

Advanced Latcher for Throttle and Idle on Jeti Transmitters

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Version 1.04

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Fundamentals

The LATCHER has been developed under my own specifications, and its basic use is to provide additional protection to the operation of electric motors.

It provides two binary controls (they are either OFF or ON) to be associated to the Throttle-Cut Switch and the Throttle-Idle Switch, on the Other Options screen, and uses as input a safety switch, the throttle control, an idle switch and a defined threshold value for the throttle control.

The basic logic is:

For the Throttle-Cut Control, whenever the motor is armed with the Throttle-Cut Physical Switch, the Throttle Control must be below a specified Threshold.

On the other side, Throttle-Idle Control will be turned ON only when:

- a) The Throttle-Cut Control is ON.
- b) The Throttle-Idle Physical Switch is brought to the ON position.
- c) The Throttle Controller is brought for the first time above the specified Threshold.

With this, potentially dangerous situations, such as (among others):

- a) Arming the motor with the Throttle Control outside the safety range (below the Threshold).
- b) Arming the motor with the Throttle-Idle Physical Switch turned ON.
- c) Turning the Throttle-Idle Physical Switch ON without first spinning the motor at least once.

Configuration

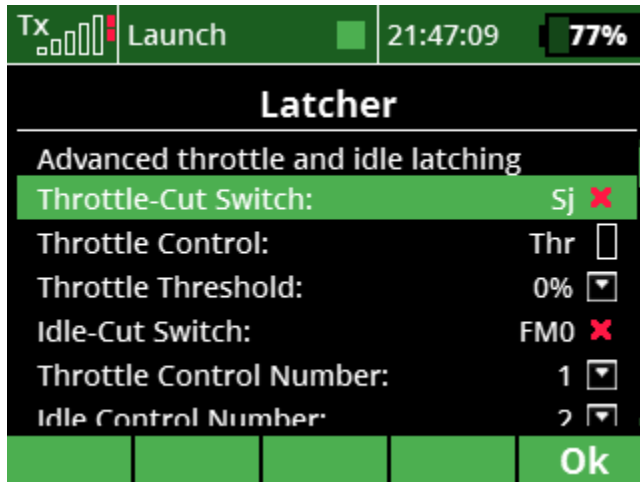
Please note that the following configuration has been done on a DC-24 (Mode 1, with Throttle on P2, with a three position switch on the left stick and a rotary on the right one) on Firmware 5.02, so I'm taking advantage of certain capabilities of the 5.02, such as the possibility to use as input the function, or the flight mode.

Please note that this LUA should ("should") work with any Firmware version above 4.22, but I have not tested it.

Configuration is done in two different screens. On one side, the user needs to configure the LUA app itself, and you can do this thru the Latcher Configuration option within the main Menu

On the other, the output controls need to be added to the Other Model Options screen, as described below.

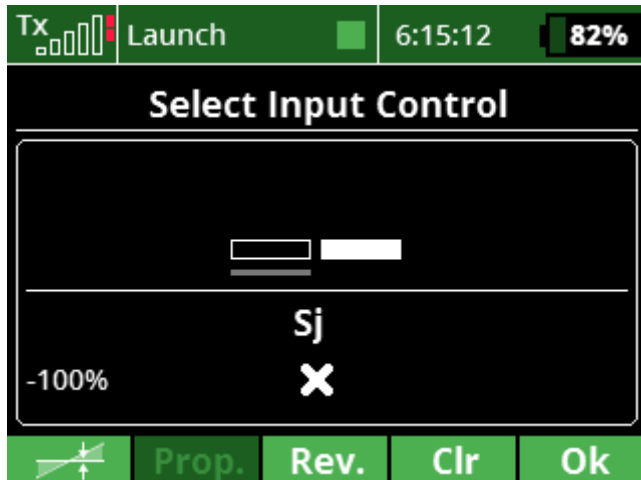
Latcher Configuration



The Configuration screen of the Latcher has six parameters:

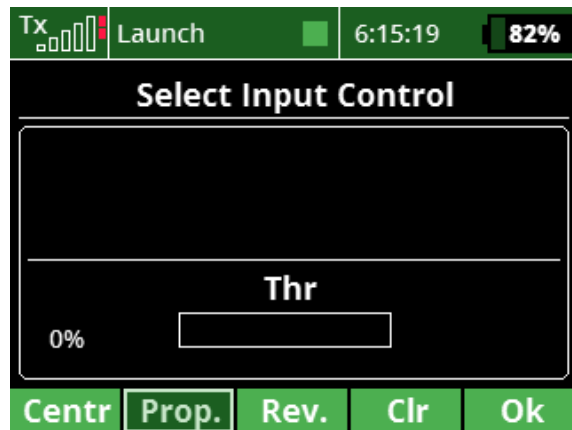
Throttle-Cut Switch

This acts as the main Throttle-Cut Switch, and on my configuration, I set it on the rightmost physical switch on my DC-24.



Throttle Control

This determines the position of the Throttle Control, and, at least for my setting, is set to Proportional, Off-Center.

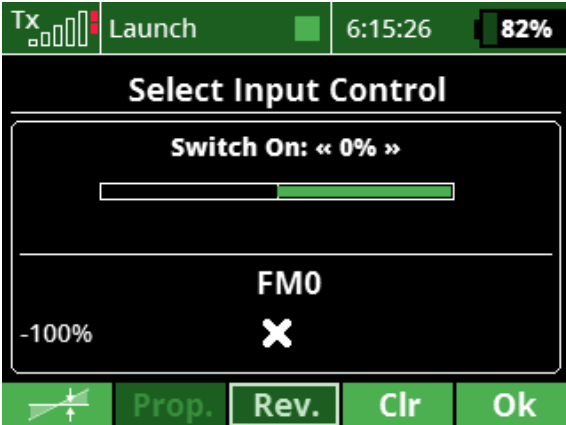


Throttle Threshold

This is set to a percentage value, in my case, I like to have some wiggle space on the lower end of the throttle, so I set it to 10%

Idle-Cut Switch

The Idle-Cut Switch drives the Idle Up setting. In my specific configuration, I want the Idle Up to be available only when in Flight Mode 1 and 2 (Flight Mode 0 is for takeoff, and I don't like to have Idle Up when the airplane is on the ground).



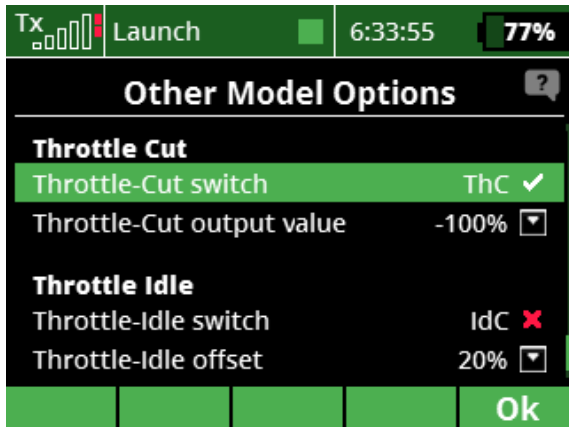
In order to attain the control to be ON when not in Flight Mode 1, I reverse this control.

Throttle Control Number and Idle Control Number

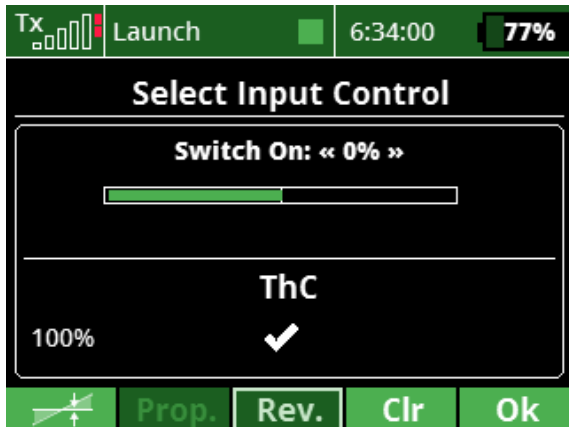
Because User Controls are common to all LUA apps, Latcher gives you the option to define here the output controls used by this app.

Other Model Options

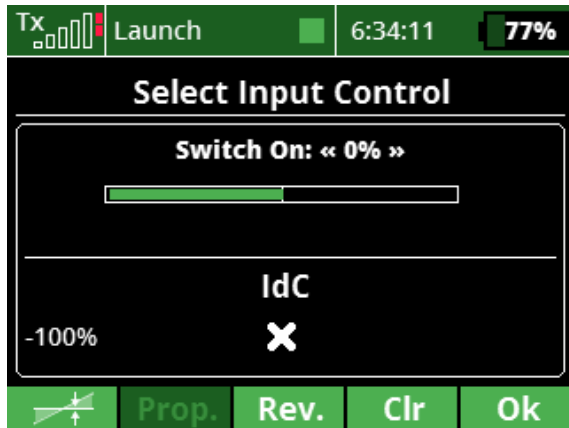
Within this option, you now add the controls to the Throttle-Cut Switch and the Idle-Cut Switch options



For this, you need to add the following user controls, 1 and 2 (or ThC and IdC). For Throttle-Cut Switch:



And for Idle-Cut Switch:

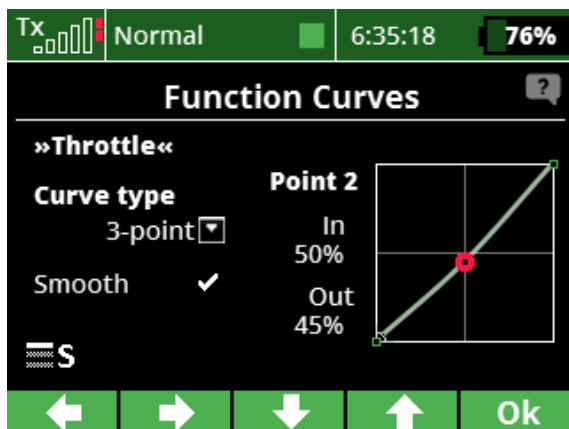


Please note that the Throttle-Cut Switch needs to be reversed in order to properly work.

Optional configuration

Because I set the Idle Up to 20% of the whole Throttle range, I have added an additional configuration in the Function Curves.

I change the setup of the Throttle Curve to be by Flight Mode, and on Flight Mode 1 and 2, I set it up in order to have a slight curve, such as the one described below.



I do this in order to have the exact feeling on all the throttle range. What the Throttle Idle offset really does, it reduces the overall range of the throttle, so by adjusting the curve I'm able to have a seamless experience on the throttle range.

Changelog

Version	Changes
1.03	Initial Public Version
1.04	Added multilingual support. At the moment, only English is offered but the proper .JSON file is offered for translation. Changed some logic around the throttle control. It allows to support dual-rotation and using a centered throttle control. The threshold is now analyzed both sides (down and up)
