**Setting up the joystick on a Heidenhain amplifier box.**

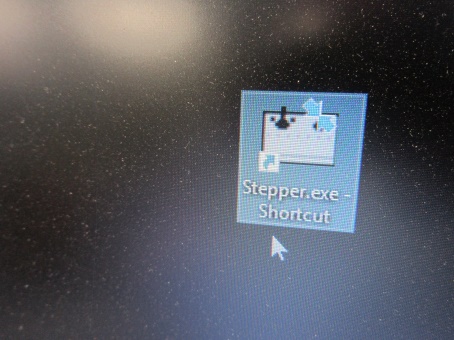
Locate the 9 pin RS232 cable. And connect it to the RS232 port on the amplifier box. This cable is usually located inside the comparator, near or attached to the amplifier box. Sometimes you will find that someone has removed it from older machines. If so you will need to get another one.

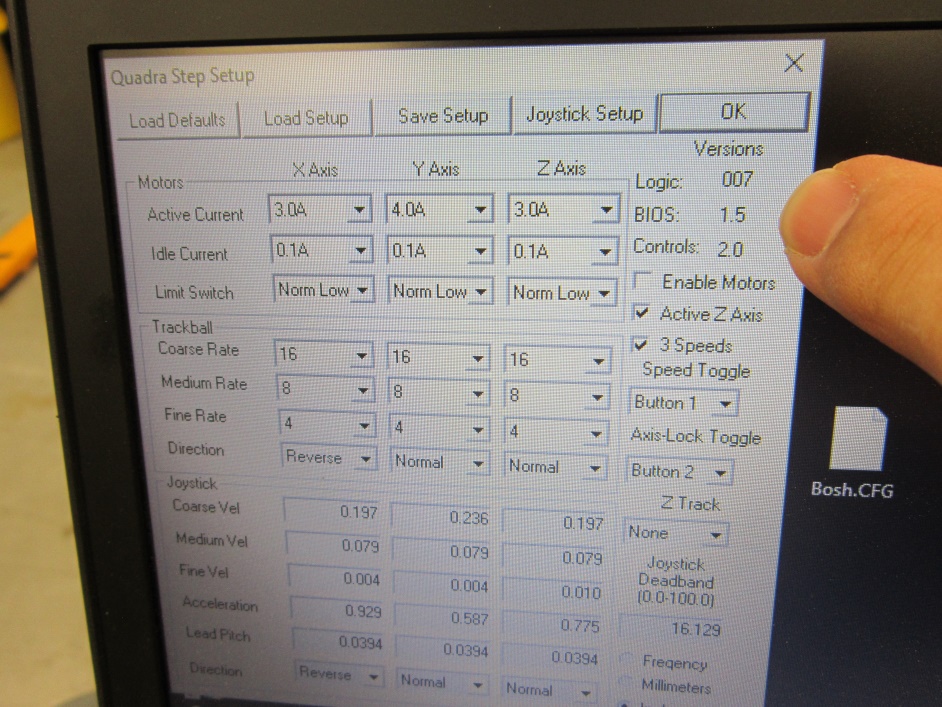
Connect the other end to a computer that has a RS232 Com. Port. Connect to Com. 1 if your computer has two ports. Unfortunately USB to 9 pin RS232 adaptors do not work. You need a computer with a Com. Port. Note: Some newer computers do not have this port.

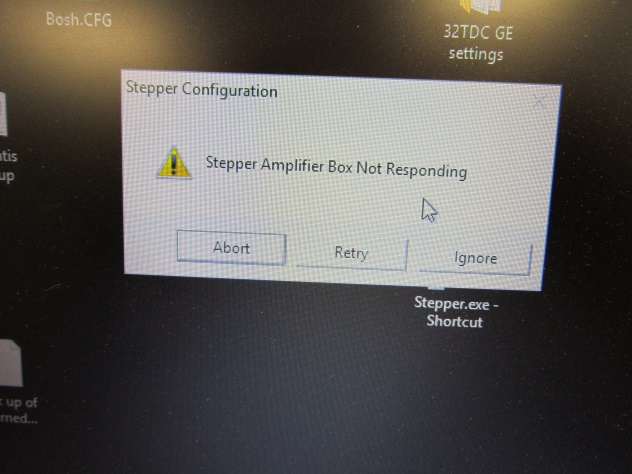
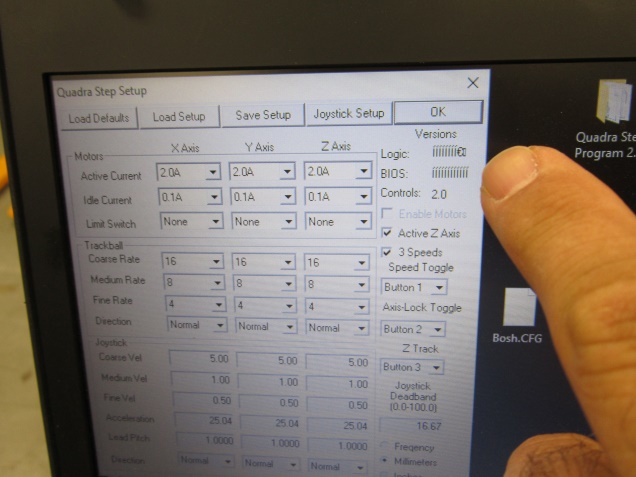
Make sure the power to the Amplifier Box is turned on then launch the Quadra Step software from the USB drive or desktop. It is an executable program and will run without installation. The launch Icon looks like the picture below.



The window that opens should look like “image one” shown below, with values next to “logic, and BIOS.

 Image one

If you see either of the windows in Image two or three. Check your cables for a good connection and close, then re-launch the software until you have a good communication with the amplifier box indicated by values next to Logic and BIOS as shown in image one.

   
 Image Two Image Three

Once you have the Quadra Step dialog window open, make sure the check box for “Enable Motors” is checked. Then click the “Save Settings” tab and save a backup copy of your current settings. It is good to save this file for use if you cause changes that you do not want. You can use this file to restore the settings to original. You can name it “old Joystick” or something else if you want.

Once the backup is saved. Connect the new joystick. If you are replacing the joystick cable, do that now as well. Once the cable connections are tight. Click the “Joystick Setup” tab then “Teach All”

You will now see the “Teaching joystick” popup window. Follow the instructions to teach the joystick. Note: for each window hold the position of the joystick even after you click the “OK” button. Hold it until the next window pops up. Do this for each window of the teach.

For the “Up” direction push the joystick forward.

For the “Down” direction pull the joystick back.

For the “Z Maximum” twist the joystick knob clockwise all the way.

For the “Z Minimum” twist the joystick knob counter clockwise all the way.

For the “Center Joystick” let everything go and hit “OK”

Then click the “OK” tab to save the new joystick teach. This will take several seconds to save.

After it saves the “teach settings” make sure the “Enable Motors” check box is checked and save a copy of the new settings to your folder or USB drive. Call it “New joystick” or something that will allow you to know it is the new settings.

Whenever you open the Quadra Step program it will turn off the motors by un-checking the “Enable Motors” check box. It will also return the “Deadband” setting to a default value. So before you close the Quadra Step window. Make sure the Enable Motors check box is checked and set the “Deadband” value to 20. Check to make sure the motors are working properly and the stage or focus are not “Drifting” (make sure they are not moving by themselves) If all is working well you are done close the software. Remove the RS232 cable from the computer and the amplifier box. Then recheck that the motors are still working good.

**Note:**

When you are done do not leave the RS232 cable attached to the amplifier box. This can cause false signals to the amplifier box.

The “**Deadband**” is the spot in the center of the joystick control where nothing happens. No movement.

To use a saved amplifier box settings file. First open the Quadra Step window and then click “Load Settings” tab and choose the Config. File that you have saved.

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