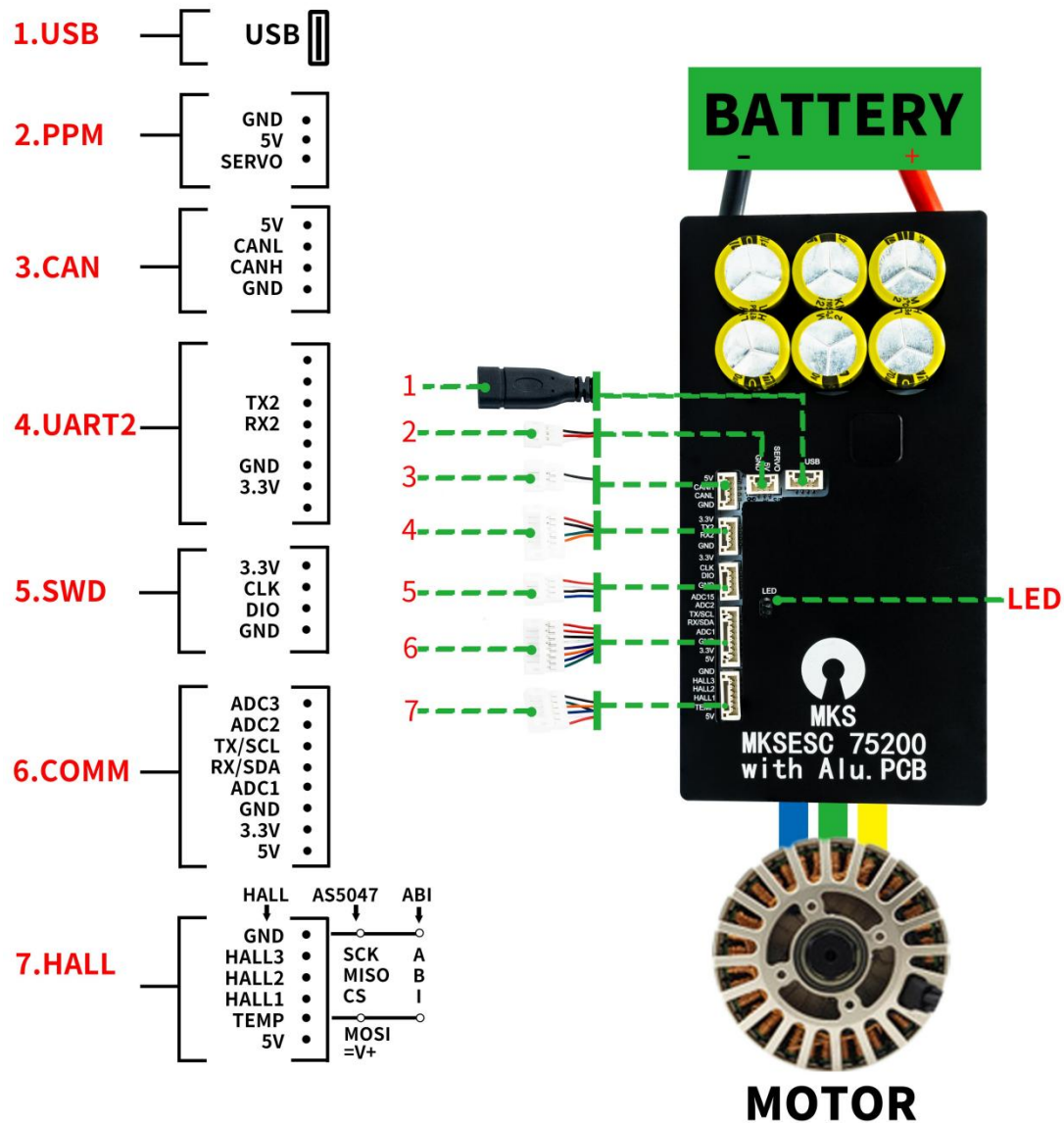# Makerbase MKSESC 75200 Encoder Mode-AS5047P

Note: MKESC75200 motherboard recommends using VESC TOOL V3.0, firmware version V5.2.

Part.1 Hardware Introduction
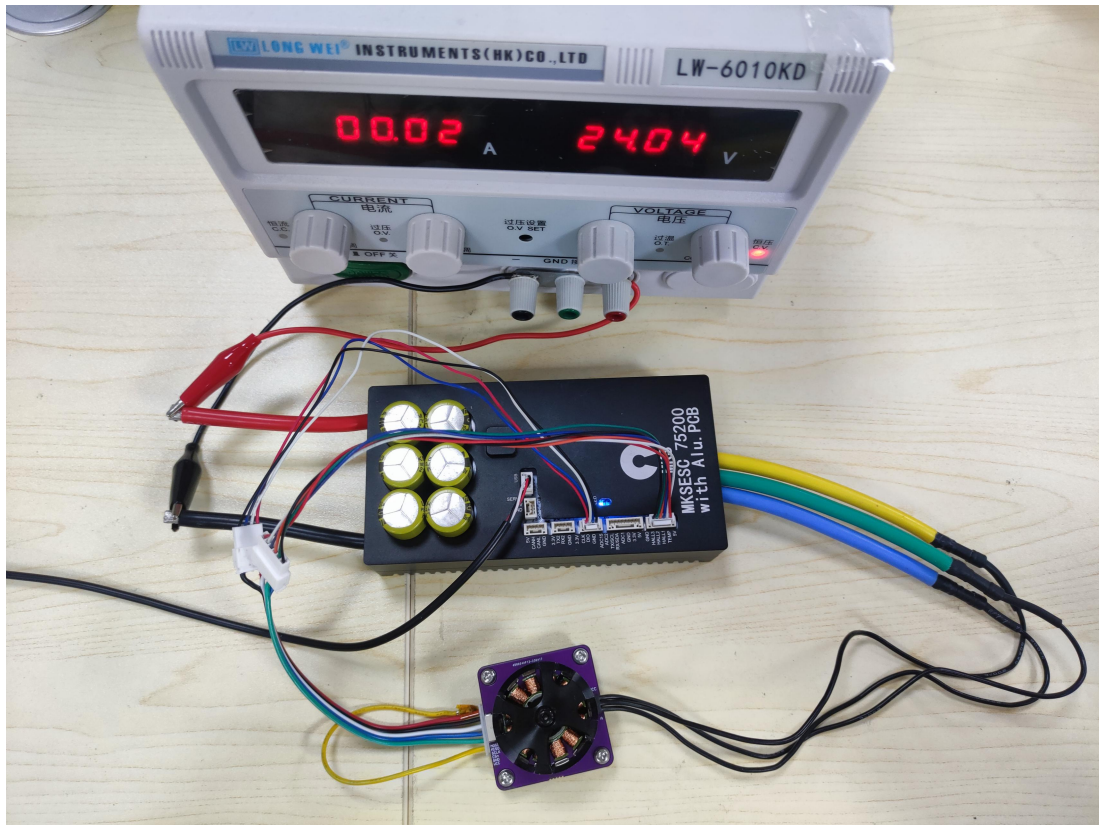
1.1 Hardware interface

1.2 Hardware List

Sequence	Name	Quantity
1	MKSESC 75200 V2.0 motherboard	1
2	2808 motor (with AS5047 encoder)	1
3	DC 24V power supply	1
4	Type-C USB data cable	1

The hardware list is shown in the figure below:

Part.2 Hardware Modification

1. Remove the filter capacitors welded on the sensor signal lines of A(HALL1), B(HALL2), and C(HALL3), the bit numbers are: **C13, C14, C15**;

2. Replace the 2.2KΩ resistors connected in series on the sensor signal lines of A (HALL1), B (HALL2), and C (HALL3) with 0603 resistors of 0 Ω-100Ω, and the bit numbers are: **R3, R5, R7**;
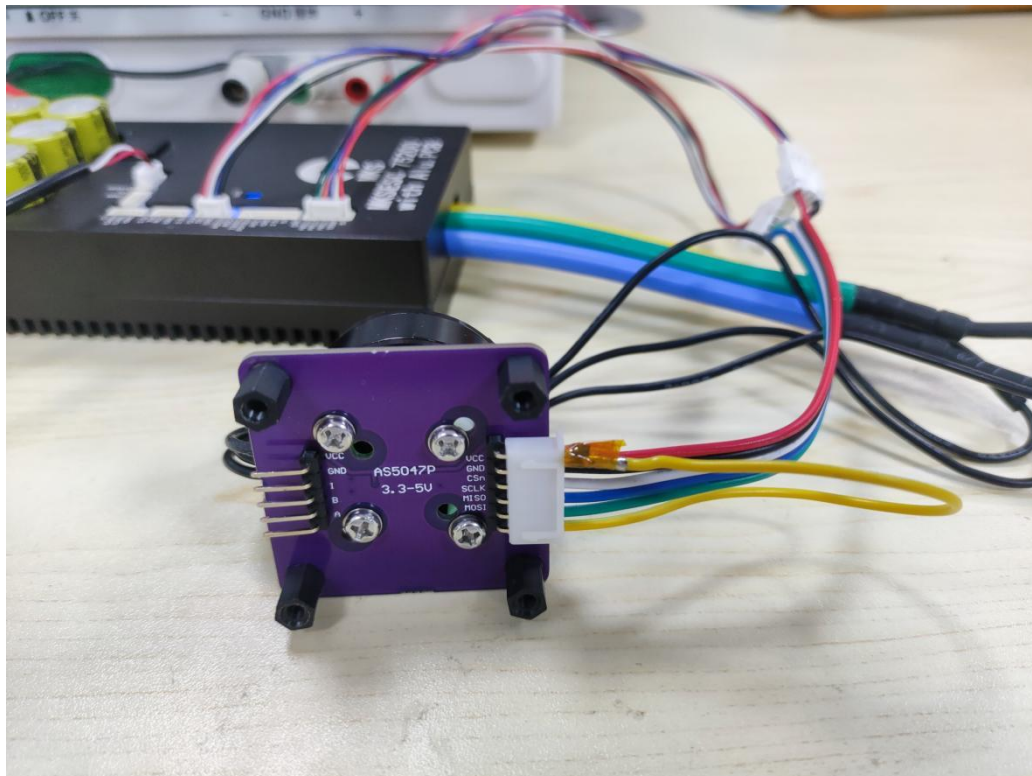As shown below:
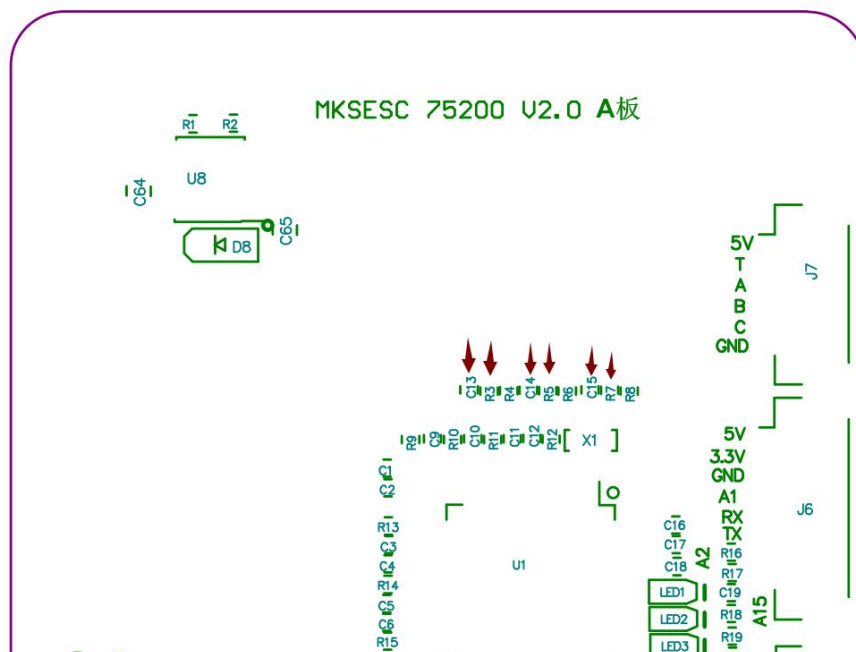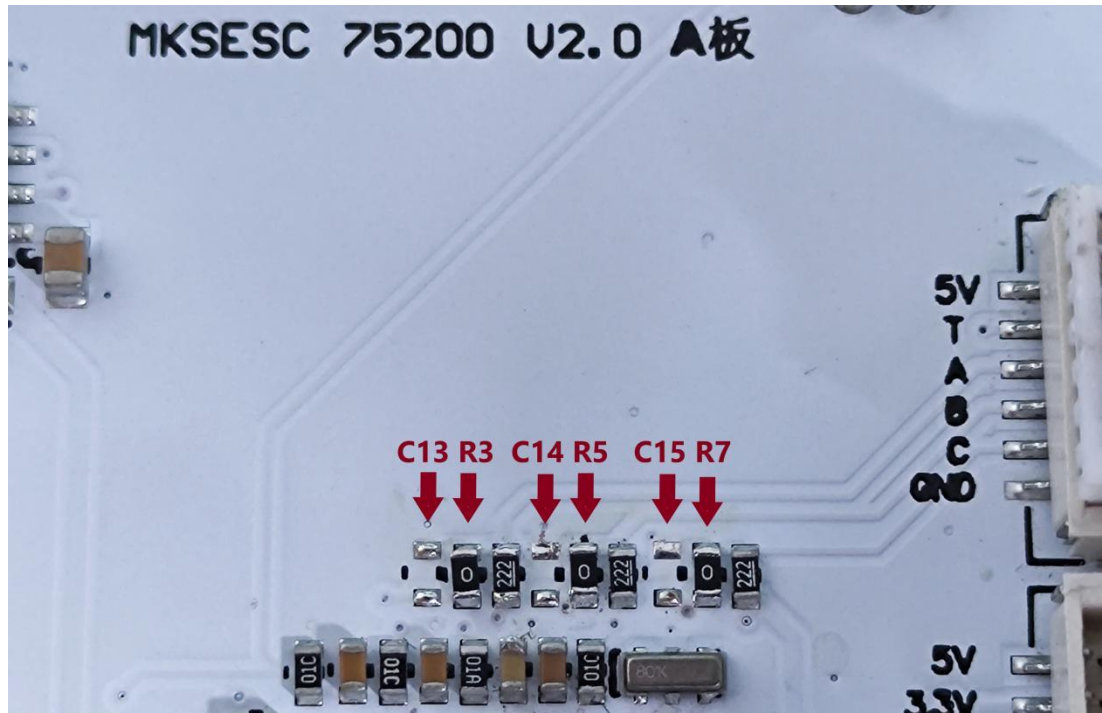
Part.3 Hardware Connection

1. Connect the three-phase wire of the motor to the three-phase wire of the VESC;

2. Connect one end of the USB cable to the VESC motherboard, and the other end to the PC;

3. The 24V power supply is connected to the motherboard;

4. The connection relationship between MKSESC 75200 V2.0 motherboard and AS5047P encoder pins is shown in the table below:
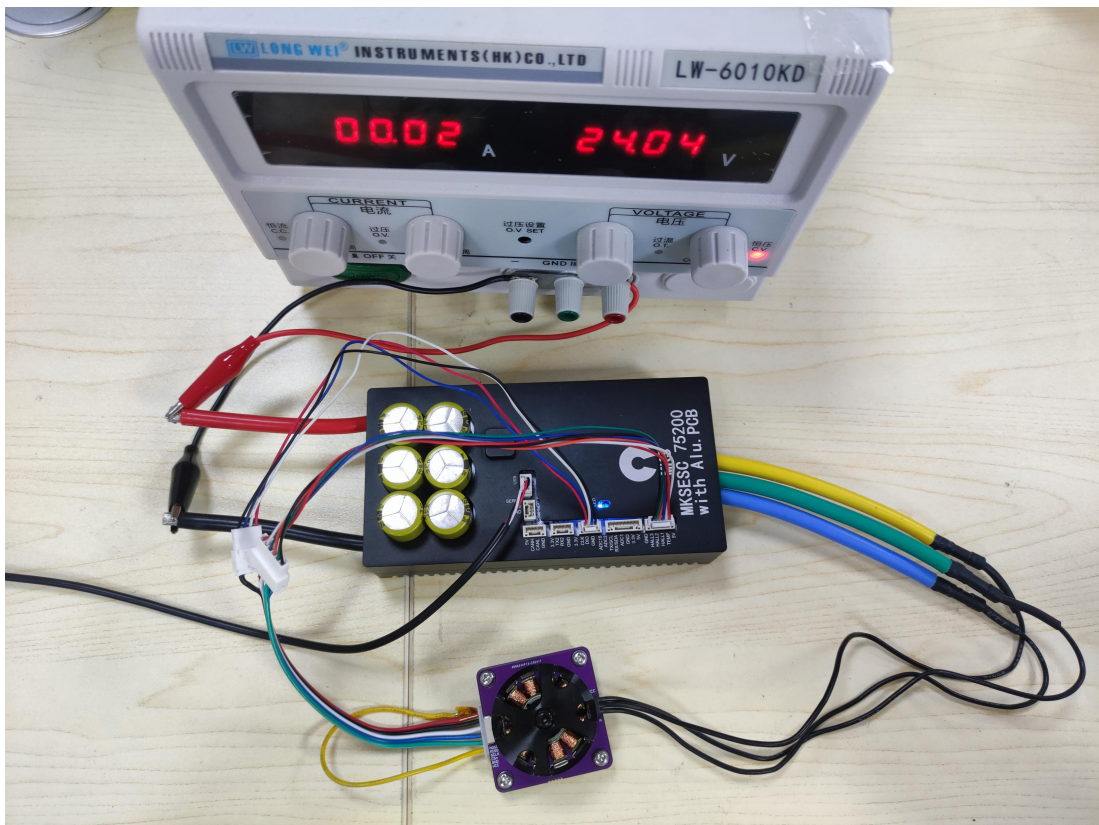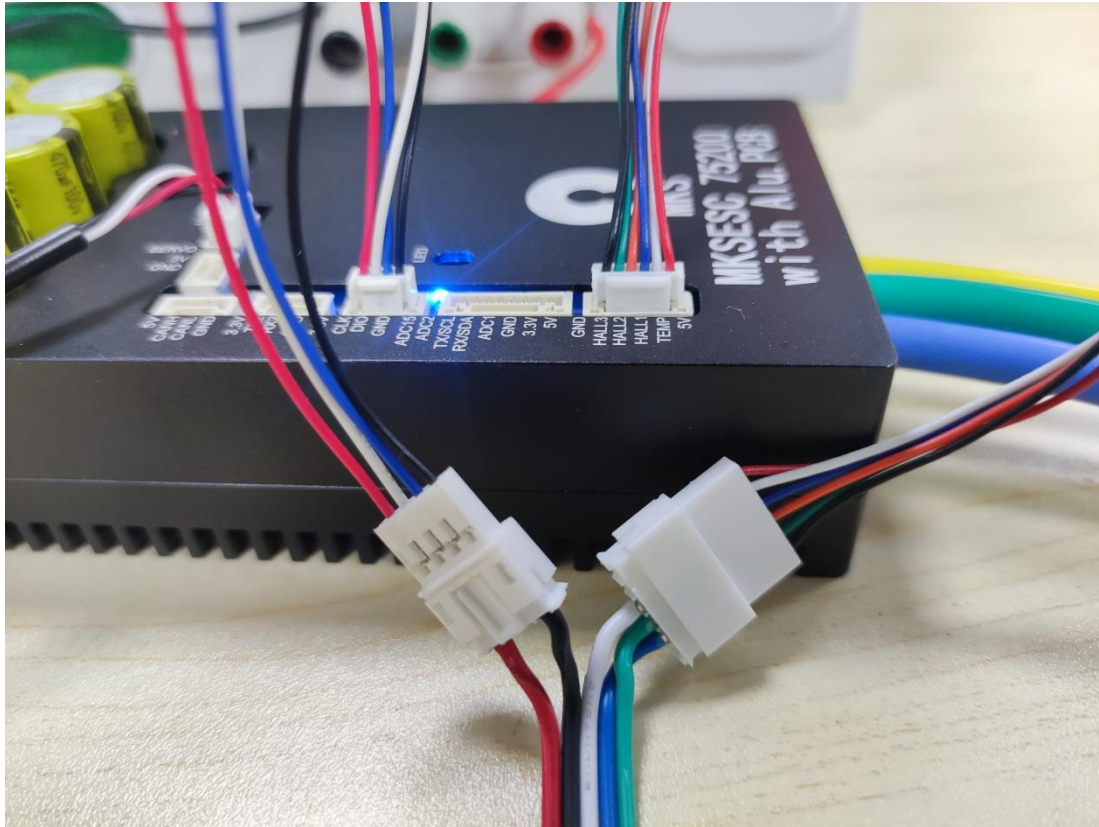
MKSESC 75200 V2.0 motherboard	AS5047P encoder
3.3V	3.3V
GND	GND
HALL1	CSn
HALL2	MISO
HALL3	SCK
3.3V	MOSI

Note: In this test, 3.3V and GND in the SWD interface are borrowed, which can be selected according to the interface situation in actual use.

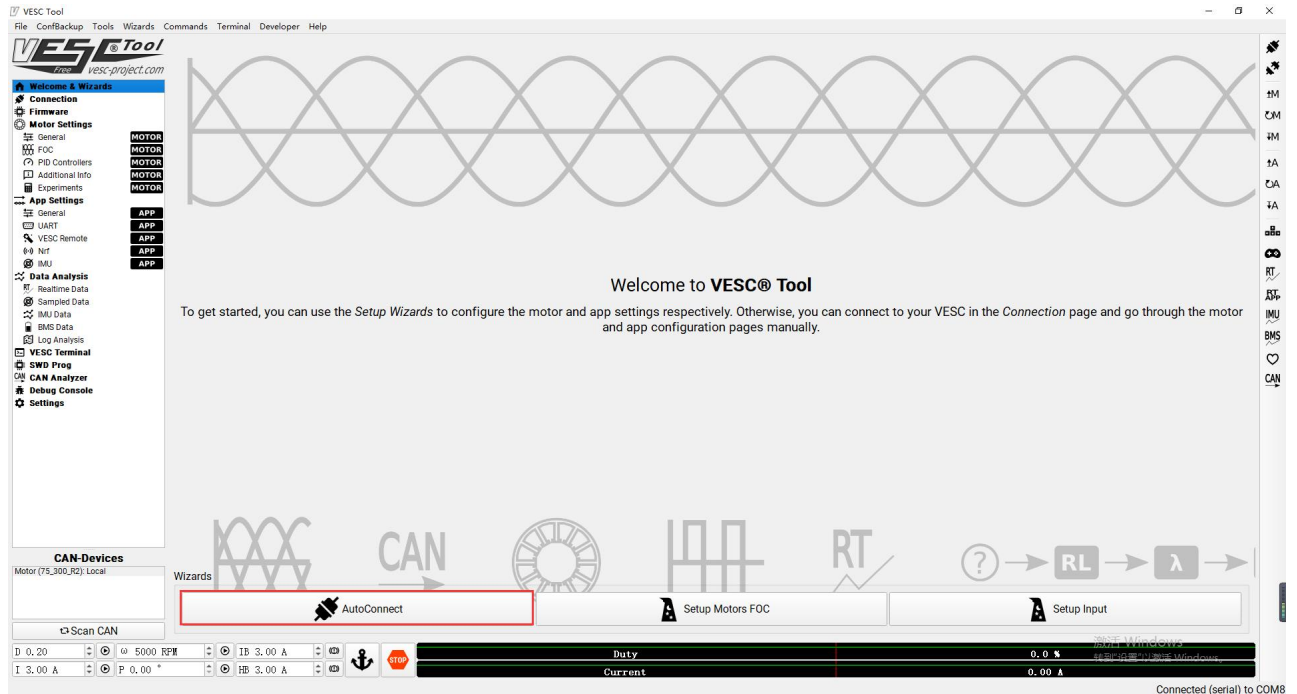The hardware connection is shown in the figure below:
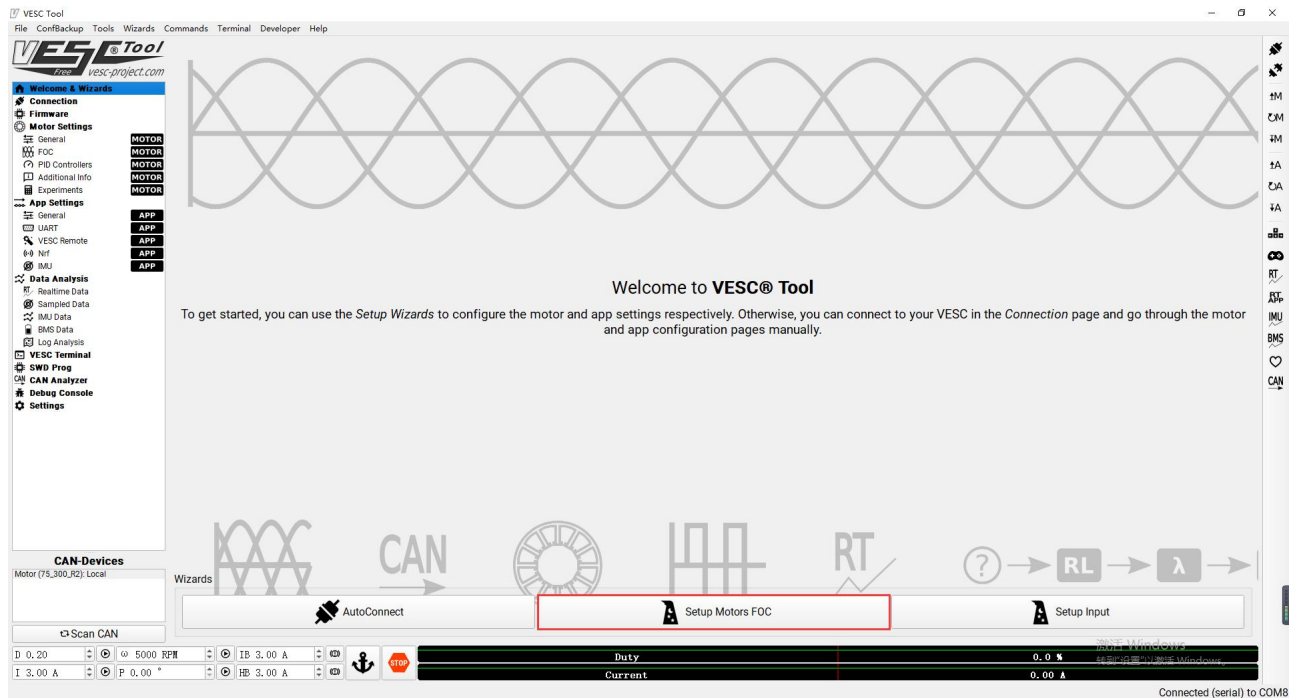
Makerbase MKSESC 75200 Encoder Mode-AS5047P

Note: Please do not make hardware connections with power on!

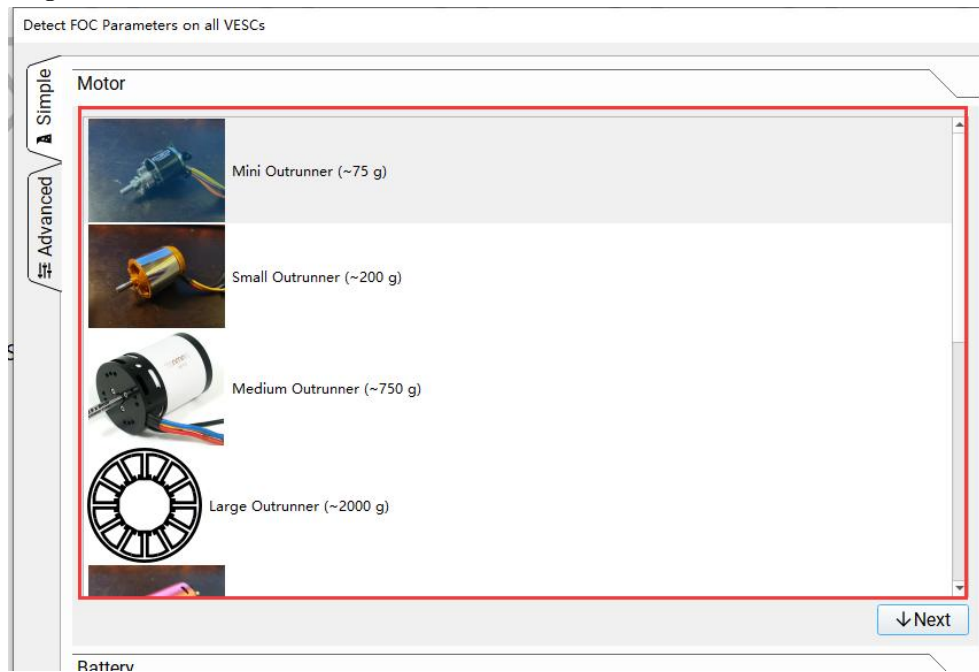# Part.4 Identify and calibrate the motor

1. Click AutoConnect to connect to the VESC motherboard, as shown in the figure below.

2. Click Setup Motors FOC to configure the motor FOC, as shown in the figure below.

2. Choose according to the specifications of your own motor, as shown in the figure below:


4. According to the battery parameters, select the battery type, number of battery cells, battery capacity and other parameters, and then click "↓Next", as shown in the figure below:
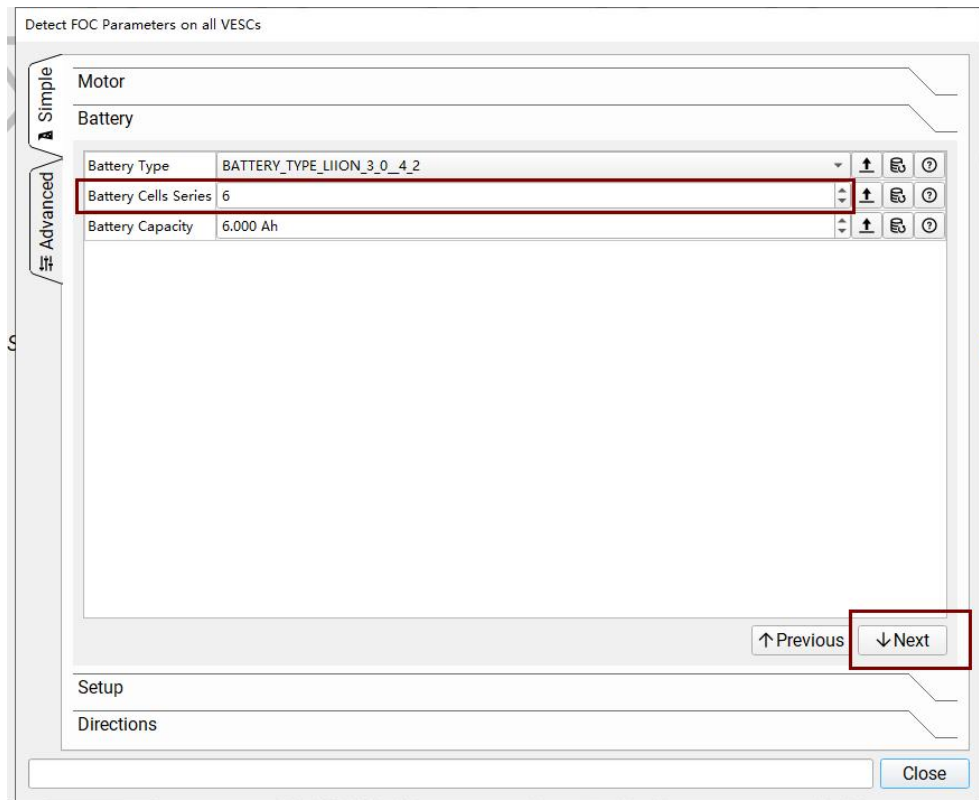
5. If you have not assembled gears and wheels, please check "Direct Drive"; if you have assembled, please configure according to the actual parameters, and then click "Run Detection (no CAN)" or "Run Detection", as shown in the figure below:
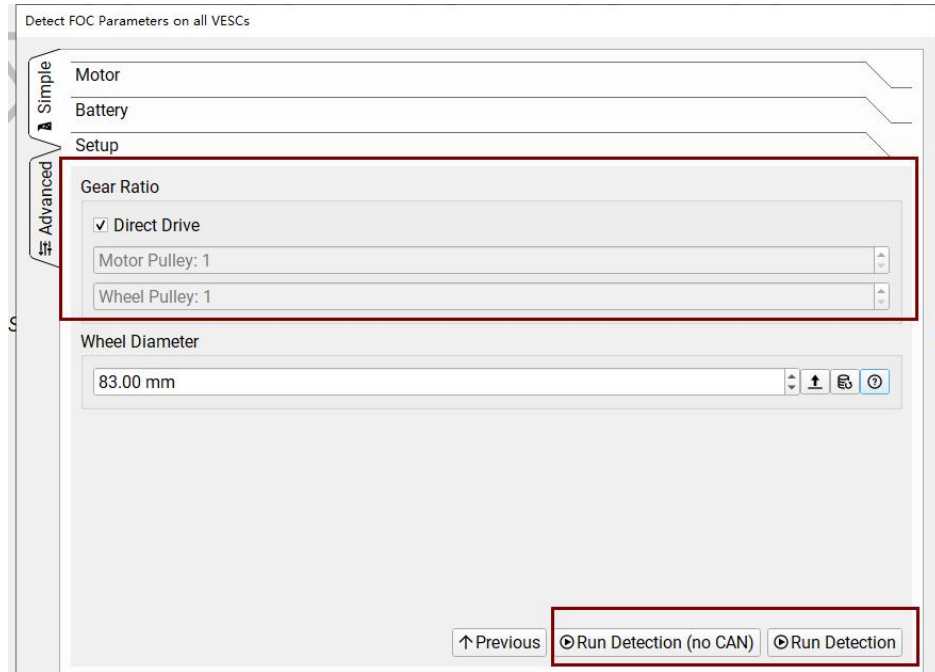

6. The calibration process will take a little longer, please wait patiently; after the calibration is completed, the motor parameters will be displayed and the encoder mode will be entered, as shown in the figure below:
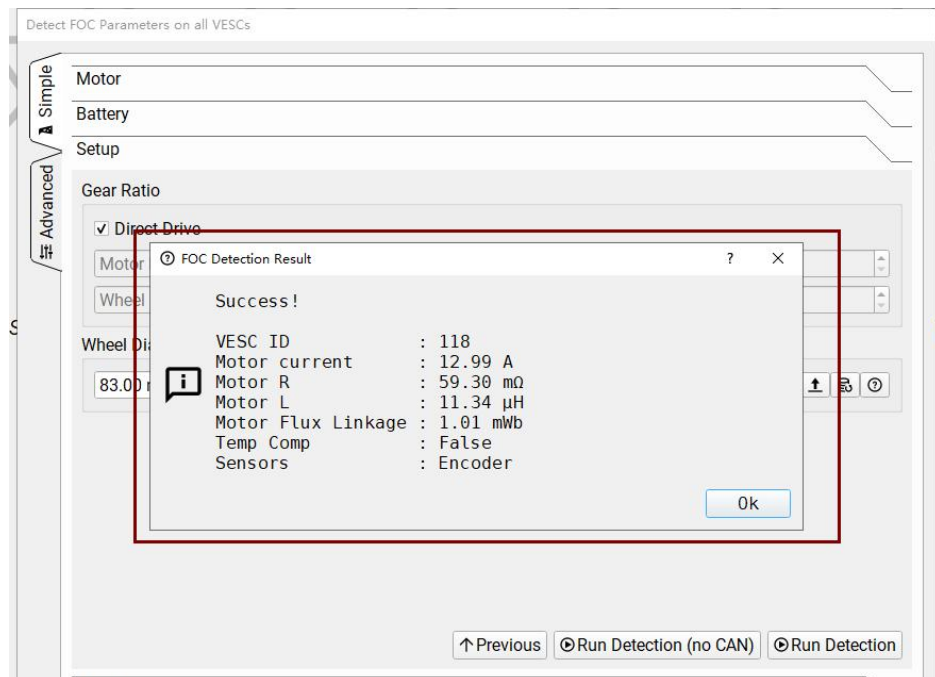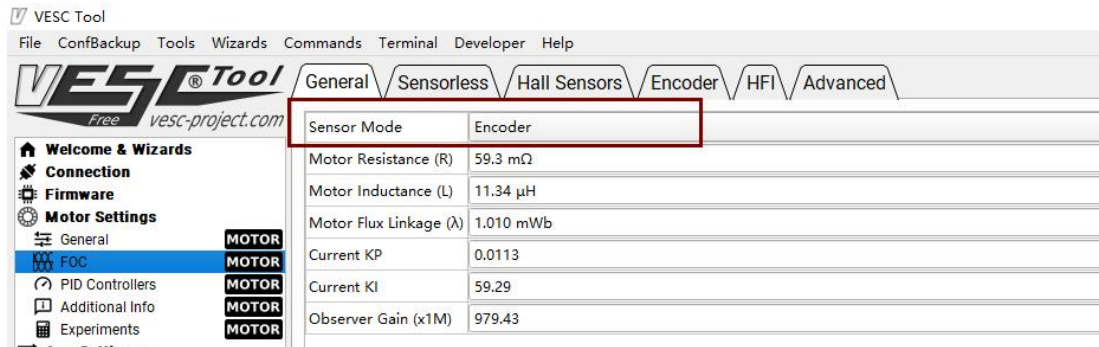
Part.4 Observe Encoder Data

1. Click Motor Settings -> General -> General, you can see that the Sensor Port Mode has successfully identified "AS5047 Encoder Counts", as shown in the figure below:
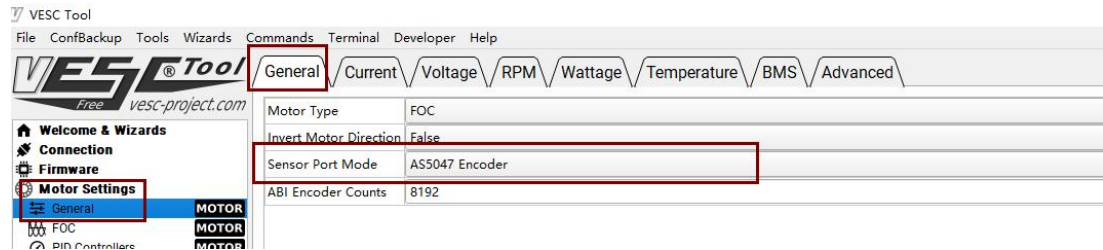

2. Click Motor Settings -> FOC -> General, you can see that the Sensor Mode has been successfully configured as "Encoder", as shown in the figure below:
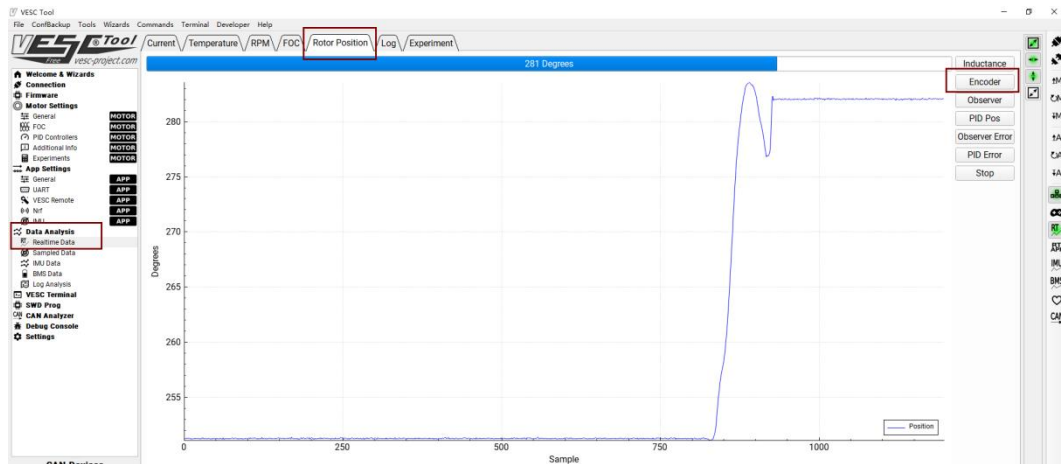

3. Open the keyboard control function and open the real-time data update function, as shown in the figure below:

Tips: Make sure that the UART function is selected in "APP to Use", because only the UART function can make the keyboard control take effect.
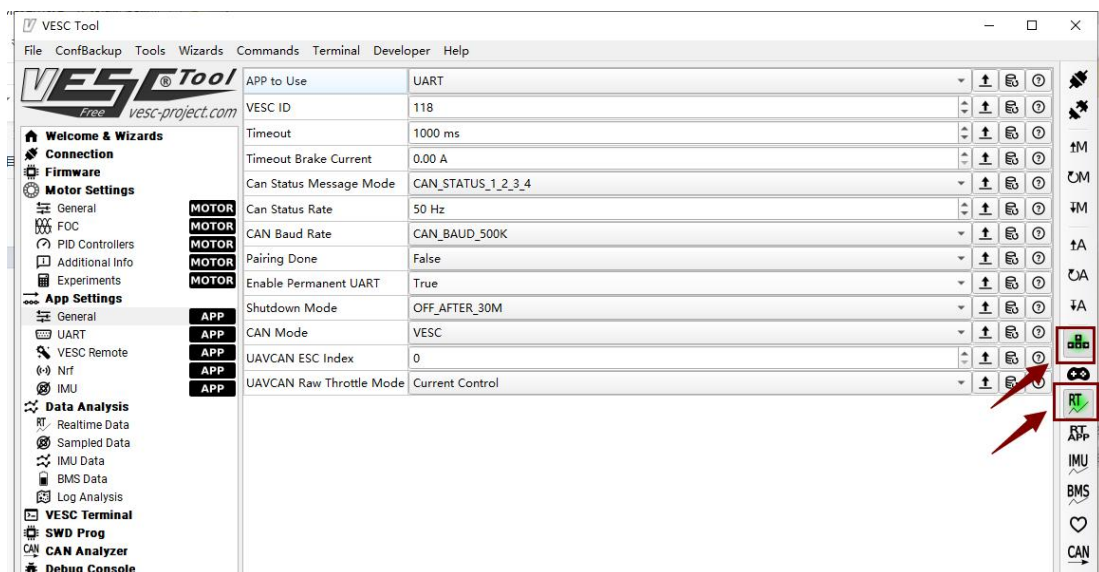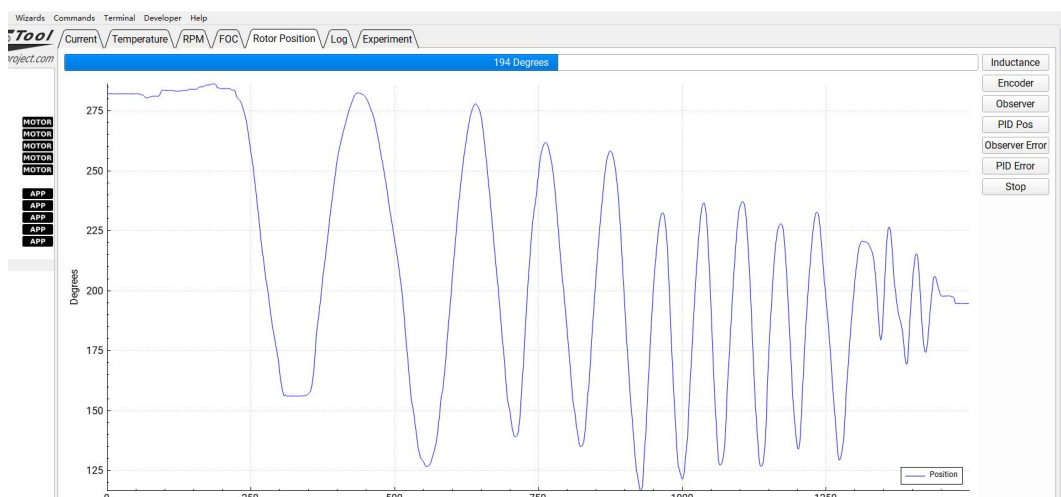
4. Open Data -> Realtime Data -> Rotor Position, click "Encoder", then you can see the encoder data, as shown in the figure below:
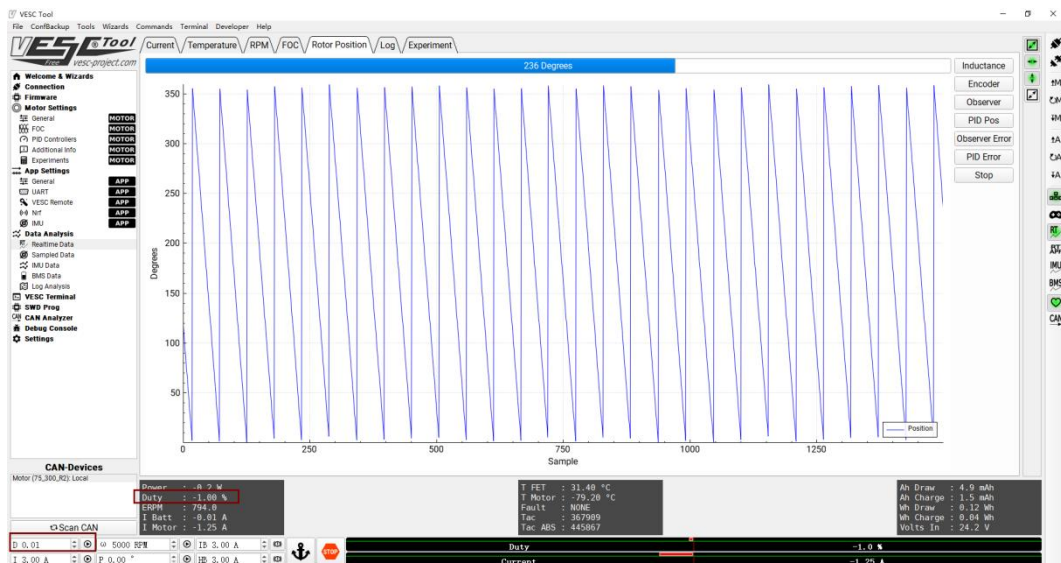

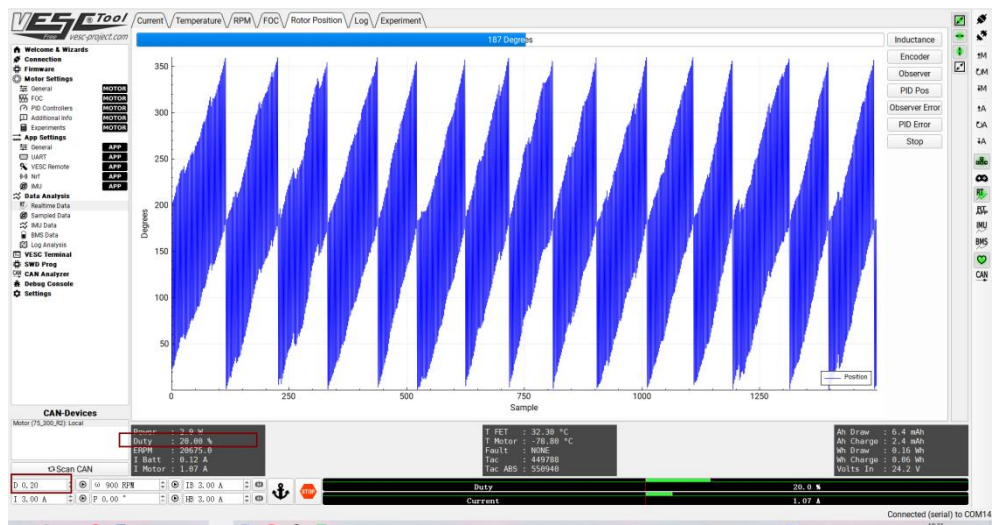5. Turn the motor by hand, the encoder data is normal, as shown in the figure below:

6. Enter the duty ratio parameter, as shown in the figure below:
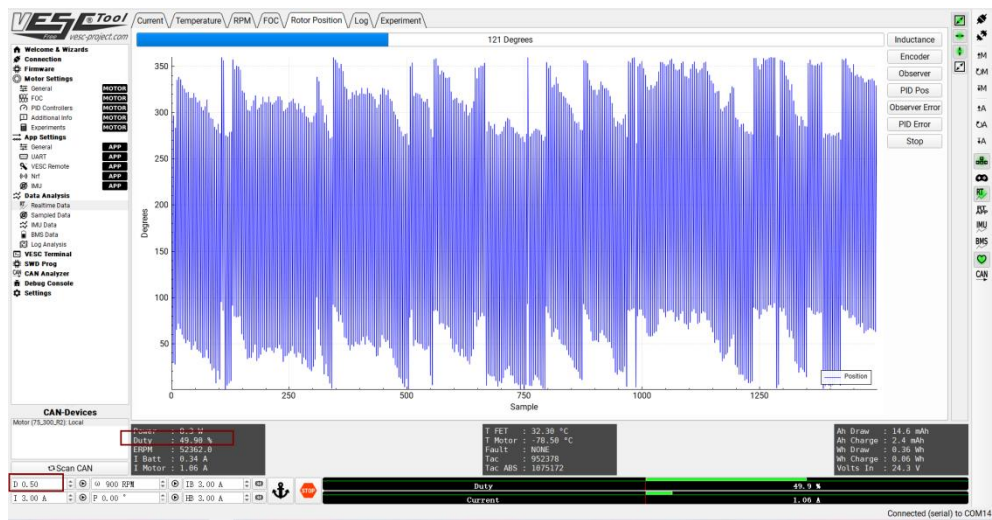● Duty cycle is set to 1%:
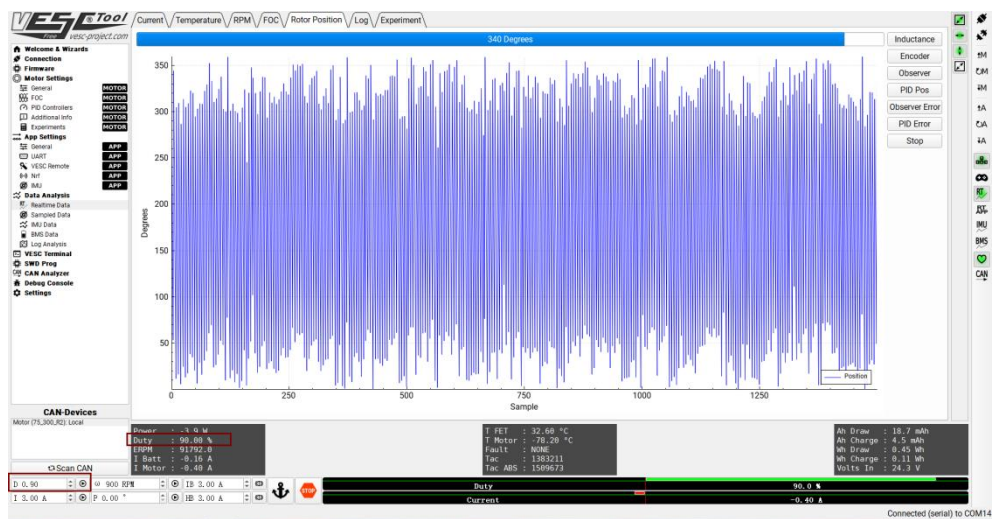
Makerbase MKSESC 75200 Encoder Mode-AS5047P

- Duty cycle is set to 20%:

- Duty cycle is set to 50%:

- Duty cycle is set to 90%:

This is the end of Makerbase MKSESC 75200 V2.0 AS5047P encoder test,
Stay tuned for future courses.

Welcome to Makerbase AliExpress Purchasing Products:
https://www.aliexpress.us/item/3256804863584659.html?spm