Documentation: Two Motor with Linux Box in CSP with Position Limits

Before we execute the steps, it is important to follow the below prerequisites:

1. Knowledge of basic Linux commands. Click here for the guide.
2. Knowledge of basic Linux HAL commands. Click here for the guide.
3. Basic Packages Installed. Refer to this guide.
4. Go through the motor manual. It can be found here.
5. Go through the basic XML and HAL file guide. It can be found here.

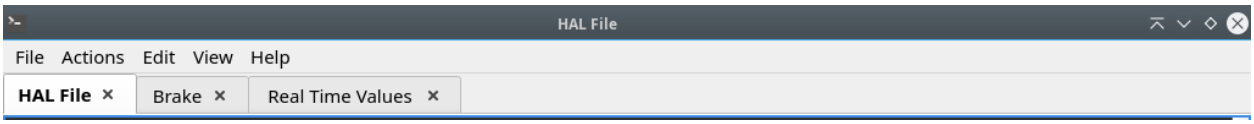
In this mode, the motor will move to a specified position and stop rotating.

Step 1: Download the HAL and the XML file. They can be found here. It is important to keep both the files in the same folder.

Step 2: Open terminal to type the commands (Qterminal is preferred). Go to the folder where your HAL and XML file is kept. Since my files are kept in CSP1Motor folder inside Harsh folder insider Desktop folder, the command becomes:

```
cd Desktop/Harsh/CSP2Motor
```

Step 3: Open 2 more terminals by going to File and selecting new. It is prudent to name every session by right clicking on the session name.



Step 4: On the first terminal, run the HAL file using the command:

```
halrun -I -f CSP2Motor.hal
```

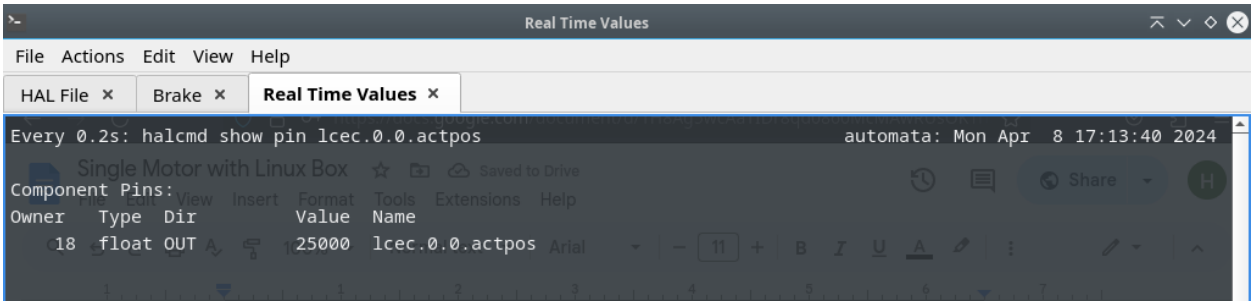
And then write the command:

```
setp limit3.0.load 1
```

On the third terminal, check the actual position of the motor using the command:

```
watch -n0.2 halcmd show pin lcec.0.0.actpos
```

Check the value shown



On the first terminal write the command:
setp limit3.0.in 25000

In my case the actual value is 25000, but check the actual value for your motor and substitute that value in the command.
And then on the first terminal write:
setp limit3.0.load 0

Step 5: On the second terminal write the commands:

ethercat download -p0 --type bool 0x4602 0 0
ethercat download -p0 --type bool 0x4602 0 1

This is to release the breaks.

Step 6: On the first terminal, type the following commands:

sets reset_all_0 1
sets reset_all_0 0
sets drv_en_0 1
sets drv_en_0 0
sets drv_en_0 1
setp limit3.0.in -25000

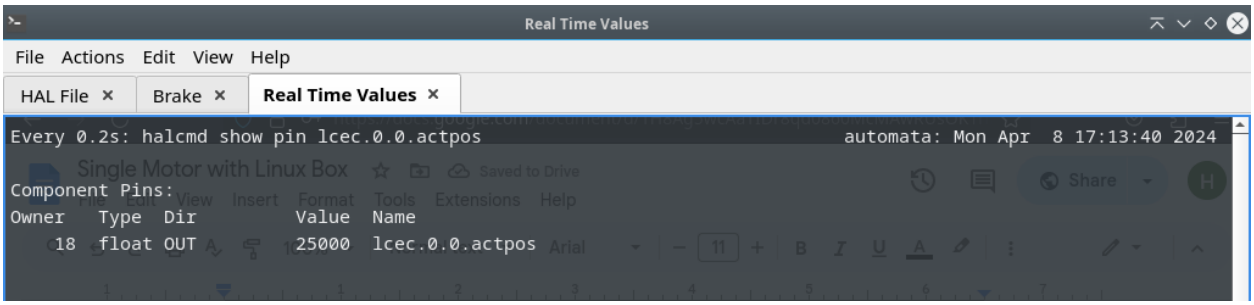
The motor should start moving. To increase the velocity, type the following command:

setp limit3.0.maxv 10000

Here 10000 denotes the velocity.

Step 10: On the first terminal, write the command:
setp limit3.1.load 1

On the third terminal, check the actual position of the second motor using the command:
watch -n0.2 halcmd show pin lcec.0.1.actpos
Check the value shown



On the first terminal write the command:
setp limit3.1.in 25000

In my case the actual value is 25000, but check the actual value for your motor and substitute that value in the command.
And then on the first terminal write:
setp limit3.1.load 0

Step 11: On the second terminal write the commands:

ethercat download -p1 --type bool 0x4602 0 0
ethercat download -p1 --type bool 0x4602 0 1

This is to release the breaks.

Step 12: On the first terminal, type the following commands:

sets reset_all_1 1
sets reset_all_1 0
sets drv_en_1 1
sets drv_en_1 0
sets drv_en_1 1
setp limit3.1.in -25000

The motor should start moving. To increase the velocity, type the following command:

setp limit3.1.maxv 10000
Here 10000 denotes the velocity.