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1. Modification of the PI Winder to Unwinder / Rewinder

1.1 Modification of the Winder

- Release the allen screws of the potentiometer with an allen wrench size 4 (see page 5 point 3)
- Release the rubber buffer screw, move the dancer to the other side and tight the rubber buffer screw again.

- Release the torx screws with a Torx T20 screwdriver and fix the complete roll on the other side.

- Release the allen screws of the metal arm with a allen wrench size 4, turn the arm and fit it with the screws.
1.2 Adjust the potentiometer

The following tools are needed:

- Allen wrench size 2,5
- Allen wrench size 4
- Slot Screwdriver small (here size 1,5) or a cutter
- Slot screwdriver medium size (3,0 or 4,0)

1. Open the Back of the Winder with the allen wrench size 4.
2. Remove the cover of the potentiometer with the slot screwdriver size 1,5 or with a cutter.

3. Loose the allen screw(size 2,5) a bit. This screw fixes the dancer axle on the potentiometer.
4. Power on the PI Winder and turn the potentiometer with the slot screwdriver.

   Unwinder:
   Turn the screwdriver contraclockwise till the winder stops spinning. Search precisely for the point where it stops.

   Rewinder:
   Turn the screwdriver contraclockwise till the winder stops spinning. Turn the screwdriver a little bit clockwise till the winder begins to spin. Hold the screwdriver to prevent that the setting changes and lift up the dancer to the top point.

5. Tight the allen screw of the potentiometer. Check that the dancer axle is completely on the potentiometer.

6. Unwinder:
   Lift up the dancer arm to around 3mm and check if the winder begins to spin. It should be not more or less then 3mm. If the setting is not fitting repeat the points 4 and 5 till the setting is good.

   Case 1: less than 3mm: turn the screwdriver minimal contraclockwise
   Case 2: more than 3mm: turn the screwdriver minimal clockwise

   Rewinder:
   Lift up the dancer arm to the top position and check if the winder is spinning.
7. - Put the blue jumper JP3 from position 1-2 to 2-3 (Teach-Mode)

- Lift up the dancer arm to the middle of the winder area and press the Teach-Button on the board
- Put the blue jumper JP3 back to position 1-2

8. Unwinder:
   Check if the winder begins at the correct position (about 3mm from the bottom) and changes the direction in the middle of the winder area.

   Rewinder:
   Check if the winder spins when the dancer is at the bottom, if it changes the direction in the middle of the winder area and if it spins at the top position.

1.3 Programming the PI Winder


2. Connect the winder over a Mini-USB Cable with a PC/Notebook and install the driver see package (C2102).

3. Open the program „hterm“ and set all settings shown on the picture below. Choose the correct port (blue circle) and click on „Connect“. Power on the winder. „tiny-brush ©“ should be show up.
If the message doesn’t show up power off the winder, wait a moment and power it on again.

4. Set the values shown in the table and use the example see point 1.5.

5. Power off the winder and put the jumper JP3 back to position 1-2.

6. Power on the winder and test with the dancer arm if the winder is working properly.

7. If everything works put the cover on the potentiometer and close the back of the winder with the four allen screws.

1.4 Overview of the commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Input</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>help</td>
<td>?</td>
<td>Shows the information about the commands</td>
</tr>
<tr>
<td>list</td>
<td>l</td>
<td>Lists the parameters and the saved values</td>
</tr>
<tr>
<td>set</td>
<td>s</td>
<td>set [parameter] to value [value]</td>
</tr>
<tr>
<td>teach</td>
<td>t</td>
<td>Save current dancer-position target-position</td>
</tr>
<tr>
<td>adc</td>
<td>a</td>
<td>Show current analogue-digital converter values</td>
</tr>
<tr>
<td>write</td>
<td>w</td>
<td>Saves current configuration permanently</td>
</tr>
</tbody>
</table>
1.5 Overview of the Settings and Values

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Name</th>
<th>Value Unwinder</th>
<th>Value Rewinder</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>analog_phi_max</td>
<td>332</td>
<td>332</td>
<td>Acceleration upward (upper half of the area)</td>
</tr>
<tr>
<td>6</td>
<td>analog_phi_min</td>
<td>18</td>
<td>80</td>
<td>Acceleration downward (lower half of the area)</td>
</tr>
<tr>
<td>7</td>
<td>analog_phi_teach</td>
<td>252</td>
<td>242</td>
<td>Position of the turning point</td>
</tr>
<tr>
<td>8</td>
<td>control_kw</td>
<td>3000</td>
<td>2500</td>
<td>End speed</td>
</tr>
<tr>
<td>9</td>
<td>control_jerk_limit</td>
<td>10</td>
<td>10</td>
<td>Length of the way of changing the direction</td>
</tr>
</tbody>
</table>

Example:

s 5 332 | Enter  | Gives the Parameter „5“ the value „332“

w      | Enter  | Saves the configuration => very important