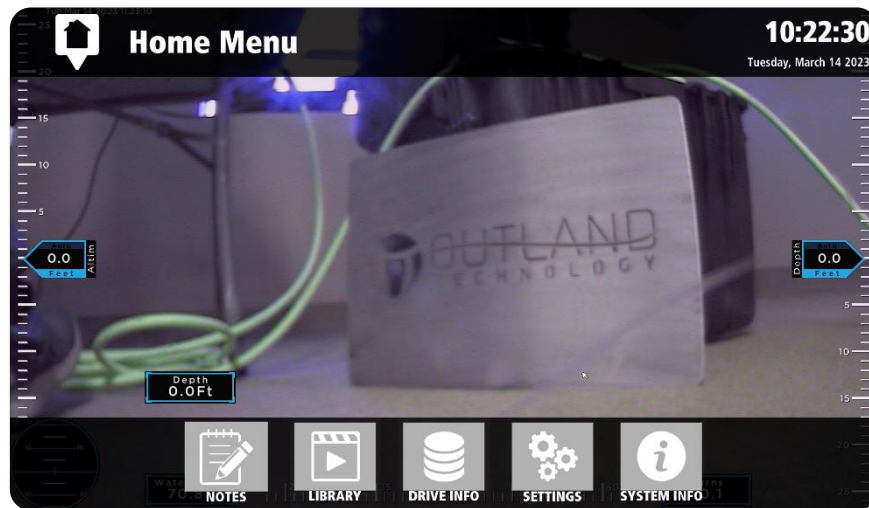
## DVR Setup

This section will explain how to get into the DVR information and how to setup a few key things.

**Step 1:** Accessing the DVR menu.

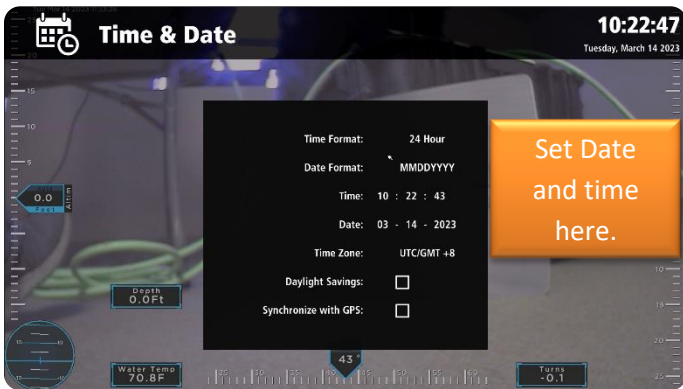
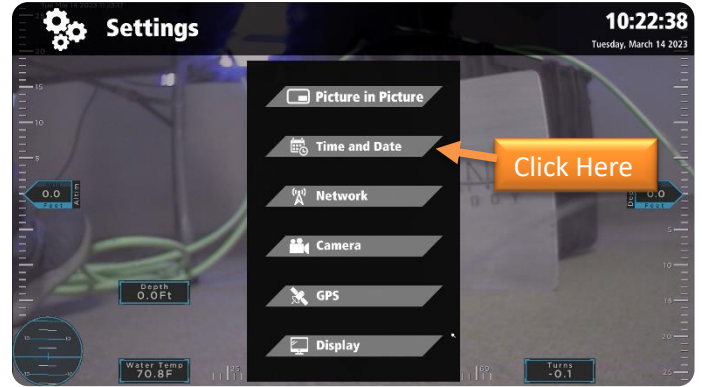


**Step 2:** Right click on the screen and the DVR Menu will appear. If you right click again it will disappear.



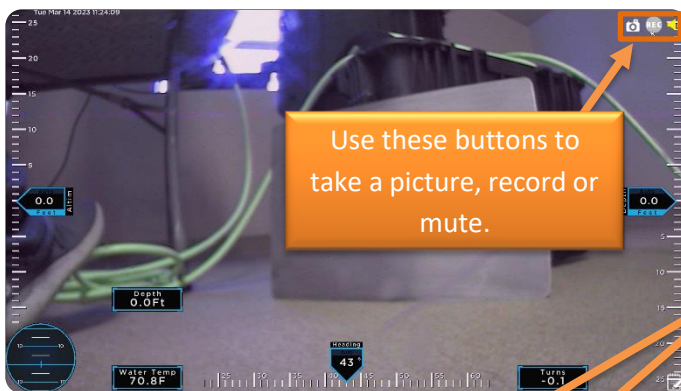
### Step 3: Set date and time on DVR

You want to set the date and time on the DVR as well as the overlay so the time stamps match.



### Step 4: Taking a picture or starting a recording

These DVR on screen controls only work when the mouse is plugged into the DVR port.



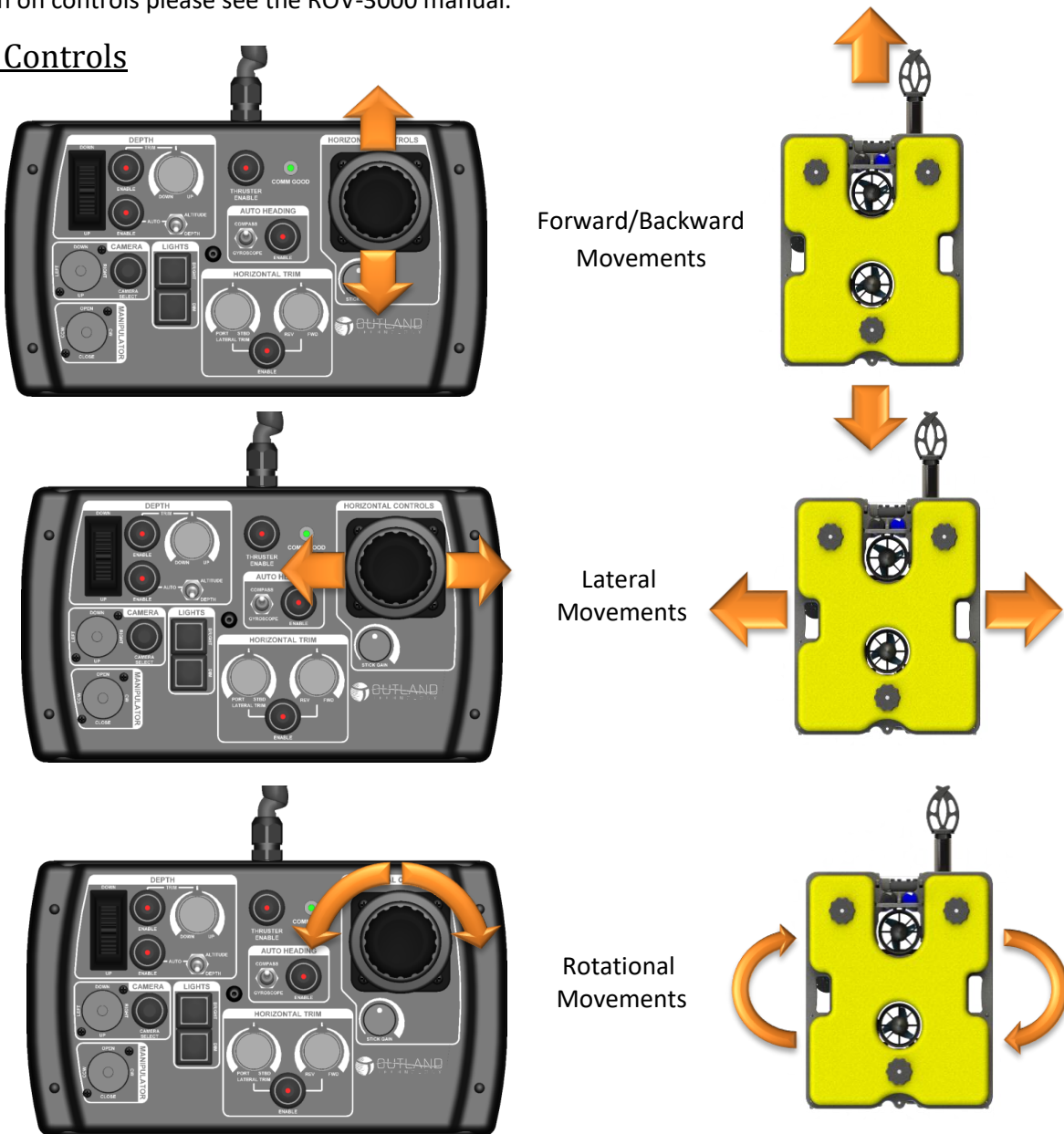
**Keep hands, feet and objects clear of propellers when power is applied to vehicle.**

### 3. Controls and Flight Options

#### Summary

This section will explain how the hand controller controls the ROV and how different flight modes can be set on the ROV from the controller. The ROV will not move at all until the thruster enable button is clicked. The Hand Controller always defaults to manual operation. The joystick controls the ROV's forward movement, backward movement, lateral movements, and rotational movements. The depth thumbwheel controls the up and down movements (For more on depth check the [depth control](#) sections). Rotate the camera up and down by moving the camera thumb switch up or down. If you hold pan right camera lasers will come on and if you hold pan left camera lasers will go off. Control your manipulator by using the manipulator thumb switch. Control your lights by hitting brighter or dimmer on the hand controller. For more information on controls please see the ROV-3000 manual.

#### Joystick Controls

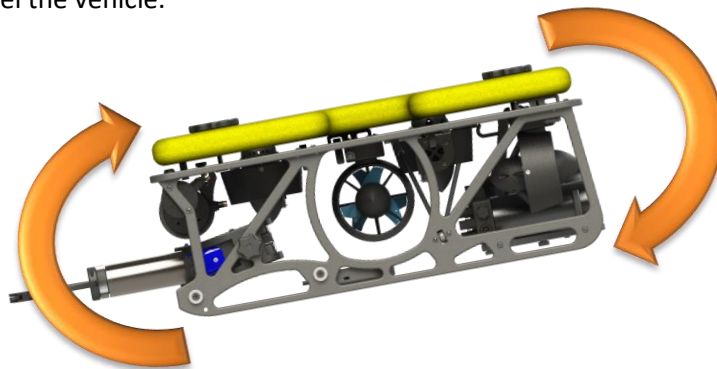




## Depth and Auto Pitch Control

### Auto Pitch Control:

This ROV is equipped with auto pitch control (see image below for graphic). When ROV is in default manual flying mode, pitch control is not enabled. It is highly recommended that pitch control is enabled when flying. When enabling auto depth, auto pitch control becomes active. If you want to enable auto pitch without enabling auto depth then enable depth trim (see button 4 under [hand controller](#)) and put depth trim knob (see knob 5 under [hand controller](#)) at zero. When depth trim is enabled it is a good way to move up and down at high speeds. In the image below auto pitch would enable the thruster to self-level the vehicle.

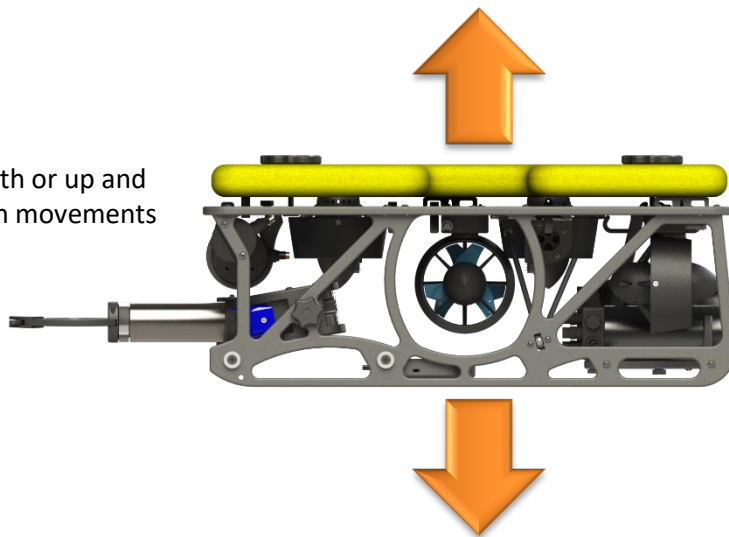


### Manual Depth:

In this mode no auto pitch control is enabled and there is no way to manually control pitch. See auto pitch control above to know how to be in manual depth and enable auto pitch control.

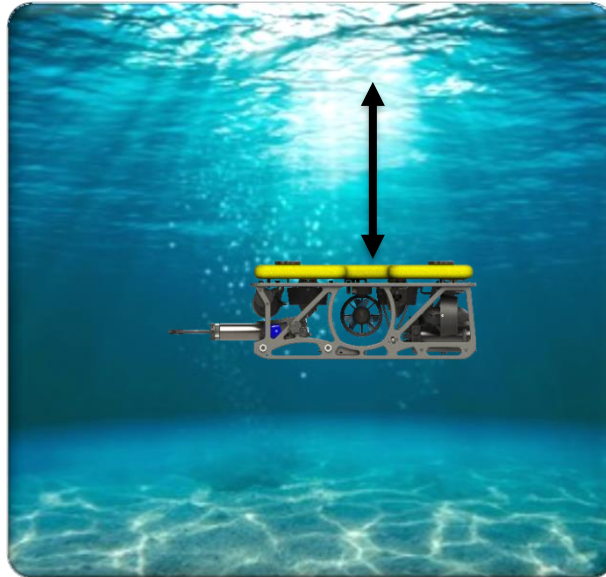
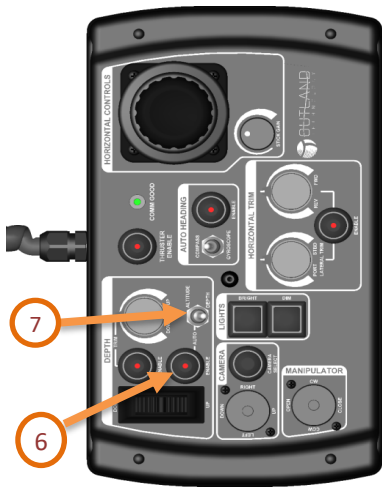


Depth or up and down movements



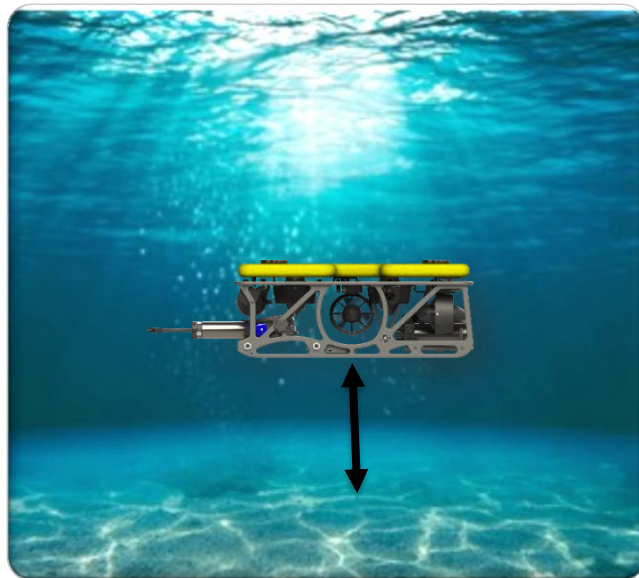
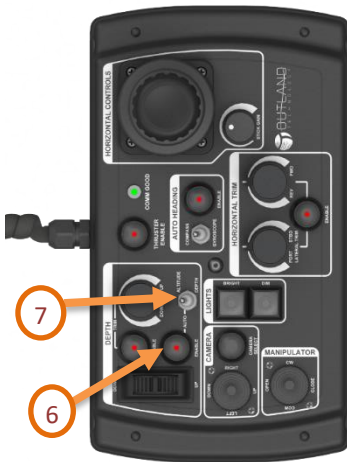
Auto Depth:

Enable auto depth from the top surface by having the toggle switch (7) on depth and then click the enable button (6). The depth that the system sets for the ROV to move to is called the setpoint and is automatically set at 0.1ft increments of movement when in Auto Depth. You can still use thumb wheel to move set point upward or downward and the ROV will move to the set point and stay there. This mode allows fine control movement up and down but is not ideal for high-speed. If you want to move at higher speeds reference [Auto Pitch Control](#) Section.



Auto Altitude (If equipped with DVL):

Enable auto altitude from the bottom surface by having the toggle switch (7) on altitude and then click the enable button (6). You can still use thumb wheel to move upward or downward and the altitude control will hold your position once thumb wheel is released.

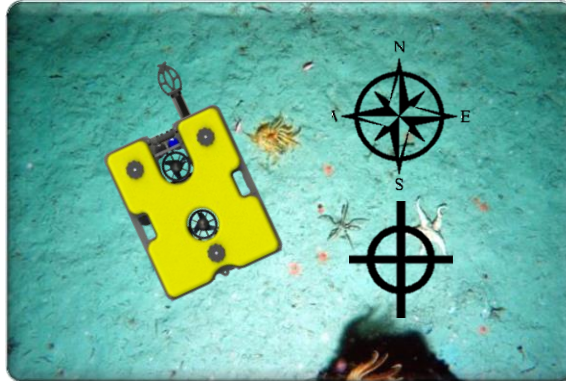
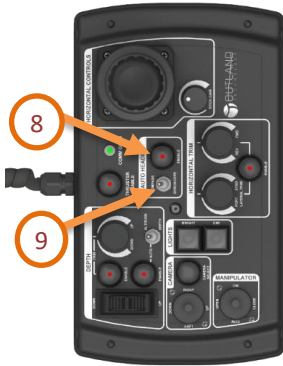


## Auto Heading Controls

In this mode the ROV tries to hold itself pointing in one direction and in one position. In this section, the toggle switch from compass and gyroscope will be explained.

### Compass Auto Heading:

Enable this mode by having the toggle switch (9) on compass and hitting the enable button (8). In this mode the ROV is using a compass to keep itself pointing in the direction you last let go of the rotation of the joy stick. If you are less than 164 Feet (50 Meters) off the bottom the DVL will keep you in location. Similarly to the compass, it will keep the last location you let the joystick go at.



### Gyroscope Auto Heading:

Enable this mode by having the toggle switch (9) on Gyroscope and hitting the enable button (8). The ROV has a sensor that senses rotation inside the control bottle. You would only want to use this setting if you are near a large magnetic object that is preventing your compass from operating properly. An example of this would be a large metal boat hull. Same as when in compass mode, If you are less than 164 Feet (50 Meters) off the bottom the DVL will keep you in location and hold you in position wherever you let the joystick go at.



## Camera Control

There are two cameras that come standard on the ROV-3000. The main camera is the front 360 camera. This camera can spin 360 degrees continuously and is equipped with a scaling laser. The secondary rear camera is on the inside of the control bottle. This camera is fixed inside the bottle and is usually used to keep track of the tether during operation.

To rotate the main front camera use button 15 seen in the [hand controller](#) section.

To switch between cameras click button 16 seen in the [hand controller](#) section.

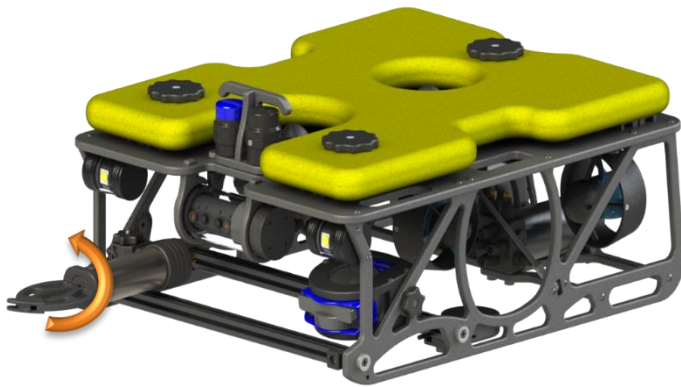
To turn on scaling laser hold pan right and to turn off scaling laser hold pan left on button 15 seen in [hand controller](#).

## Light Control

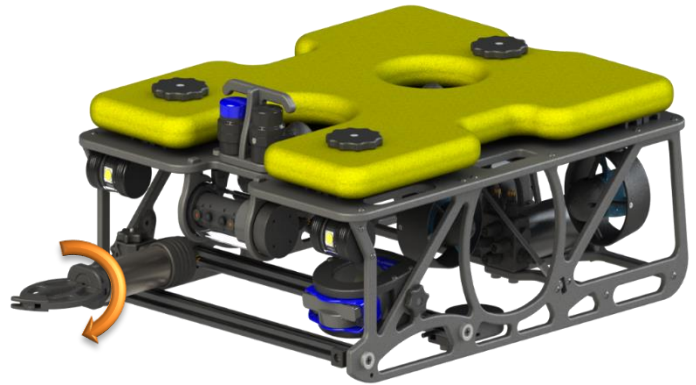
To control the lights see the light intensity control button in the [hand controller](#) section. Press and hold brighter to turn the lights all the way to 100%. If you press and hold dimmer it will turn off the lights. A single press of the light buttons will make the lights brighter or dimmer. The active light level is shown on the overlay.

## Manipulator Control

To control the manipulator, use the manipulation control knob. This is knob 18 in the [hand controller](#) section. When going clockwise the manipulator spins in the direction seen in the left image and when going counterclockwise the manipulator spins in the direction seen in the right image.



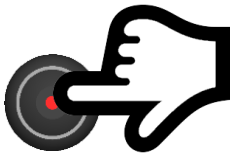
Clockwise rotation



Counterclockwise rotation

NOTE: The manipulator mount is highly adjustable. Loosen up the knobs and move it around. You can mount it in any way you choose.

## Perform Preflight Check



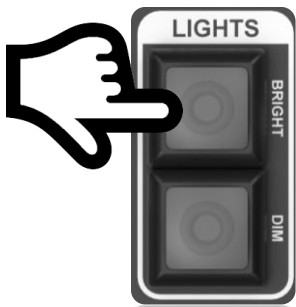
Press Thruster Enable Button

The indicator will blink then remain illuminated indicating thrusters are powered. If indicator blinks and goes out, this indicates an issue. Refer to manual and troubleshooting guide for details.

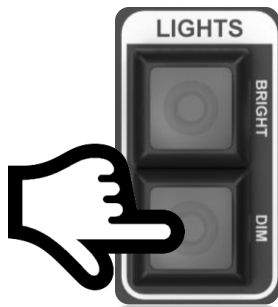


**Keep hand and objects clear of propellers when power is applied to vehicle.**

**Do not run thruster in air at high speed or for extended periods of time. The bearings require water for proper operation.**



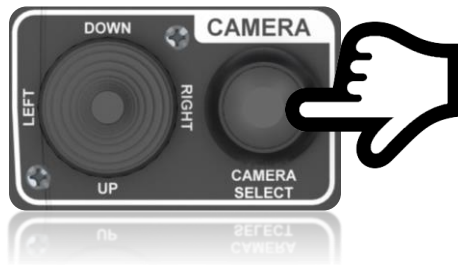
Press Light Bright Button to turn on ROV lights.



Press the Light Dim Button to turn off ROV lights.

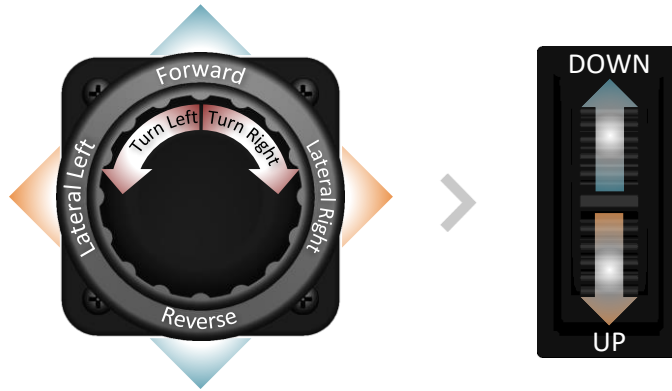


Test Manipulator Open, Close and rotate functions.



Press camera select to cycle through available cameras. Verify video is displayed on monitor. Then rotate main camera to make sure camera is moving properly.





Move control joystick in each direction and verify associated thruster activates.

Move Depth Thumbwheel up and down to verify thruster activates.

If all checks out, you are ready for the water. Launch the ROV and enjoy the fly.

## Closing Statement

Congratulations on your new ROV-3000! Everyone at Outland hopes you enjoy this equipment. If there are ever any issues, questions, concerns, or feedback please reach out to us and let us know. We are always willing to help and improve. For more in depth information please reference the full manual.