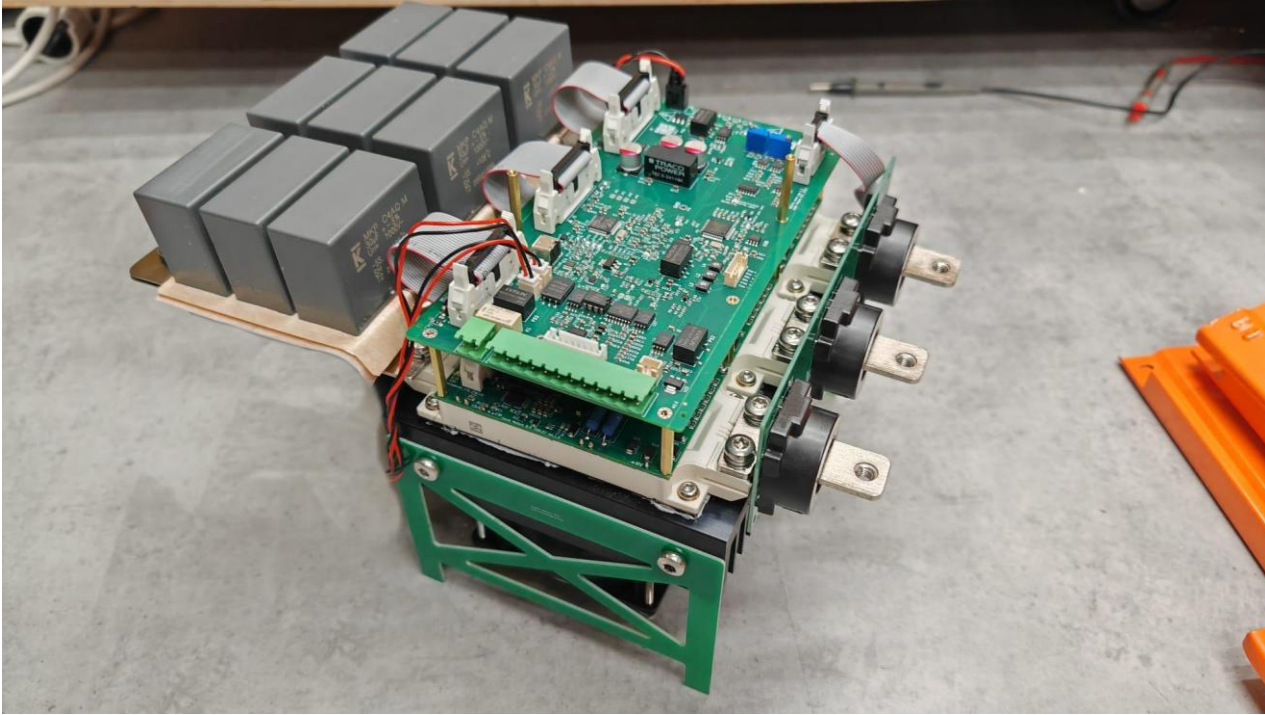


JLM 430v,700v,800v 600A/900A IGBT Motor inverter Vesc based software with isolated inputs.

## Joule Motors inverter ESC



### Warnings !

Given the lethal high voltages involved 450v,650v,800V, only a trained person should work with this ESC inverter. Never touch the inverter, battery, or exposed motor wires, when the power is on or even off. The capacitors need to be discharged after power off, they are not automatically discharged. They will stay charged even after power off, unless you discharge them. To discharge them, disconnect the HV dc bus and give some throttle. Or use a bleed resistor and a switch. The caps require a pre-charge resistor as well. (anti spark)

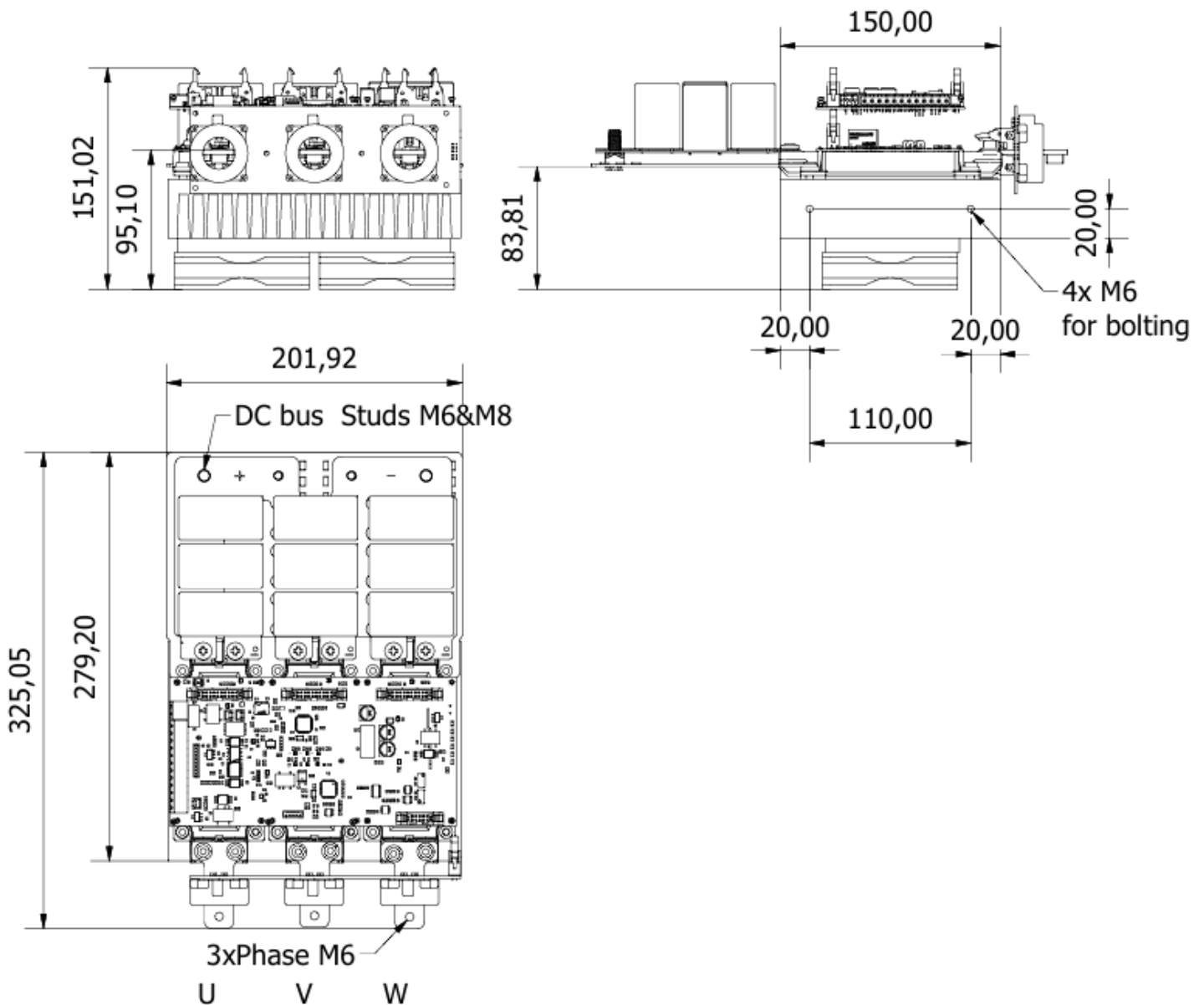
### Important advices:

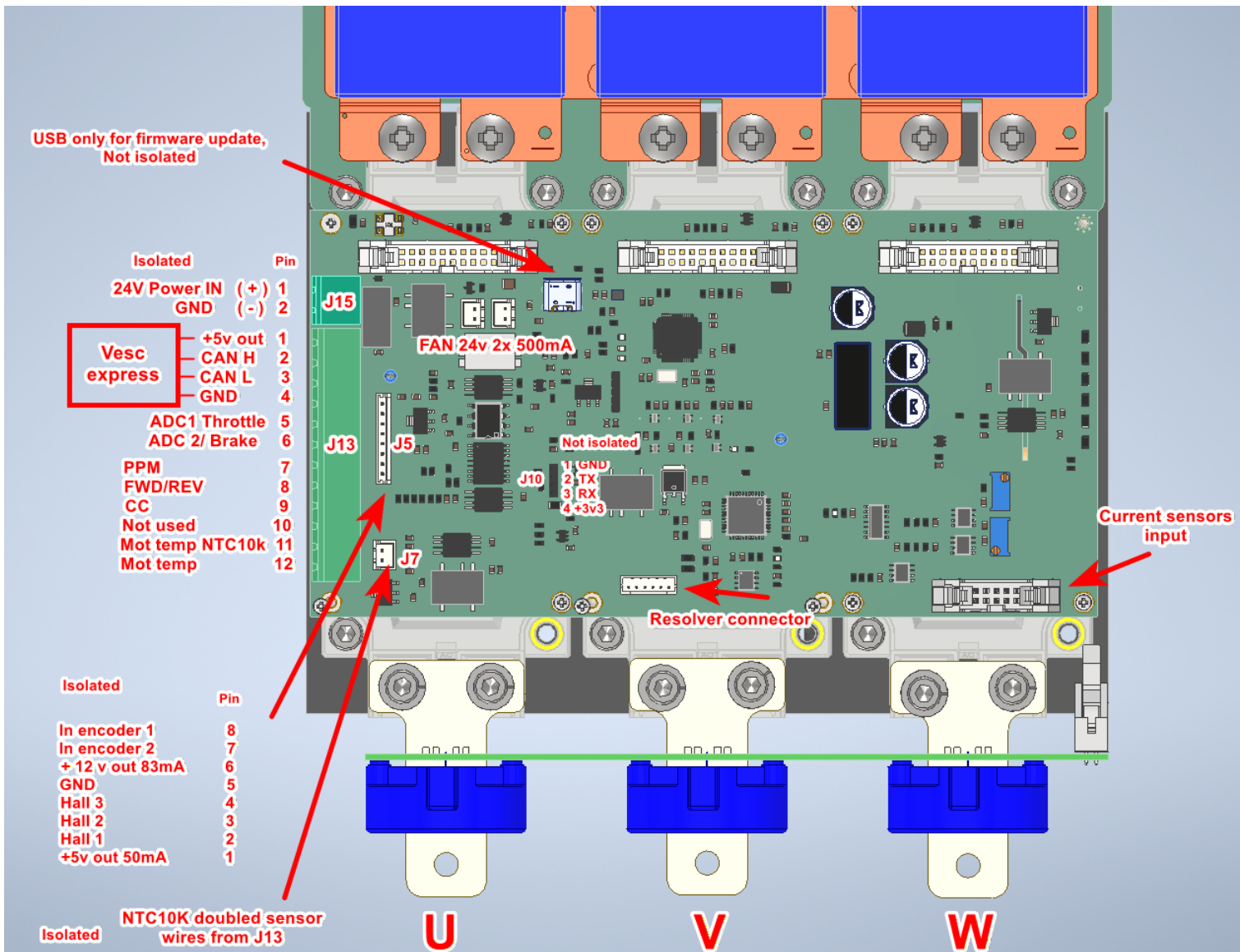
1. The digital board controller requires 24-25v input  $\sim 3.5A$  (peak) and  $\sim 1.5A$  continuous.
2. Make sure the voltage does not drop under 23.5V on the connector, do not use long or thin wires. When fans start the low voltage can trigger an IGBT fault in case the voltage drops. (white LED indicate gate driver state Enable)
3. Use Vesc express mode for pc connection it connects to isolated can bus on the board.

The USB on the main board should not be used, because it is not isolated and it is prone to electrical interference dropping connection at higher currents.

4. Never power the HV dc bus from a power supply since the motor will also brake during this deceleration. It can cause the DC bus voltage to go beyond 1000v in case of large inertia motor and sudden braking. Even if you do not enable the brake, the motor during tuning can cause the controller to trip, this event can cause a huge spike in dc bus voltage.

5. Using the controller with small voltage motors below 50v is not recommended, since the Back EMF might not be enough to detect the motor parameters.
6. Even if you do not enable the brake, the motor during tuning can cause the controller to trip, this event can cause a huge spike in dc bus voltage.
7. If enclosed, a small fan maybe needed to cool the gate drivers pcb.
8. The signals Like USB(via Vesc express), PPM, ADC1, ADC2, Motor temp, CAN bus, brake, FWD/REV are isolated from 24V main board voltage, and from HV dc bus, this prevents possible erratic operation.
9. Use Vesc tool 6.05, not 6.06 (you will get a firmware update pop up)

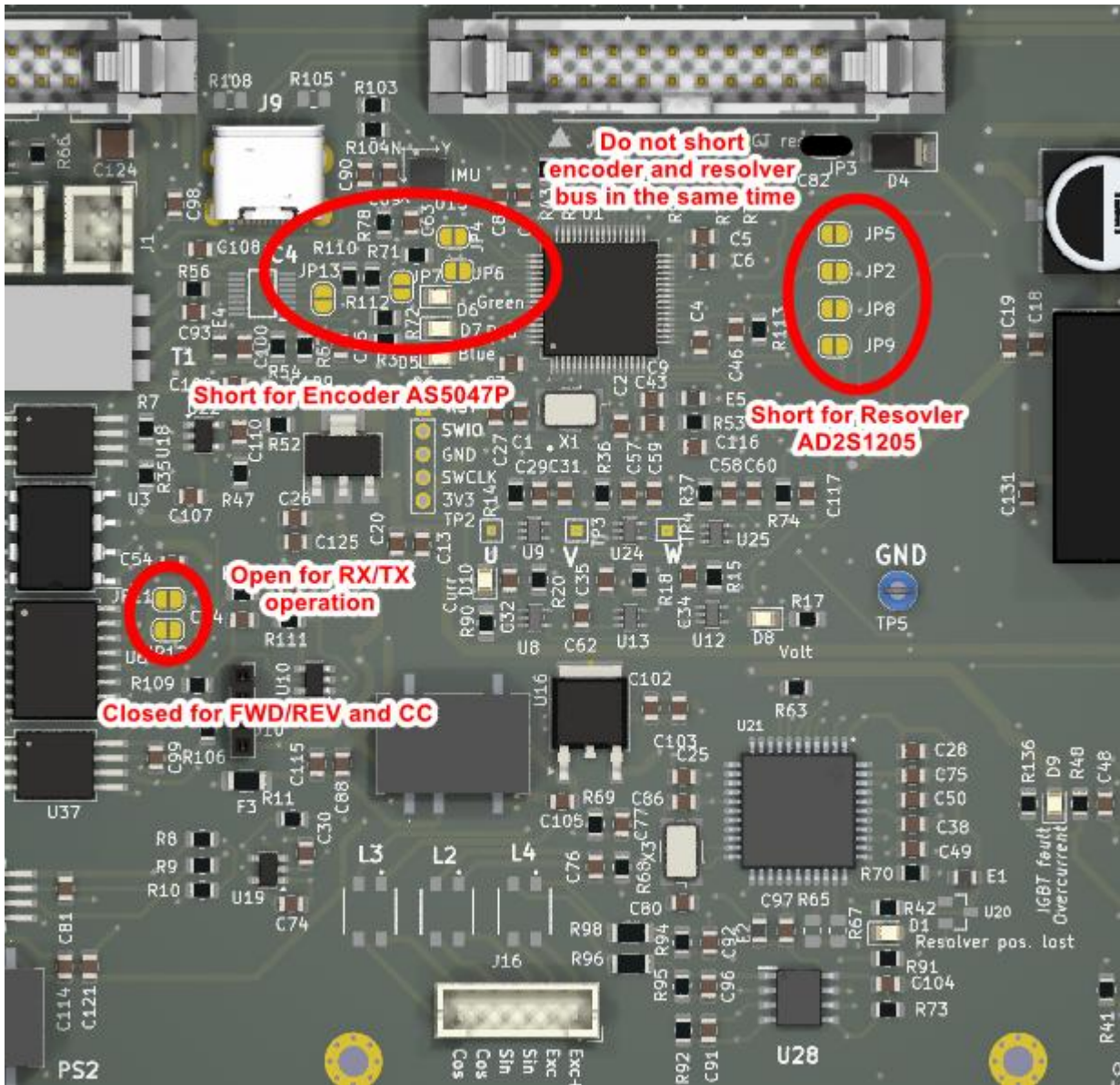




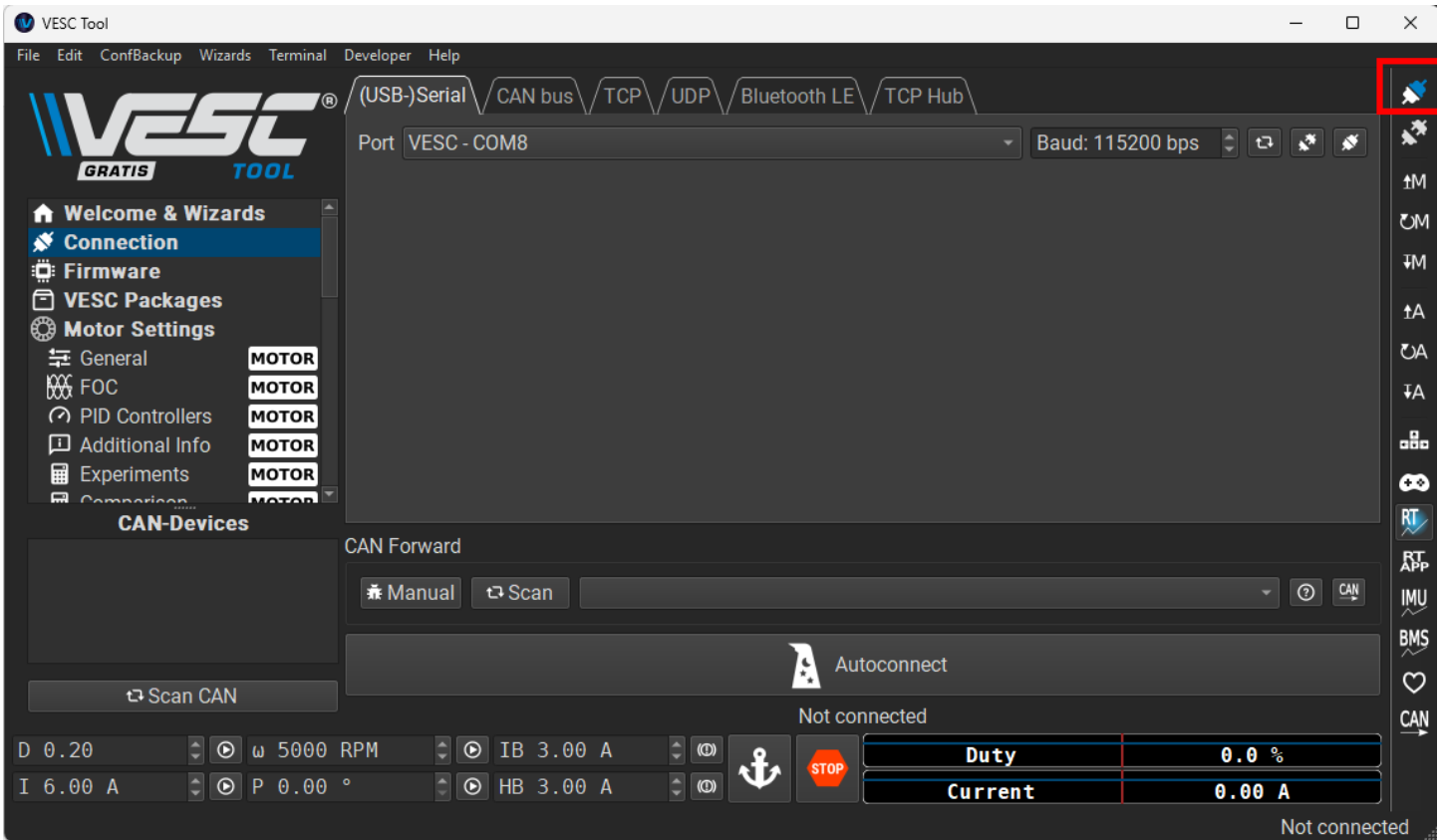
RX and TX are the same pins as Cruise control and FWD/REV. They cannot work in the same time. Jumper solder pins must be open for RX TX operation.

Resolver and encoder can not work in the same time since they use the same SPI

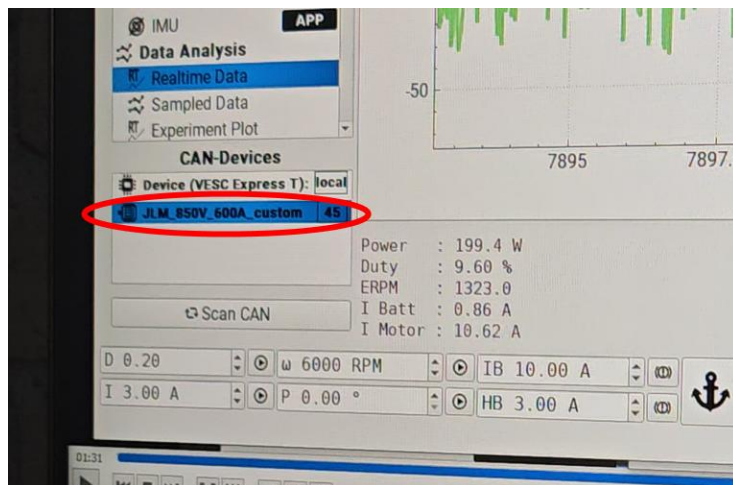
Solder jumpers must be open and close to engage resolver or encoder AS5047P.



Getting connected, power on the board and plug the usb from the Vesc Express



Select controller from the CAN devices List



**Load and save APP and motor configuration file**

**Motor settings save**

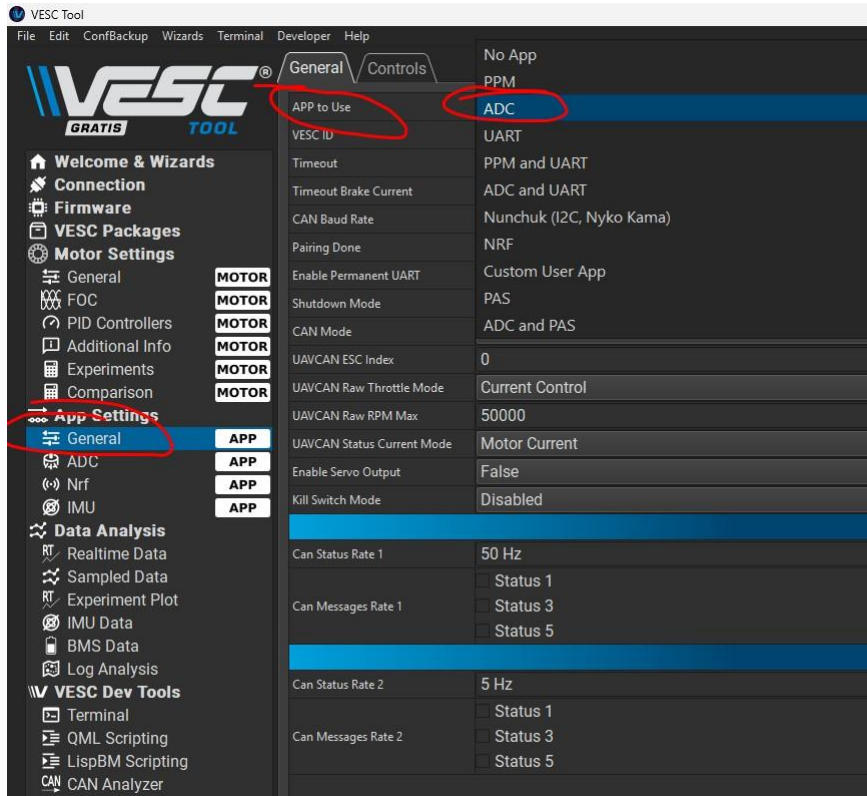
**App settings save**

**Activate real time data**

**Activate app real time data in PPM or ADC mode**

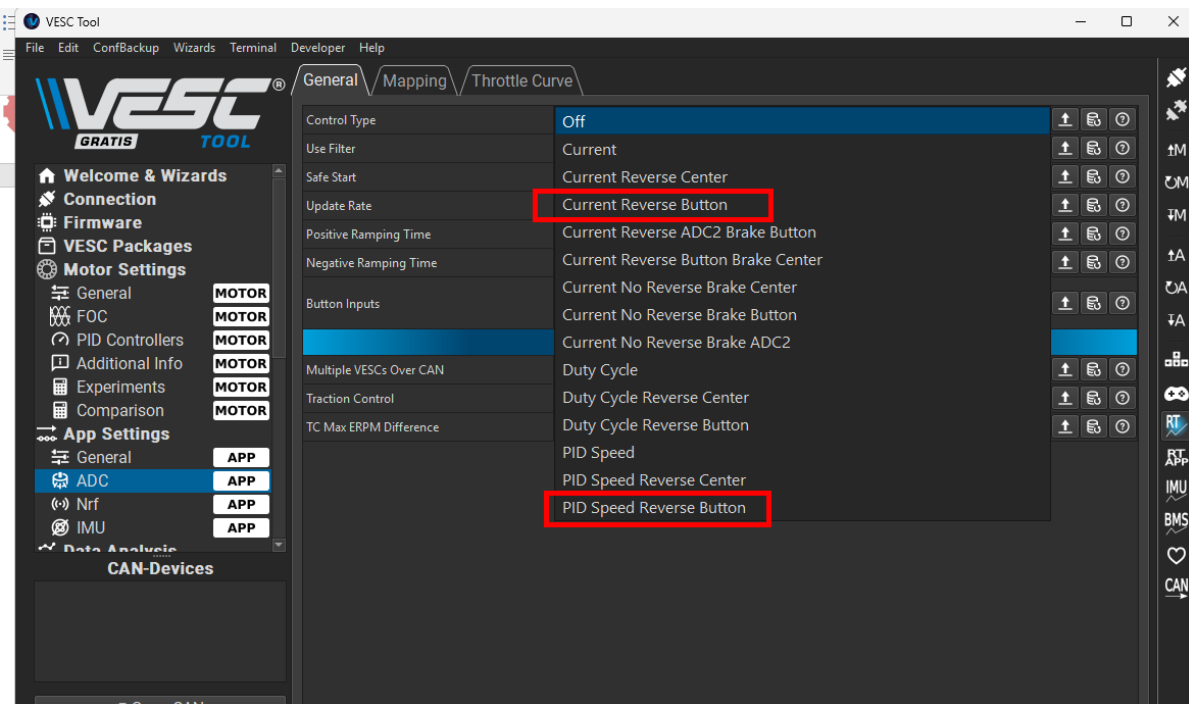
Not connected

Selecting input method: Analog input signal select 0-5V

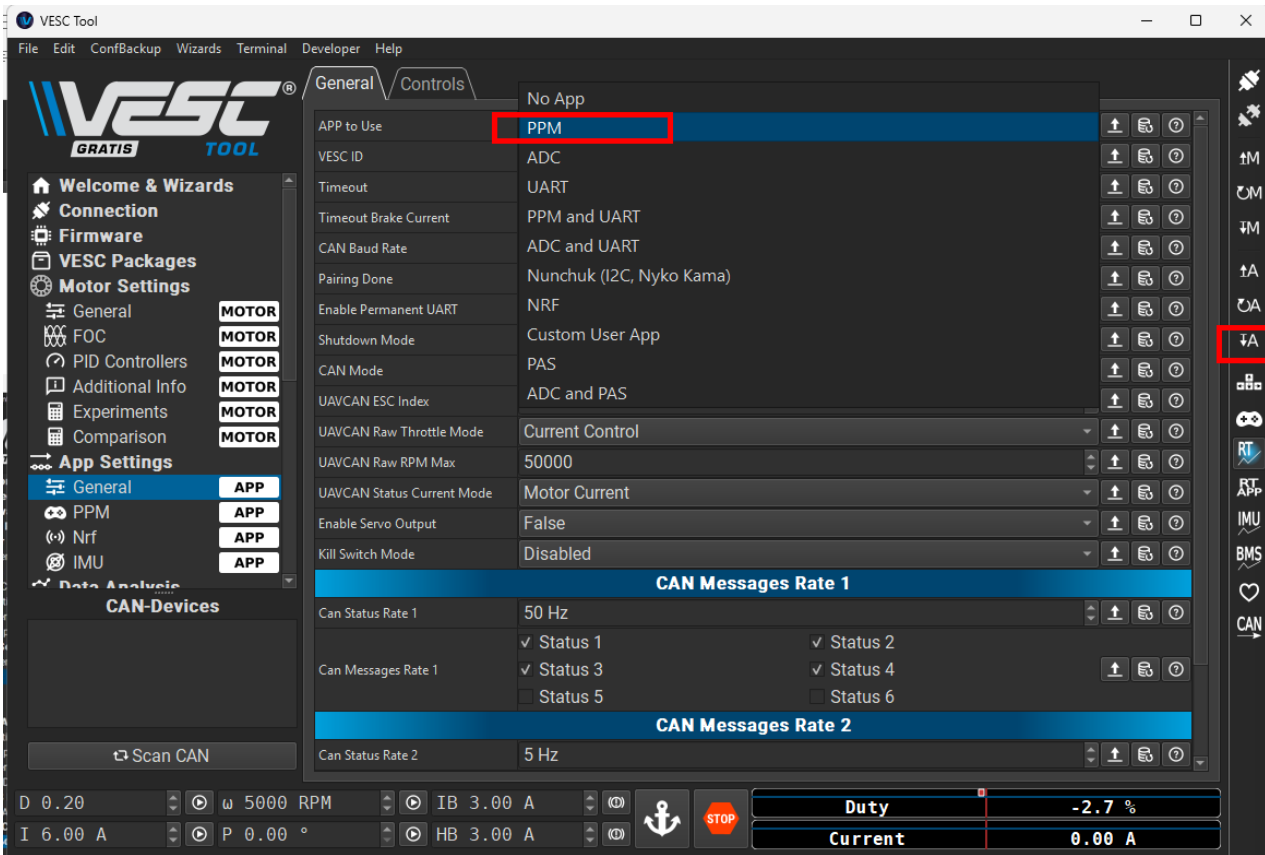


Go to App settings > General > select ADC then on ADC at Control Type select Current Reverse button.

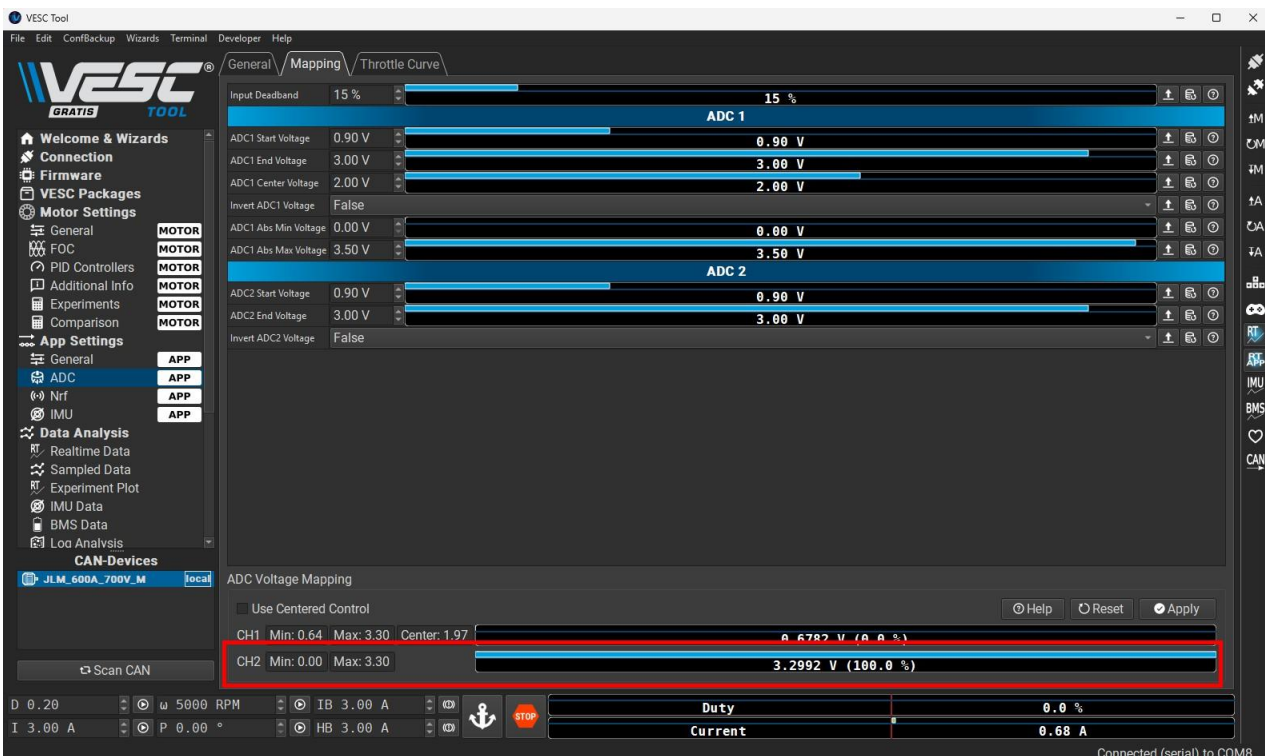
Then save APP pressing A↓



PPM input select and throttle range + A↓ button to save in to file



Throttle calibration 0-5v



CH2 should be max or zero when you put the pin 6 on J7 to the GND, and be configured as brake.

Accessories (encoder + encoder cable and encoder pcb optional) not standard package

For any questions, please send an email to [i.berca@joulemotors.eu](mailto:i.berca@joulemotors.eu)

<https://joulemotors.com/store%2Fshop/ols/products/jlm430v400a>