

# Using real ship controls in Ship Simulator

## *How-to guide*



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### DISCLAIMER:

This tutorial requires some basic electrical knowledge, using this tutorial is at own risk! VSTEP is not liable for any damage that may result from any advice or action of this tutorial.

## Introduction

This document describes how to interface a (real) Ship Control (potentiometer), to Ship Simulator 2008 via USB.

### Real Ship controls:

Real ship controls consist out of potentiometers with some gears. So these controls change the input current they get, according to the position of the levers. Moving the control changes the current of the controls output. Now if it were possible to capture this changing current, digitize it and send it to the PC, it would be able to control Ship Simulator with it.



The image on the left is a potentiometer. The long shaft is the control for the potentiometer, it controls how much current is lets through. As you can also see, it has 3 connections, a +,GND and signal.

### Joystick Controller BU0836:

There are several devices on the market which allow you to connect analog signals and send them to the USB port. An example of this is Leo Bodnar's BU0836 controller. This controller does what we want it to do: it takes analog signals, digitizes it and formats it for USB. Another plus about this controller is that it presents itself as a standard USB joystick, which can be used for any game. Ship Simulator 2008 has extensive function mapping options, allowing the joystick elements to perform any desired function in the game.

The BU0836 can be bought at <http://leobodnar.com/products/BU0836/> More detailed information about the BU0836 can also be found there.

So basically, all that needs to be done is connect the ship controller to the BU0836.

**Tutorial: how to connect a ship engine controller to the BU0836:**

We are going to connect this engine controller to the BU0836. In 5 short steps you can do this for your own controls!



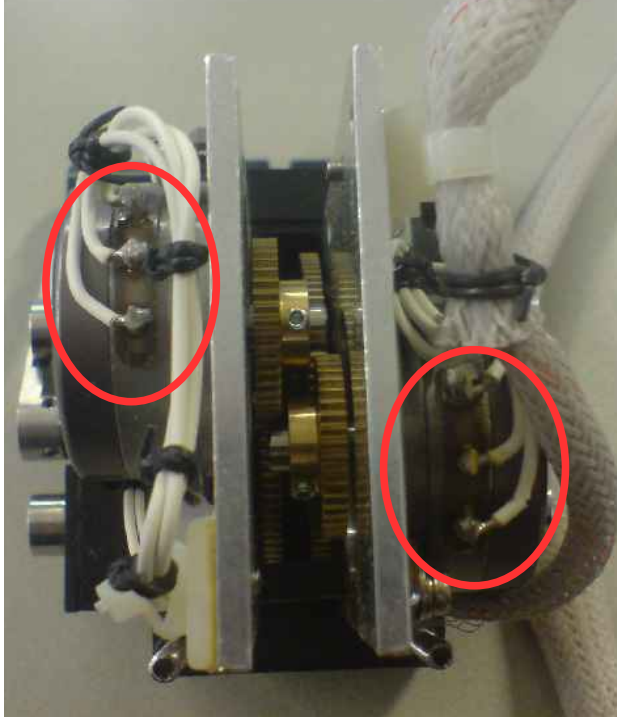
The ship engine controller



*BU0836*

***Step 1: make sure the controller is actually a potentiometer***

We can test this by examining the controller, it is quite easy on this controller, because on the 2 sides we see 2 potentiometers:



Its easy to see here that there's potentiometers in this controller. You can see the 3 wires attached to them.



Here it is even more obvious, it has a potentiometer icon on it:

What can you do if you do not have these signs? I recommend you to try and find out anyways, just to be safe and not break the control and or the BU0836. If you happen to have a multimeter, find out if the control's output has a changing current when you move the control.

### *Step 2: soldering the header pins*

Now that we're sure it is a potentiometer control, it's time to connect the control to the BU0836.

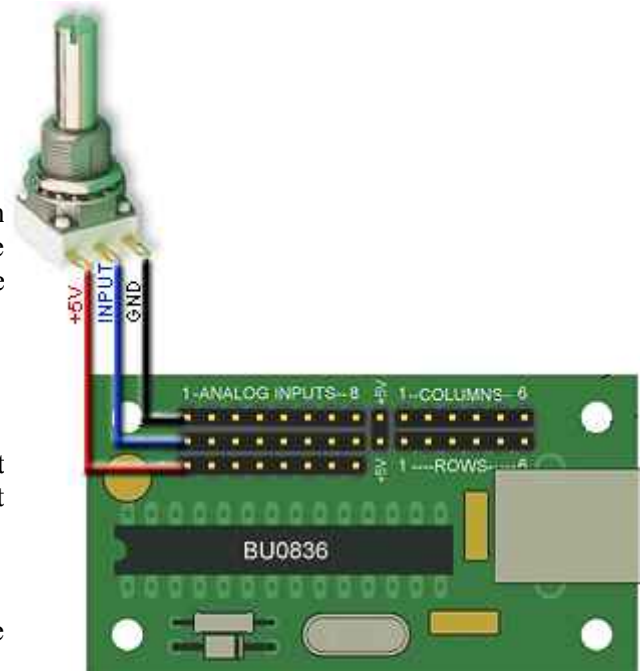


The included pinheaders can be used to hookup the control to the BU0836. Basically it's connecting the dots. Just solder the ends of the potentiometer to the header in the order specified below.

The image on the right specifies the correct order. + on the one end of the pinheader, - on the other end. The signal that comes out of the potentiometer goes in the middle.

Our controller has 2 potentiometers, because it basically are 2 controllers in one. One for the first engine, one for the second engine.

So we do this for both the potentiometers, on separate pinheaders of course.



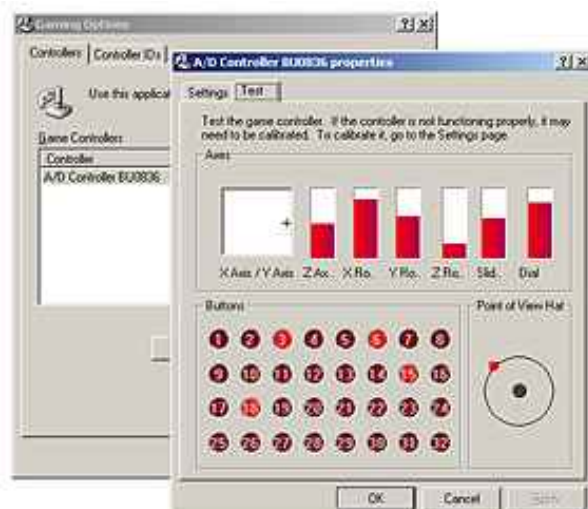
We added some heatshrink as well, to protect the various signals from each other.

The result:



### ***Step 3: connecting the pinheaders to the BU0836***

Now just slide on the pinheaders on the pins of the BU0836. After this is done, plug the BU0836 into the USB-port. Now windows should see that the controller has been attached. You should now see the controller listed amongst the game controls. You can find this in the Control Panel – Game Controllers. You can test if it's working by moving the controls and see if the values change in this screen as well.

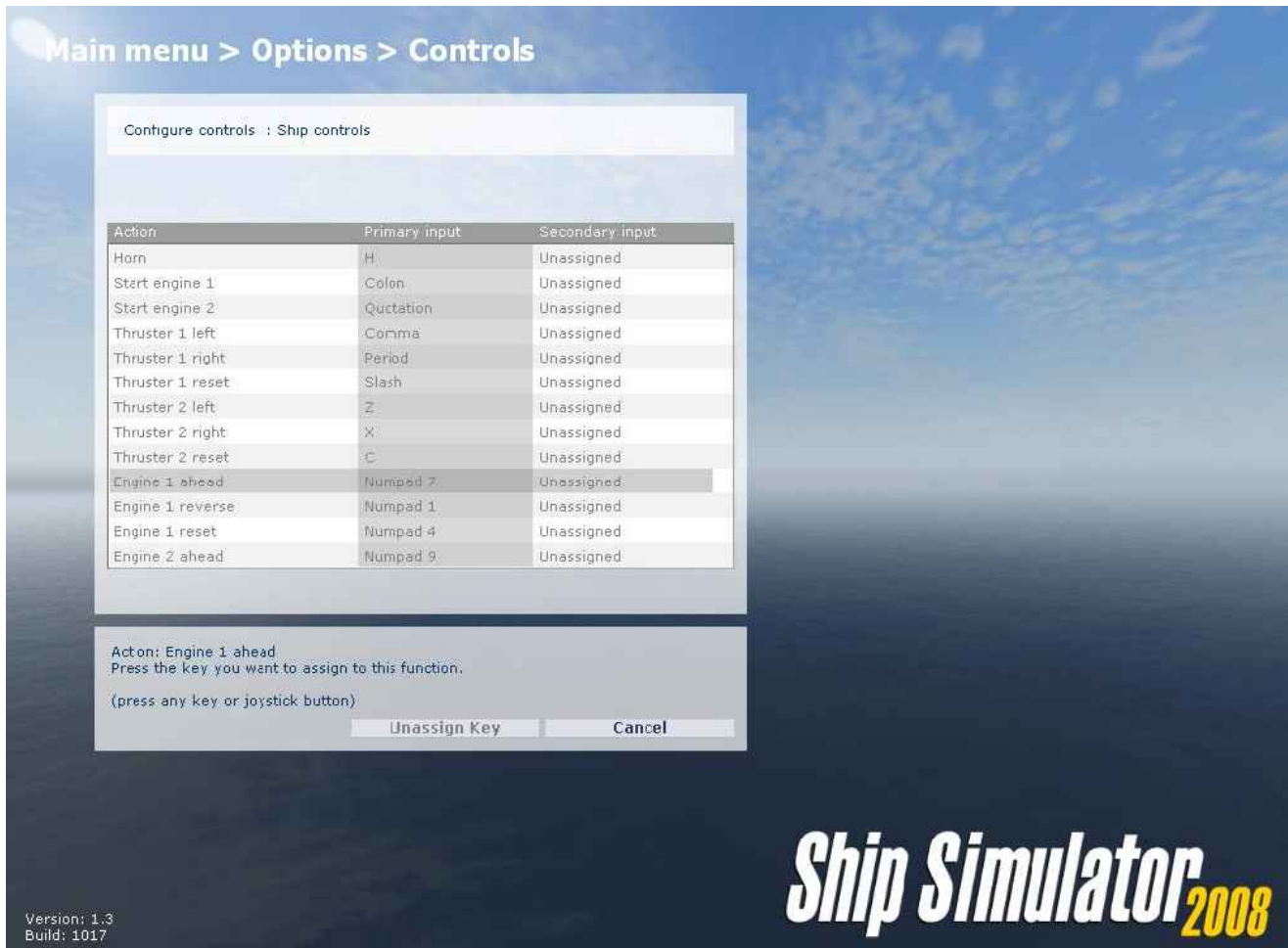




#### **Step 4: using the controls in Ship Simulator**

Now just start up your Ship Simulator, with the BU0836 plugged in. Go to the Controls menu in Options menu.

Now select the action you want to use with your new control, double-click on it and move the control you want to map to it.



Now the old value will change into something like “JOY1-X”, depending where you plugged on the pinheader input you used.

*Step 5: make a nice case & start playing!*

The controller in action at VSTEP.

