

# Diagnostics and Repair

## Why does the ROV behave differently than expected based on the hand controller input?

This information applies to the Pro 4...

Directional control and other ROV functions result from a series of operations, configuration settings, wiring and functions. Normally, pressing forward on the joystick results in the ROV moving forward, pulling the joystick in reverse reverses the ROV, and left and right joystick inputs result in the ROV turning left and right respectively. If the behavior is not as expected, one of the following can be the problem. It is important to correct the situation in the right place, otherwise it may compound the problem and make components (controller, computer, ROV) incompatible with other systems.

### Holding the joystick inverted

The VideoRay hand controller should be held so that the joystick and the wire to the control panel are to the right.

### Broken joystick

If the joystick does not "feel" right, it might be broken. If there is no response (as opposed to an incorrect response) the joystick might be broken. This may also result from a wire failure in the hand controller or between the hand controller and the computer. The joystick can be checked using the Windows game controller properties found in the Windows Control Panel. Also, when you move the joystick, you should see the corresponding thruster indicator(s) moving in VideoRay Cockpit.

### Mis-wired joystick

If the joystick is mis-wired it may not operate as expected. The joystick wiring can be checked using the Windows game controller properties found in the Windows Control Panel.

The default joystick and knob response is shown in the following image:

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VideoRay Controller properties



Settings

Test

Test the game controller. If the controller is not functioning properly, it may need to be calibrated. To calibrate it, go to the Settings page.

Axes

X Axis / Y A...

Z Axis

X Rotation

Y Rotation

Z Rotation

Buttons

1

2

3

4

5

6

7

8

9

10

11

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13

14

15

16

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32

Point of View Hat

OK

Cancel

Apply

J1+X (Move joystick to the right) = The crosshair should move to the right

J1+Y (Push joystick away (forward)) = The crosshair should move down

J1CC (Rotate the joystick counterclockwise) = the bar size should increase

RXCW (Rotate controller knob on upper left clockwise) = the bar size should decrease

RYCW (Rotate controller knob on lower left clockwise) = the bar size should decrease

RZCW (Rotate controller knob on the side clockwise) = the bar size should decrease

## Default Button Mapping

1. Manipulator Close
2. Manipulator Open
3. Focus Out
4. Tilt Up
5. Help

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6. Snapshot
7. Lights Bright
8. Lights Dim
9. Tilt Down
10. Focus In
11. Camera Select
12. Record/Stop

## Error in the joystick configuration file

The configuration file maps joystick inputs to specific ROV functions. If these are not mapped correctly, a different response can be expected. This is not always a problem - changing the configuration file is required in order to create a custom configuration. Configuration files are XML. They require manual edit, but a future version of VideoRay Cockpit will include a joystick mapping user interface.

## Modified Thruster Direction Setting in the main configuration file

There is a setting in the main VideoRay Cockpit configuration file to change the port thruster direction. . If this value is set to true, the port thruster direction will operate in the reverse direction from normal operation. This setting is for legacy support and should not normally be changed.

## Mis-wired thruster motors

If the thruster motor wires are incorrect, the thruster motor may rotate in the wrong direction. Swapping any two of the three thruster motor wires should correct this problem.

## Improper propeller installation

The propellers on a Pro 4 are counter rotating (reverse pitch) and should be installed so that the top blade curves towards the center when viewed from behind. Do not install the propellers on the wrong shaft, and do not install two propellers with the same directional pitch.

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