

SRT80 Competition Control Box

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Control Box Version : V3.0

Firmware : *srt80-leonardo-4_actuators-competition-control-box-v2.1*

Software : *FlyPT*

Manual version : 1.1

Summary

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If you encounter any issue please come and ask on the SRT80 channel [on the Discord.](#)

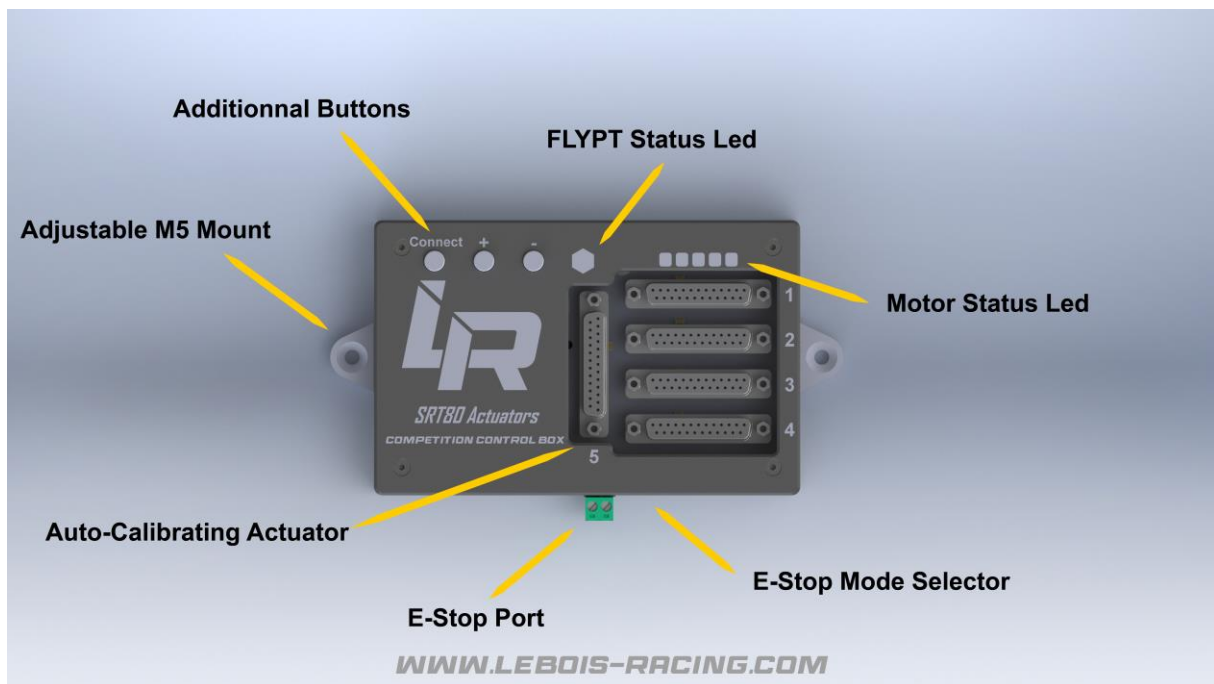
Global Presentation

The Competition Control Box is the Plug and Play solution to control the [SRT80 actuators](#) or any servo based actuator.

It comes with the USB cable, the E-Stop connector, and the M5 mounting plates.

It is ready to use : just wire the Control Box with DB25 male-male cables (not included) and the load the FlyPT profile and you are good to go. Just check the driver settings to be sure to be able to use all the features.

DB25 male-male can be ordered on [Aliexpress](#).



Driver settings

All the following parameters are mandatory to use with the Competition Control Box

Parameter	Value	Explanation	Comment
Pn001	4	Select the right motor, in this case an 80st-M02430	No need to use a more powerful motor
Pn002	2	Motor control mode	2 : position mode
Pn003	0	Activate/deactivate the driver	0: the driver is turned on by the arduino. 1: the driver is always on
Pn008	300	Torque limit	
Pn009	-300	Torque limit	
Pn024	100		
Pn051	1200	Maximum motor speed	This parameter manages the “violence” of the simulator, thus to increase with parsimony
Pn060	2		
Pn062	6		
Pn098	6	Pulse multiplier : use a lower value for shorter actuators (OpenSFX)	
Pn109	1	Filtering parameter	See the AASD manual
Pn110	30	Filtering parameter	See the AASD manual
Pn113	20	Filtering parameter	See the AASD manual
Pn114	10	Filtering parameter	See the AASD manual
Pn115	15	Filtering parameter	See the AASD manual

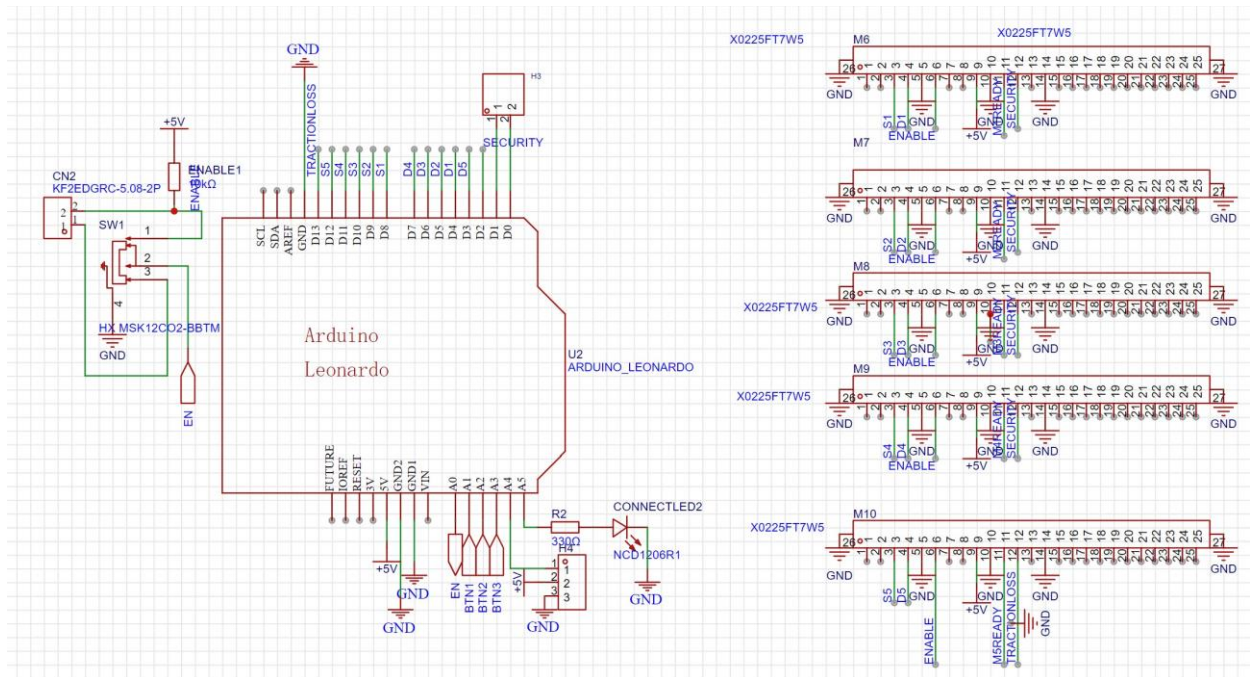
Security

If one end stop is reached, the control box enters in security mode : the drivers are disabled, the FlyPT status led blinks, and FlyPT is automatically crashed.

To reset the motion rig : you need to unplug the USB cable, reset the motor drivers, then replug the Control Box and reconnect FlyPT.

Schematic

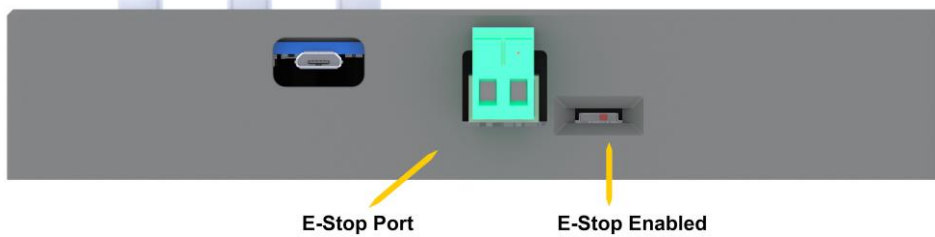
The schematic is provided as reference only. It can be used if you need to connect other actuators.



E-Stop :

Use of the E-Stop is not mandatory.

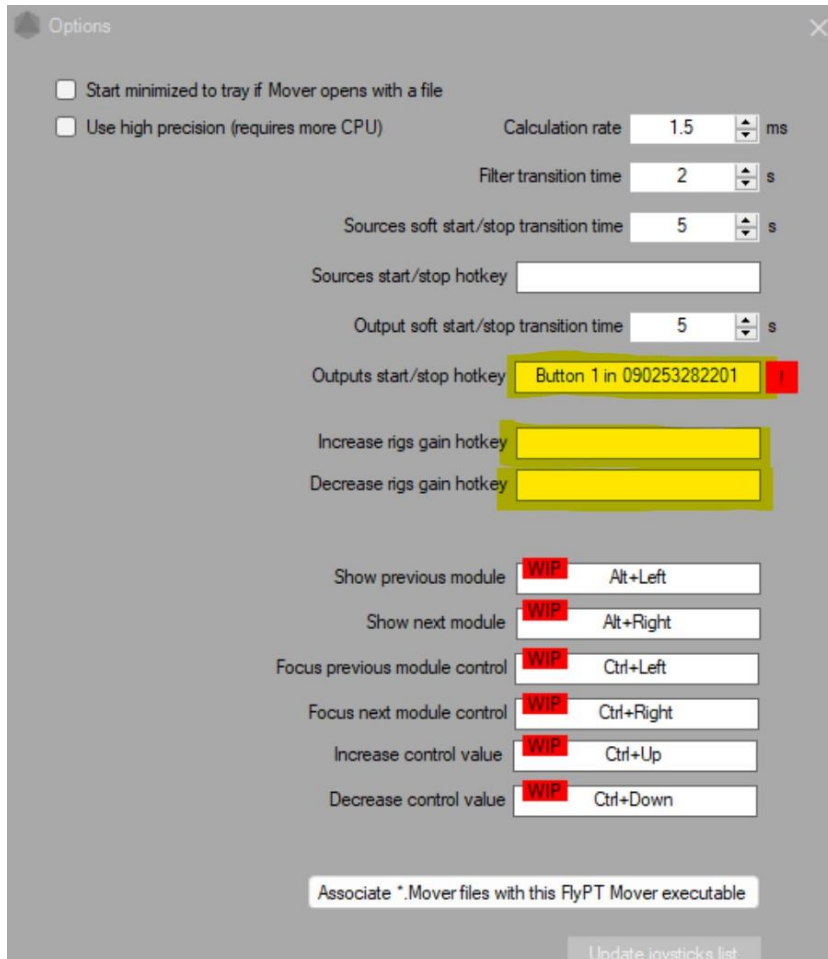
You can use the green port to use the E-Stop. In this case : you need to push the switch on the right to enable the E-Stop. If not enabled, the E-Stop won't be of any effect.



Buttons

The three buttons on the Control Box reacts as a standard Joystick button. They can be assigned to control the motion rig in FlyPT. Right click on the main FlyPT windows > options.

Then you can assign the buttons :



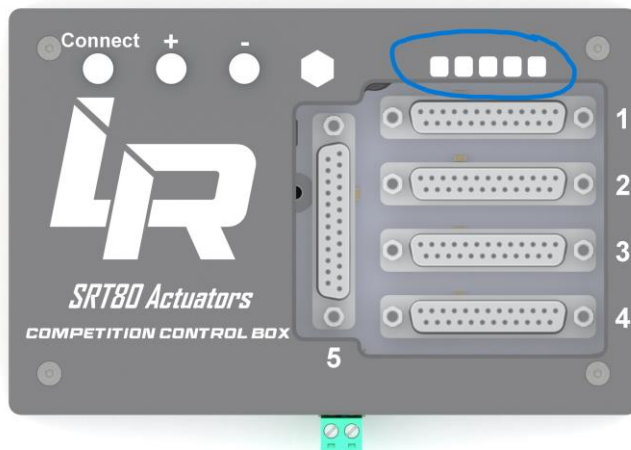
Please not that you need to plug the Competition Control Box before launching FlyPT to be able to assign the buttons.

Please also note that the increase/decrease hotkey are very sensitive, and not very convenient to use as you won't be able to check the gain you put while in game.

A the moment, the most convenient way of choosing the gain will be to have multiple copy of the FlyPT file with different gain values.

Motor Status Led

The five Leds will light up if the drivers are ready (powered). It cuts out if there's a problem or if not powered. If there is a problem, there will be an error code displayed on the driver. Please check the AASD manual to check what the error code means.

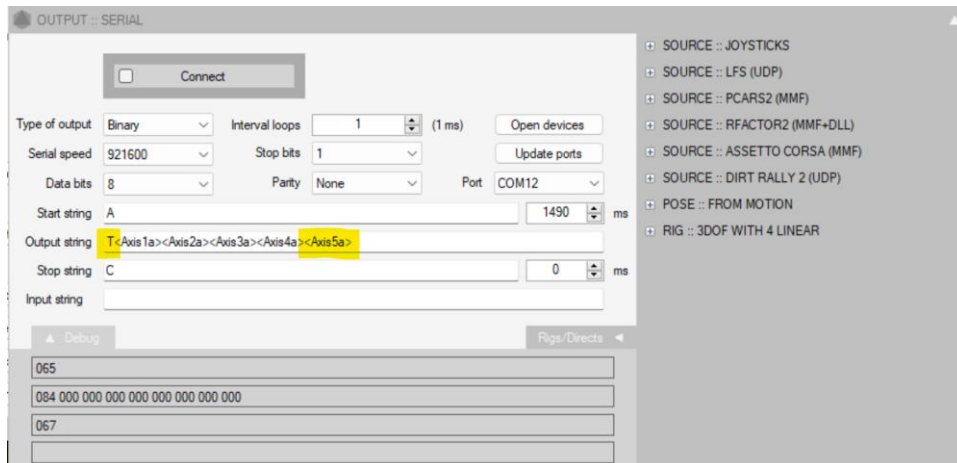


FlyPT profile :

4 actuators : The FlyPT profile is the same as the other SRT80 control boxes.

4 actuators + TractionLoss/Surge : The M5 port is designed to plug an actuator that requires calibration at each start (calibration is initiated when FlyPT is connected).

On the FlyPT side, you need to change the Output :



Please mind the 'T' at the start. <Axis5a> is the data for the fifth actuator.

There is no change required for the Arduino.

Adding Surge :

In FlyPT, add "Direct", and name the actuator key Axis5.

The Bit output needs to be 16 bits.

The value for the actuator needs to be " longitudinal acceleration "