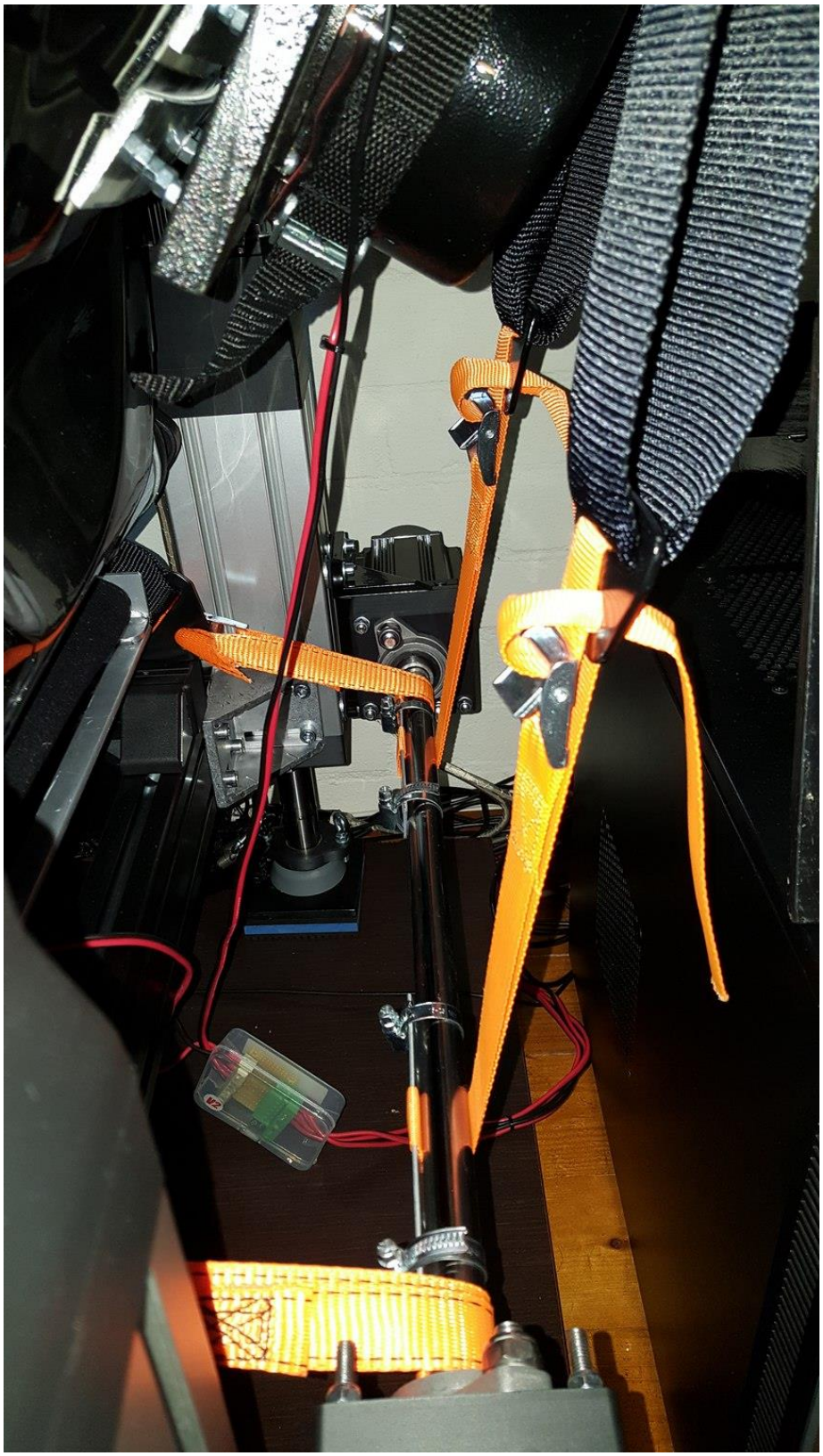
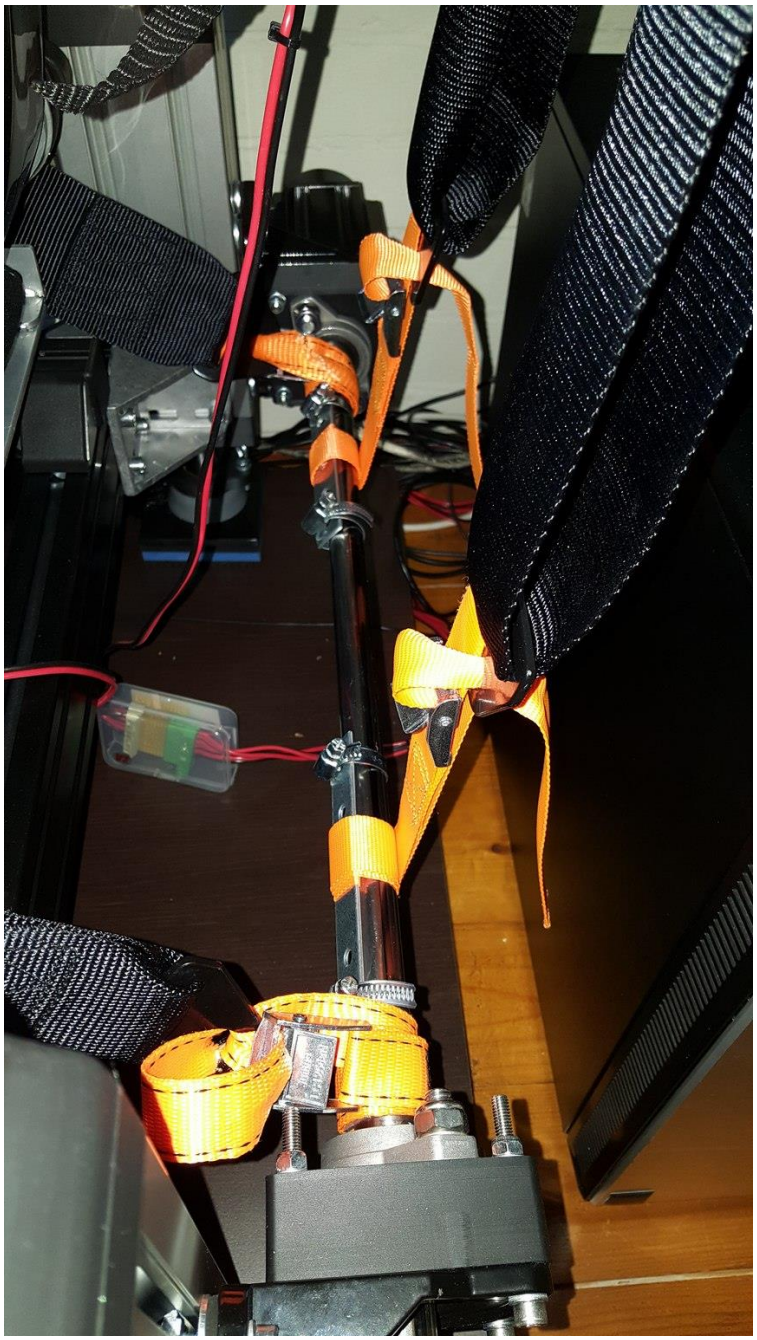
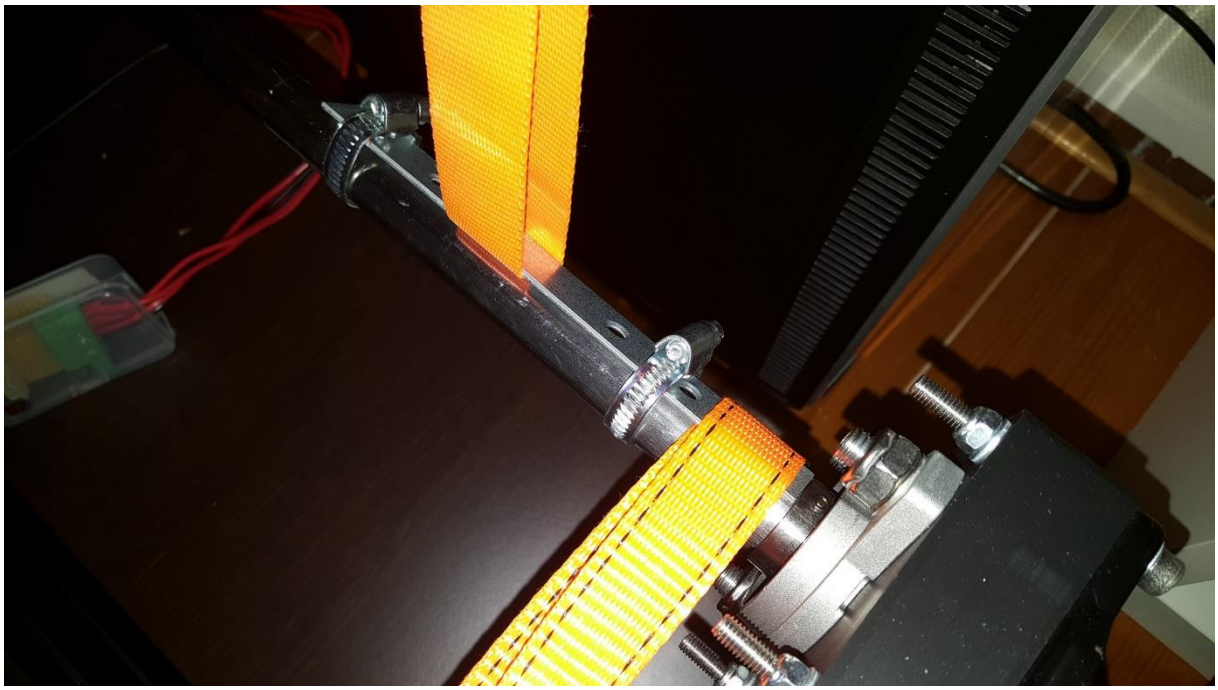
Rolled off:

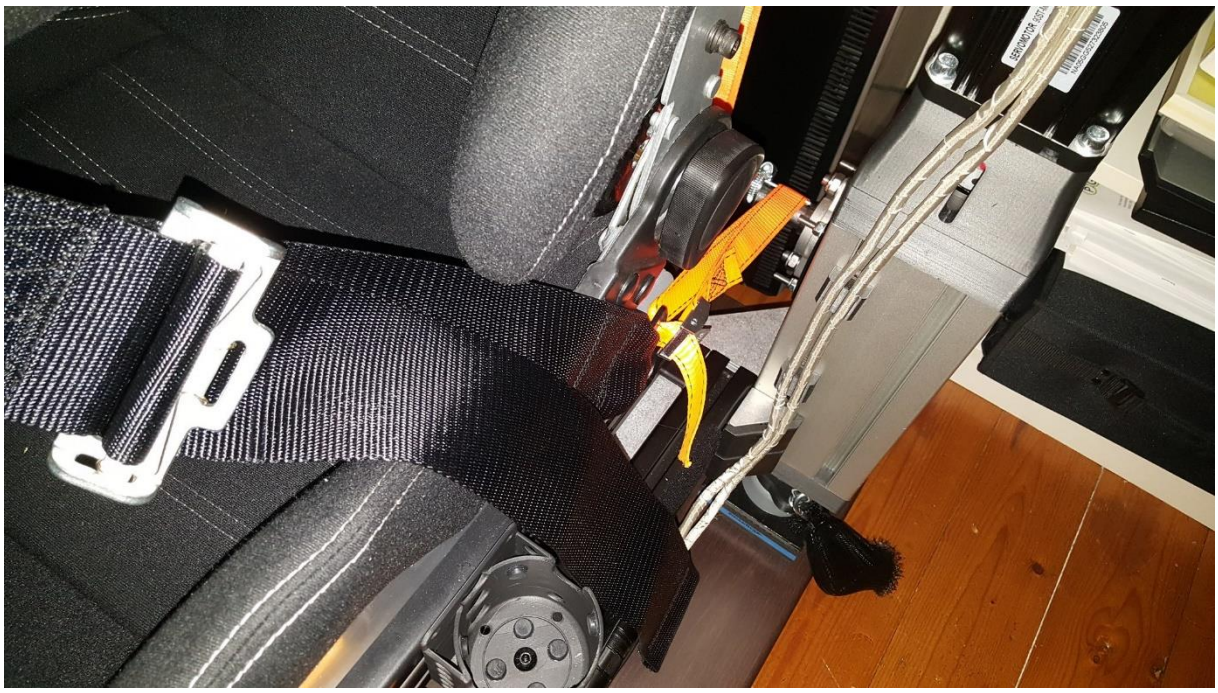


Rolled up:



You need to mount a bigger plate:





Now you can connect the servo cables to the servo driver. Connect the DB25 cable of the servo driver to ‘Motor 1’ on the Arduino shield.

Recommended

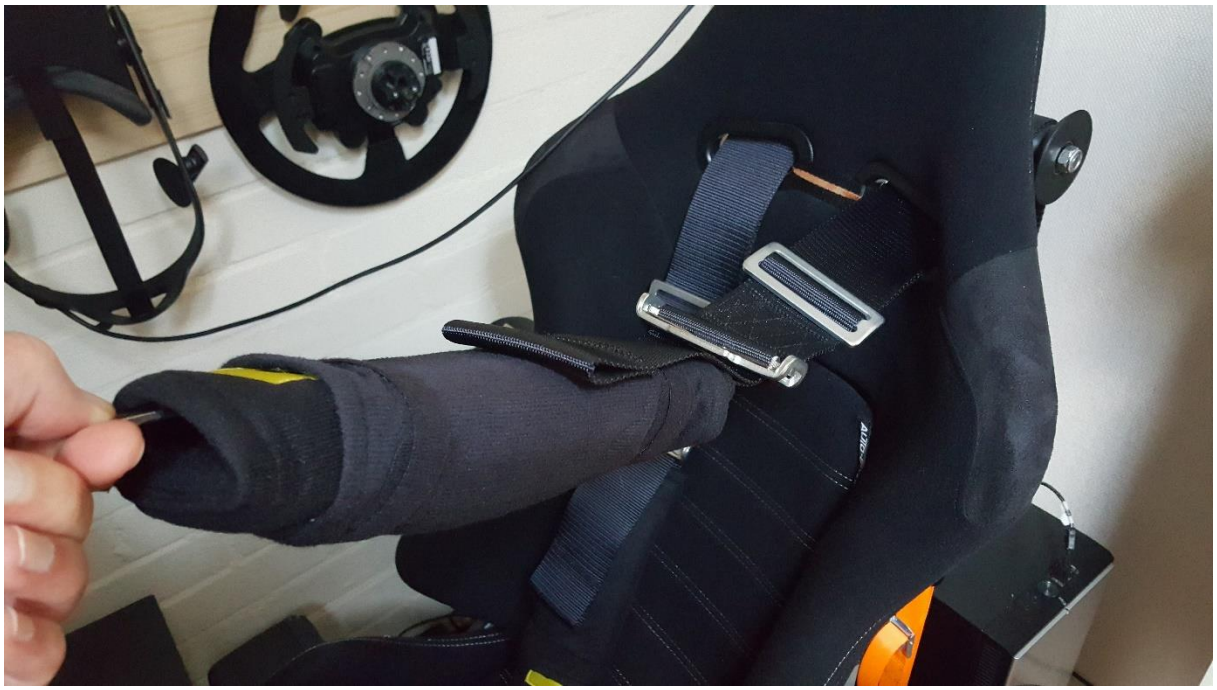
If you are a slim person like me: adding a ‘belly’ to the belts is recommended. With this added padding you can feel the tension of the belts better over your whole upper body. Mount the padding as low as possible.

Pads used:

Sabelt shoulder pads F1 Nomex 75 mm (3 inch) 13,92 €

Carpoint shoulder pads 6,99 €

And some Velcro straps, but you can use tie wraps as well.



Servo drive configuration

These servo drive parameters need to be adjusted for the servo you use for the belt:

P8 = 75 (if you are using hip belts as well: P8 = 200 maximum, but start at 100)

P9 = -75 (if you are using hip belts as well: P9 = -200 maximum, but start at -100)

P51 = 500

P97 = 0 (0: turn counter clockwise, 1: turn clockwise),

P98 = 2

P109 = 1 (smoothing: 1 = fixed smoothing, 2 = s-shaped smoothing)

P110 = 30

P113 = 20 (Feedforward %)

P114 = 10 (Feedforward Filter Time in ms)

P115 = 100 (Position gain %)

You can set P98 to 3 to make the servo rotate the tube more (take care!!), but 2 should be enough.

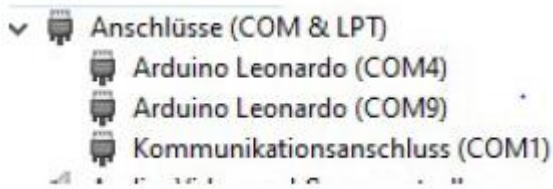
Safety warning

P8 and P9 set the torque limit of the servo. This is the amount of force the servo applies to go to the designated position and keep it there. If you set the torque limit higher it will apply more force to go to this position. Setting it too high it may injure you if you make a mistake in the configuration. Take great care when increasing this value. Common misconception: increasing this value will not *rotate* the tube more (that's parameter P98). I do not recommend to set this higher than (-) 75 when using shoulder belts only. If you use hip belts too the servo has a lot more work to do so you can increase it to a maximum of (-) 200.

Software configuration

(parts copied from OlDirty's manual, with permission)

Comports configuration



Connect both Arduinos to the PC with a USB cable and open the device manager. There you see the COM ports. To check which COM port belongs to which Arduino just unplug a USB cable from an Arduino and you'll see what's what.

In this example my first Arduino is on Comport 9 and my second one on Comport 4.

Now we have to configure the "SimFeedback.xml" file which is located in your root directory of the installed SimFeedback software.

Open it and copy the first Arduino which is marked in dark yellow, so you get a second Arduino (bright yellow box).

- Enter YOUR Com addresses in the red marked area (my ones are 9 and 4)

- First Arduino must have <id>1</id>, second Arduino <id>2</id>, third Arduino <id>3</id>

- First Arduino is <type>SFX</type>, second Arduino <type>Addon</type>

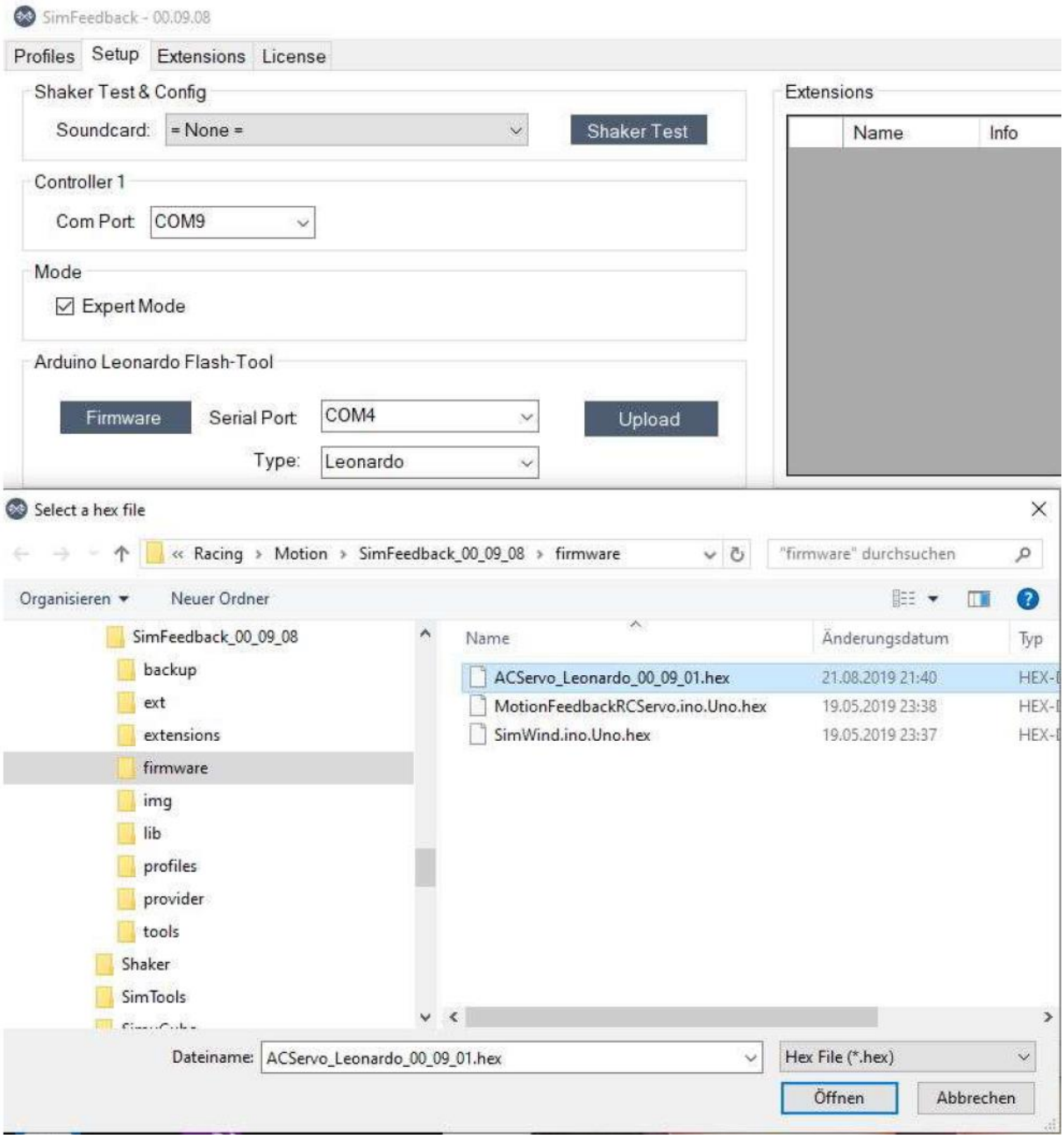
- Save the file.

Flashing the second Arduino

Open SimFeedback and go to the Setup page. Press the Firmware button and choose the firmware “ACServo_Leonardo_00_09_01.hex” (yes it’s the same firmware file as on the first Arduino).

Choose the serial port of the second Arduino (in my example COM4).

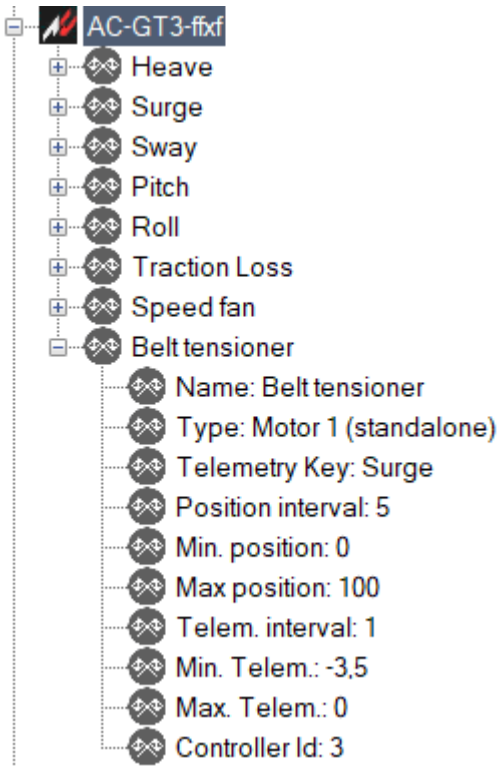
Press Upload.



Edit Assetto Corsa profile

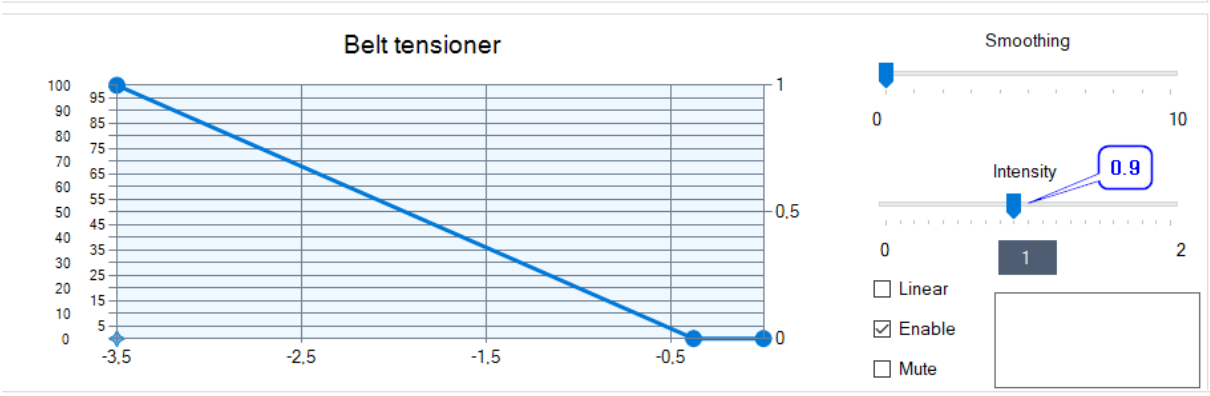
Copy for example the pitch profile of your existing Assetto Corsa and paste it. Edit all the fields so it looks like in the picture below.

My belt tensioner is on controller ID 3, yours may be on controller ID 2.



To see what the graph should look like play the game with **Realtime Data** and **Mute** activated so you won't be pulled by the belt:

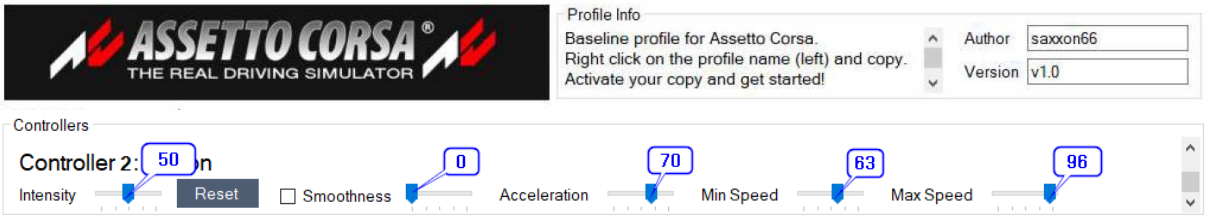
Find the max value under heavy braking. In Assetto Corsa it goes till approximately -3.5. So your graph can look like this:



I did that flat part on the right because I don't want to have small car movements felt trough my belt.

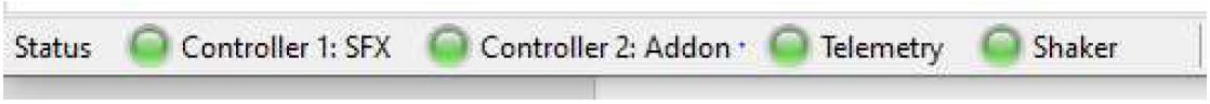
I have intensity set at 0.9 on my rig. **But at first start, for safety: set intensity to 0.5, test, increase intensity gradually.** If you set intensity too high the belts react as an on/off switch – that's too much. Soft braking should pull the belts gently.

You also have a second control bar for your second Arduino (use the scrollbar at the top right).



I have set Intensity at 50, Smoothness 0, Acceleration 70, Min Speed 63 and Max Speed 96.
If you want the belts to be more 'snappy': increase max speed to 100. I like the belts to move a bit softer, it feels more realistic to me.

When the game is started, it should look like this in SimFeedback:



Remark: the whole system is pretty picky on USB cables. So I recommend not to use crappy ones, but good shielded cables. Otherwise you can have connection problems while using the SimFeedback software.

Please read the safety warning again (mentioned on a few pages back).

Belts

First try: buckle the belts without sitting in the chair. Unwind the belts completely and press ‘Start’ in SimFeedback, it will wind the belts (manually pull them a bit while it winds to avoid tangling). Unbuckle the belts and sit in the chair. Tighten/loosen the belts until you’re mildly fastened with the belts buckled. Start driving and adjust if needed.

On next sessions you can sit in the chair, buckle up and press ‘Start’, SimFeedback will wind the belts to the same position.

Have fun!