
Robot integrated motor PC software instructionsDocument

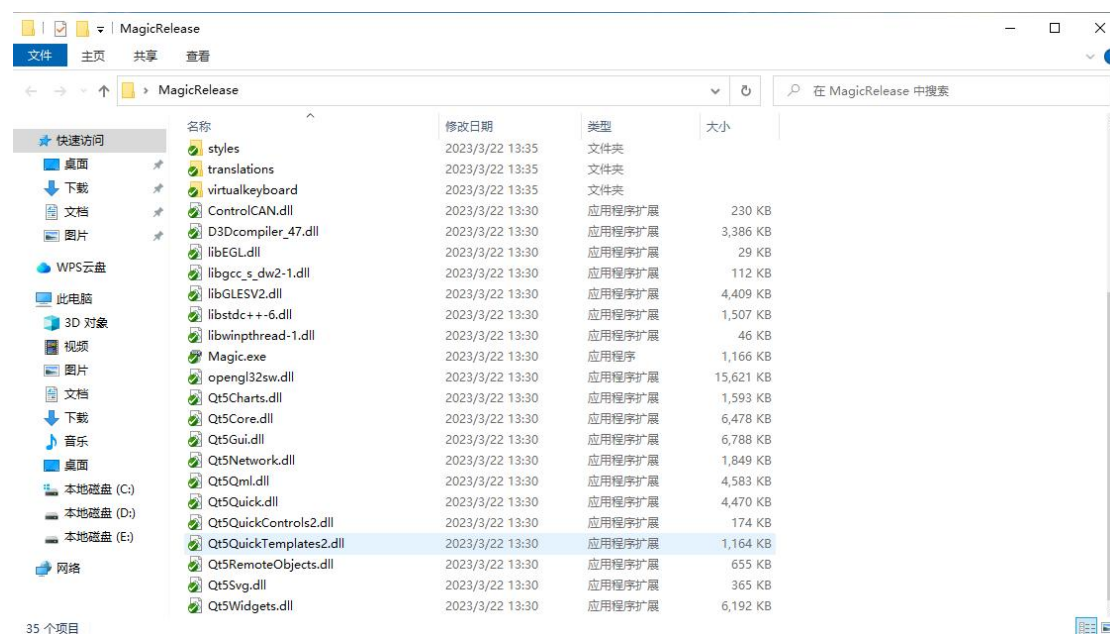
version 1.2

Software version 1.0.8.813

2023 year 4 month

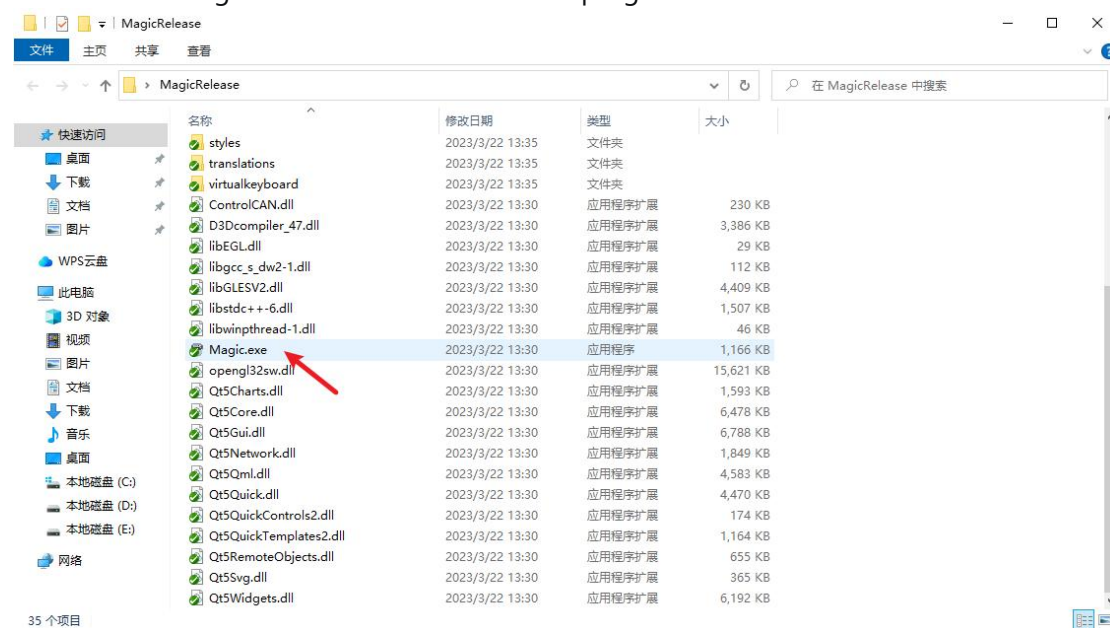
1.The installation of the host computer

Decompress the MagicRelease compressed package. After decompressing, the interface is shown as follows



2.The operation of the host computer

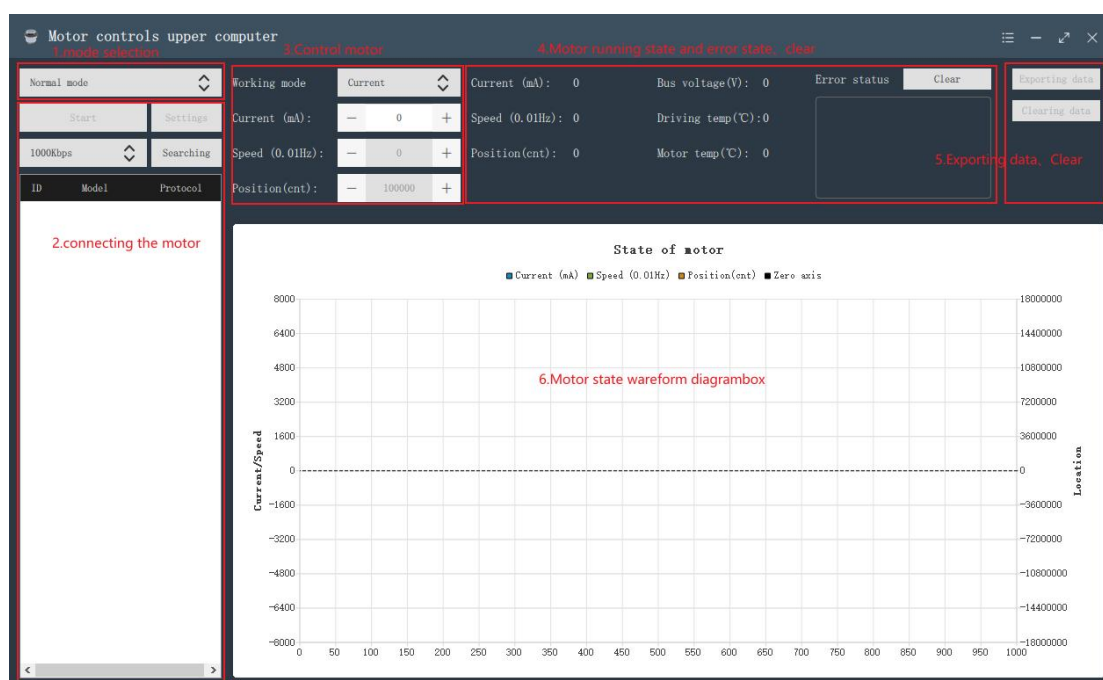
Double-click Magic.exe to run the motor host program



3.System functions

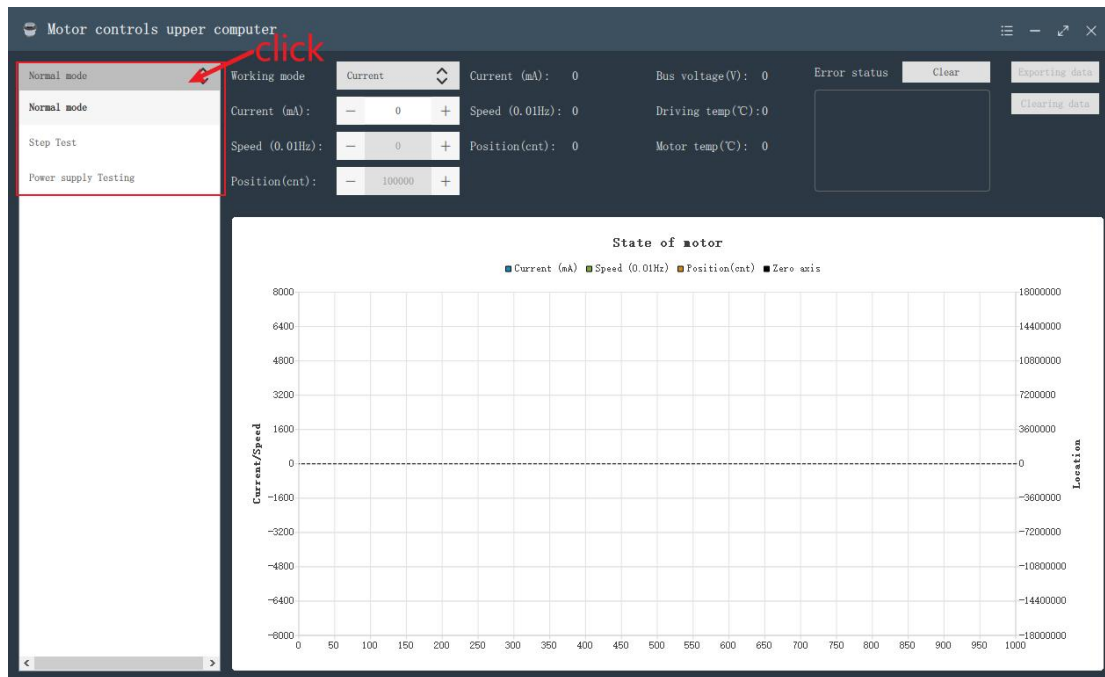
3.1.System interface

The software is mainly composed of five parts, 1.mode selection、2.Connecting the motor、3.Control motor、4.Motor running state and error state、Clear、5.Exporting data、Clear、6.Motor state waveform diagrambox



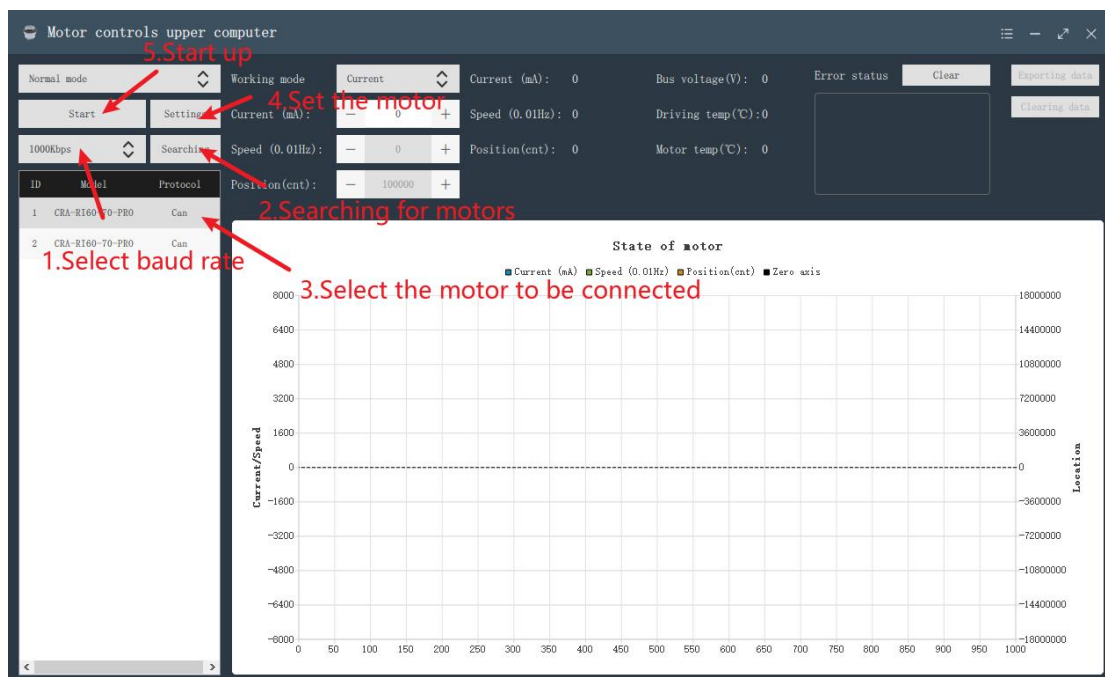
3.1.1Mode selection

Click the drop-down box in the upper left corner to select the desired mode. Normal mode: control the specified motor for normal operation mode; Step test: control the specified motor for step test; Power test: Control the specified motor for power test.



3.1.2 Connecting the motor (Start motor)

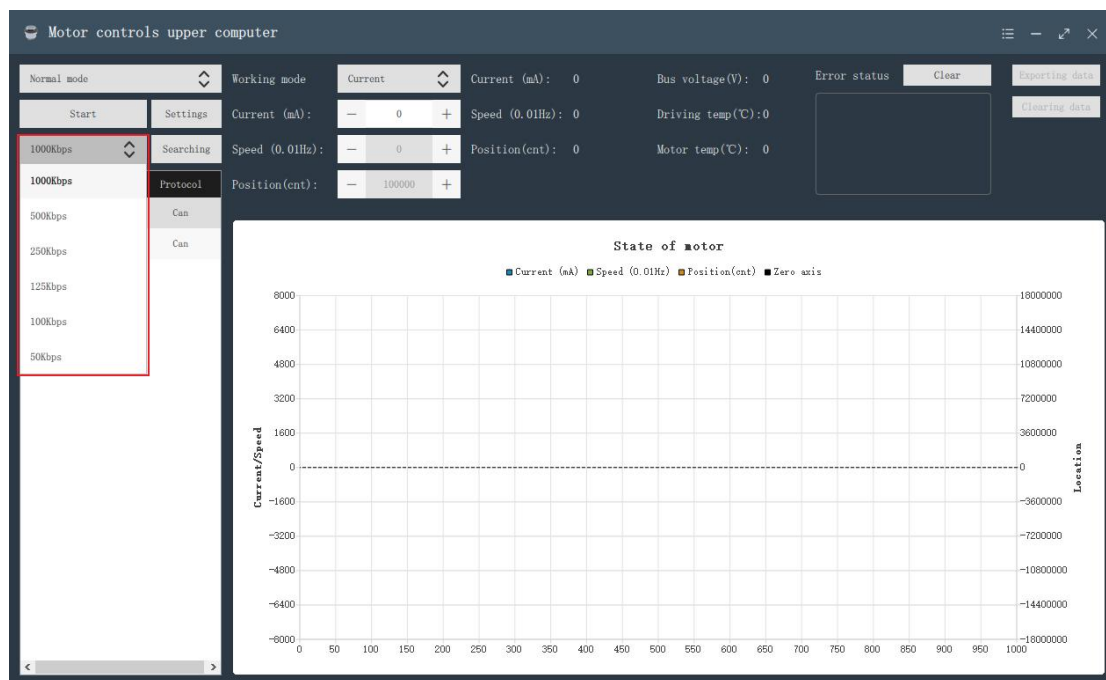
Click "Baud Rate 1000Kbps" to select the desired baud rate, Click "Search" and the list below will show the ID、Model number、Protocol, Select the motor to connect to, Click "Start Motor" to finish connecting the motor or click "Settings", Setting motor parameters



3.1.2.1Baud Rate

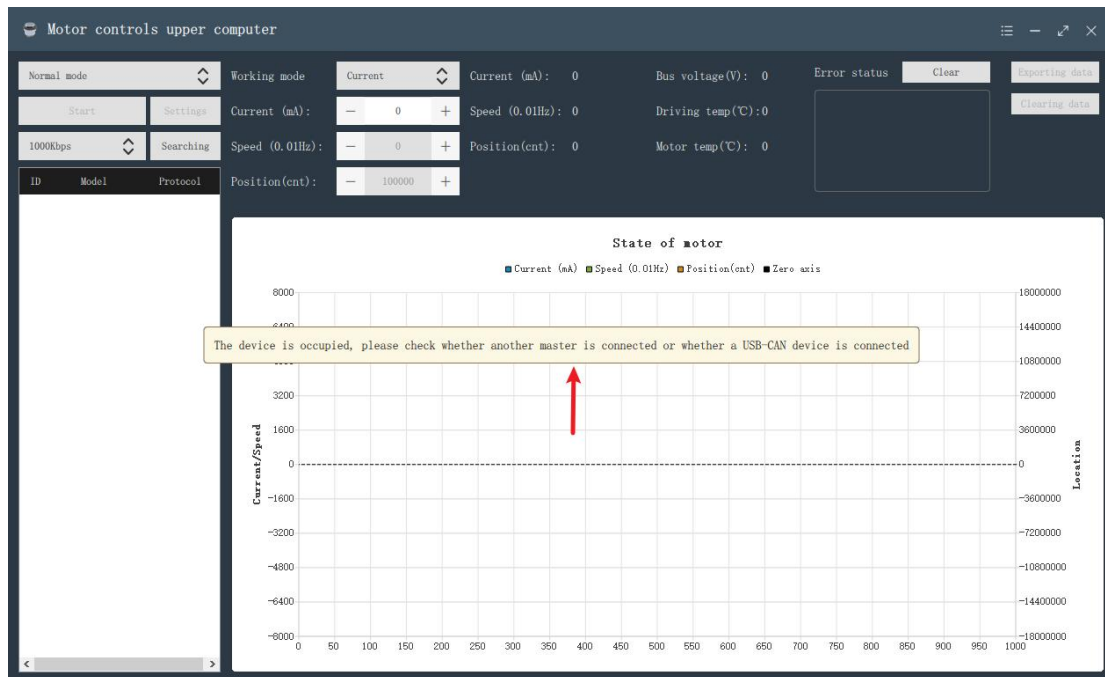
Click "1000Kbps" to display a drop-down box: 1000Kbps、500Kbps、250Kbps、125Kbps、100Kbps、50Kbps, Select the corresponding baud rate, Different baud rates correspond to different transmission distances

通讯波特率	最大总线长度
1M bit/s	25 m
500k bit/s	100 m
250k bit/s	250 m
125k bit/s	500 m
100k bit/s	600 m
50k bit/s	1000 m

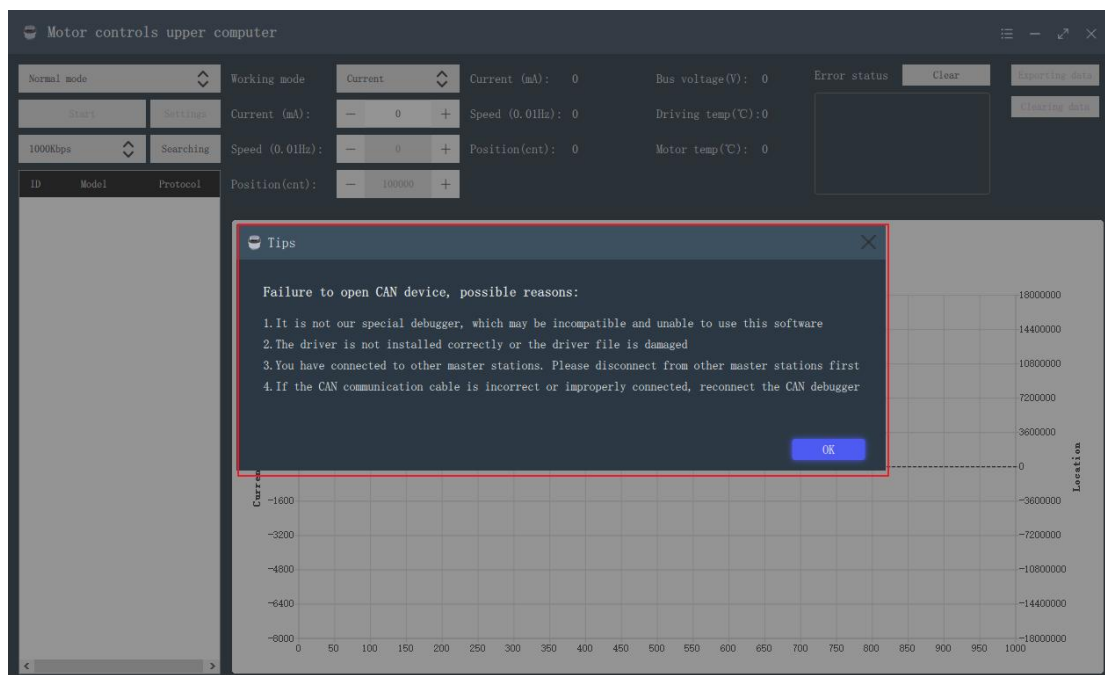


3.1.2.2.Search

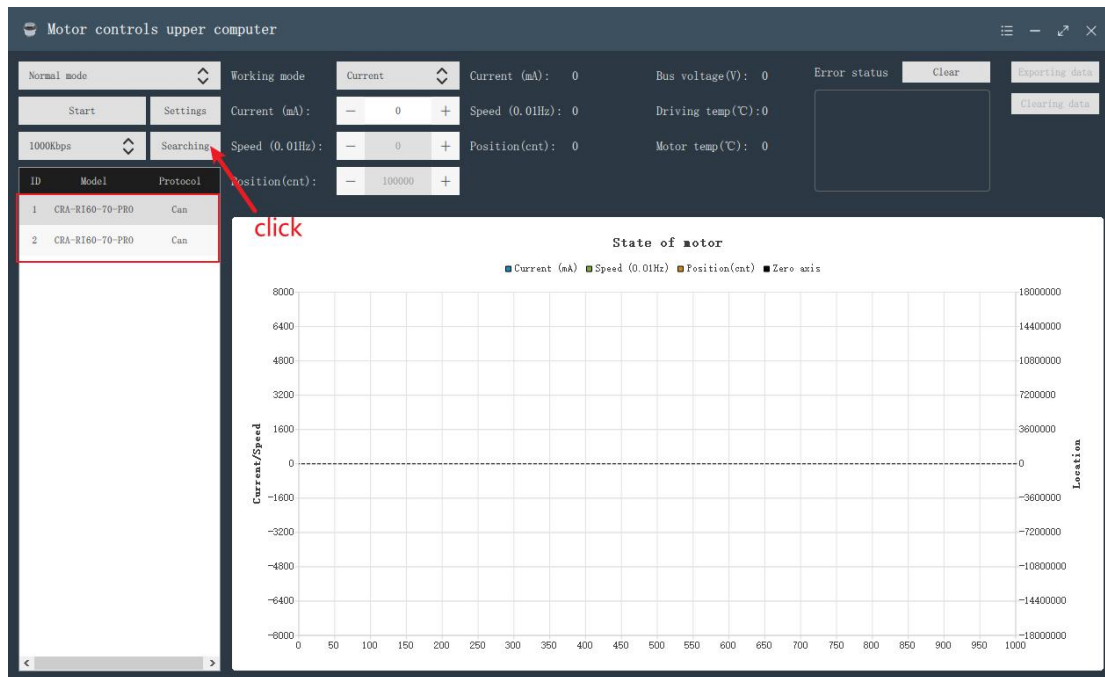
If the USB-CAN analyzer is not inserted, click "Search" and a pop-up will appear in the middle of the interface. It will automatically disappear after 5 seconds



After the motor is not inserted, a pop-up window will appear in the middle of the "search" interface, waiting for confirmation

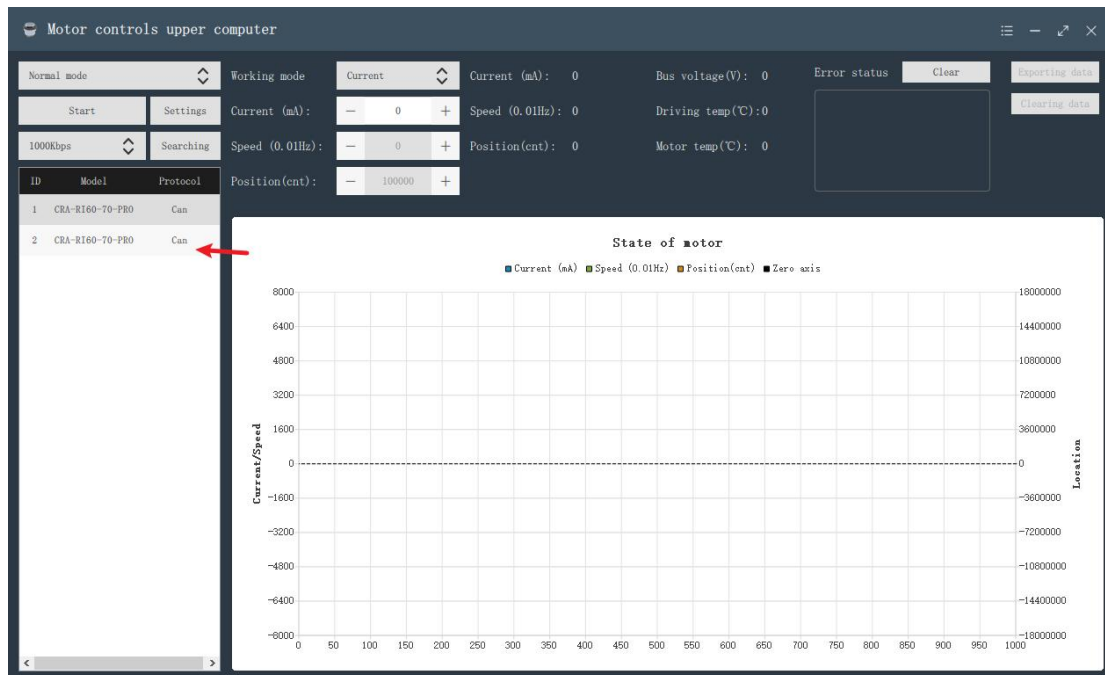


After inserting the USB-CAN analyzer and motor, click the list below "search" to display the ID, model and protocol of the corresponding inserted motor

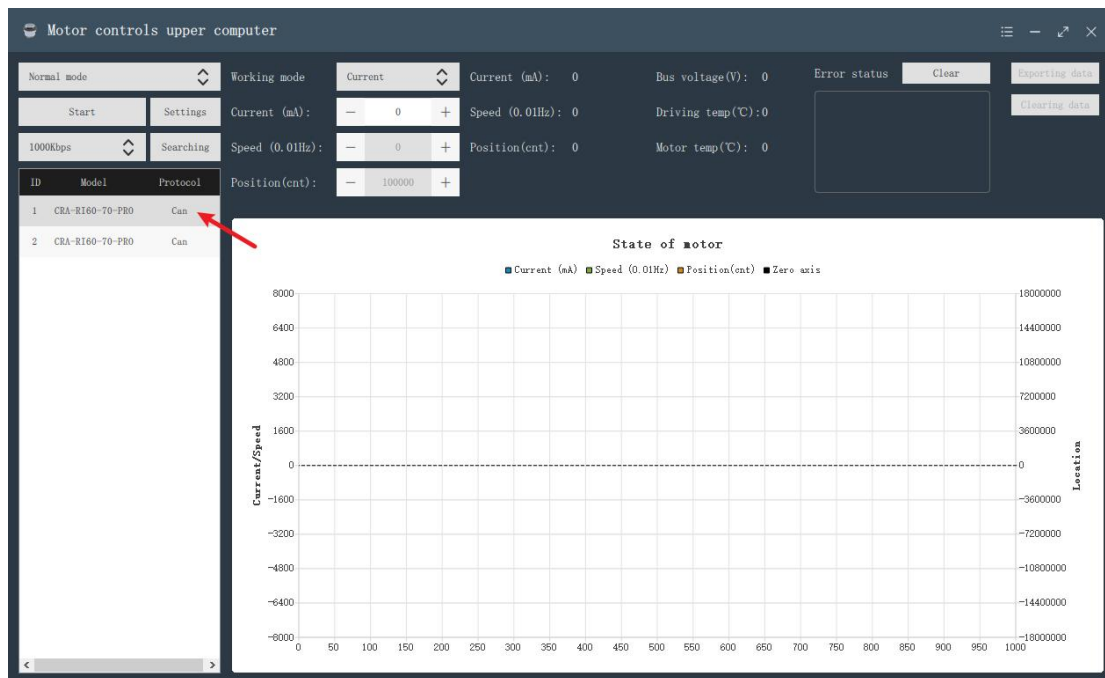


Select the motor to be connected

Motor not selected

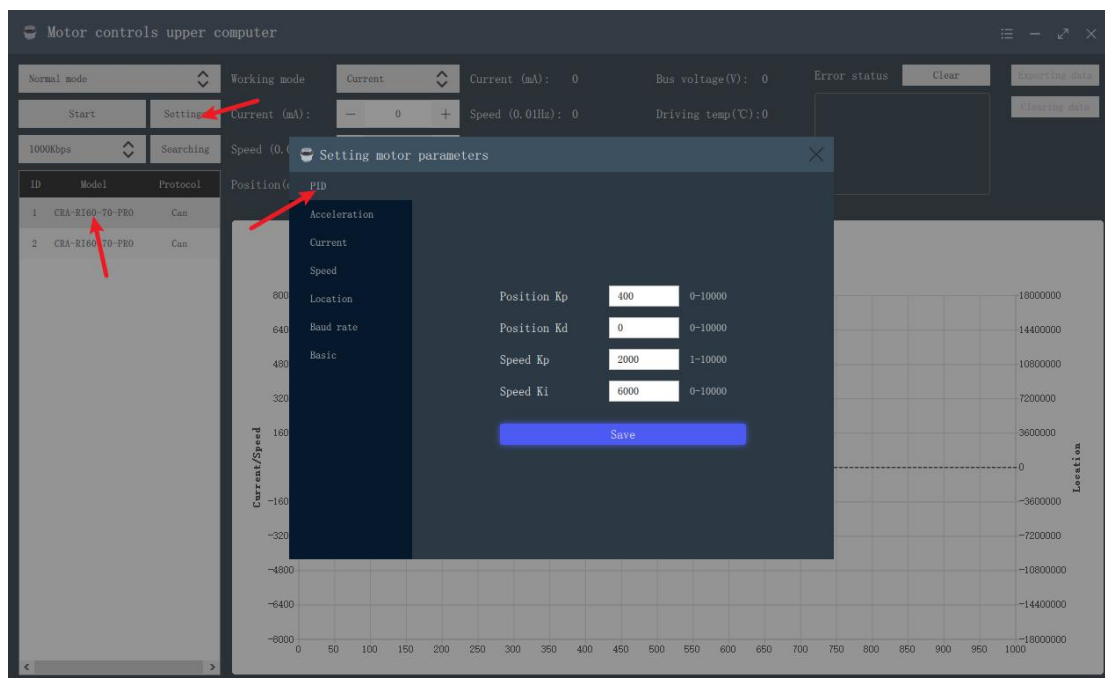


Select motor



3.1.2.3.Set

Select the motor to be connected, Click "Settings", The setting motor parameters window is displayed in the middle of the window



3.1.2.3. 1. PID Set

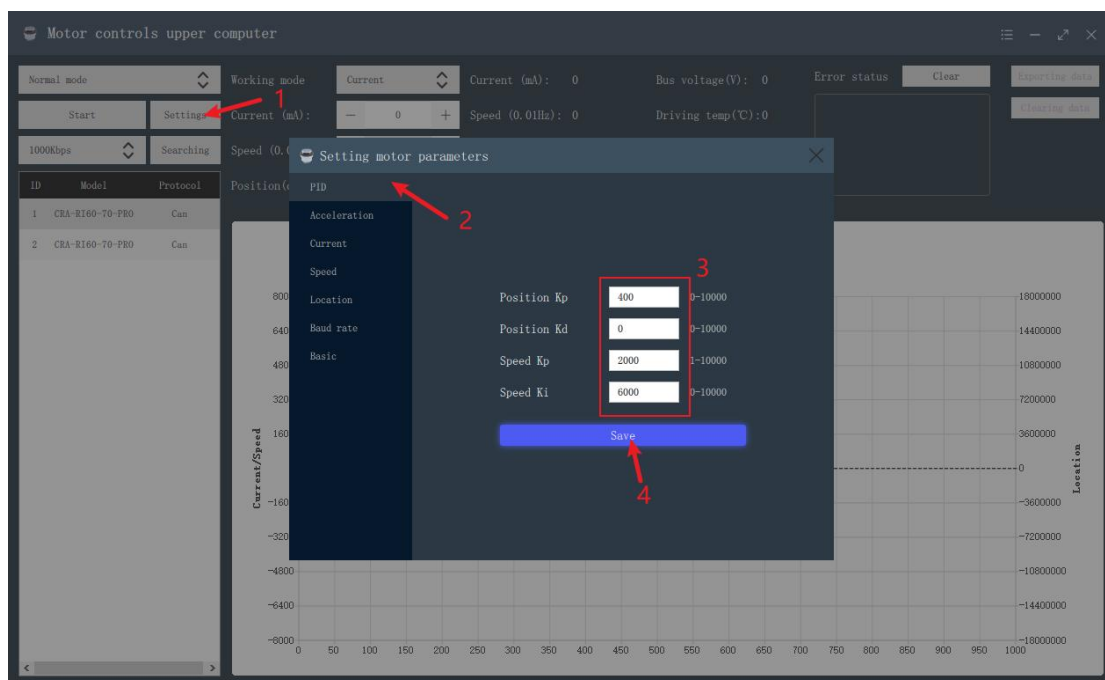
The position ring scale can be set、Speed loop proportion、Position loop differentiation、Velocity loop integration, These Settings can also be left unset, Set according to requirements (default parameter is 0 if not set).

Position ring ratio (parameters can be set within 0-10000) such as -1,100001 are not set

Speed ring ratio (parameters can be set within 0-10000) such as -1,100001 are not set
Position ring differentiation (parameters can be set within 1-10000) such as -1,100001 are not set

Speed loop integral (parameters can be set within 0-10000) such as -1,100001 are not set

For example, "Input 400" for the proportion of the position ring, "input 2000" for the proportion of the speed ring, no parameters are set for the differential of the position ring, and "input 6000" for the integral of the speed ring and click "Save" will prompt the successful setting



3.1.2.3.2.Acceleration set

The maximum forward acceleration of the motor can be set、Motor minimum negative acceleration, These Settings can also be left unset and set according to requirements (the default parameter is 0 if not set).

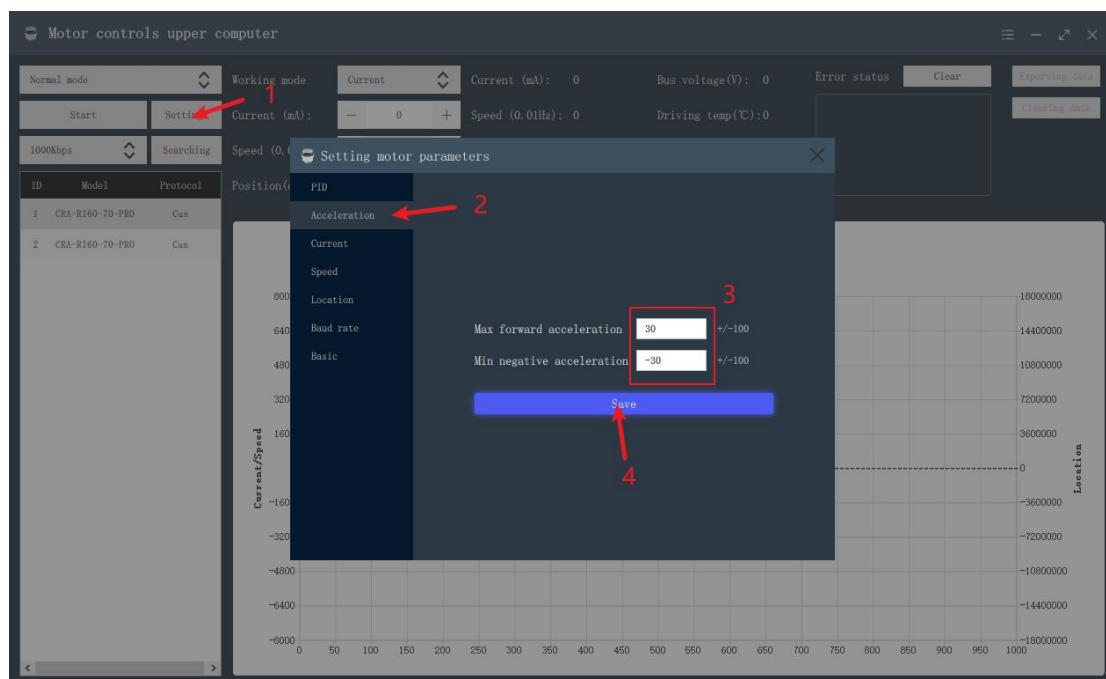
The maximum forward acceleration of the motor (parameters can be set within -100-100) such as -101,101 are not set

Motor minimum negative acceleration (parameters can be set within -100-100) such as -101,101 are not set

For example, the maximum positive acceleration of the motor is "input 30", the minimum negative acceleration of the motor is "input -30", and the motor parameters are set successfully after clicking "Save"

After unplugging the motor, click "Settings" again. Click "Acceleration Settings" to automatically read the parameters set last time

If the motor is not inserted, click "Settings", click "Acceleration Settings", a pop-up window will be displayed in the middle of the interface, and it will disappear automatically after 5 seconds (input).



3.1.2.3.3.Current Set

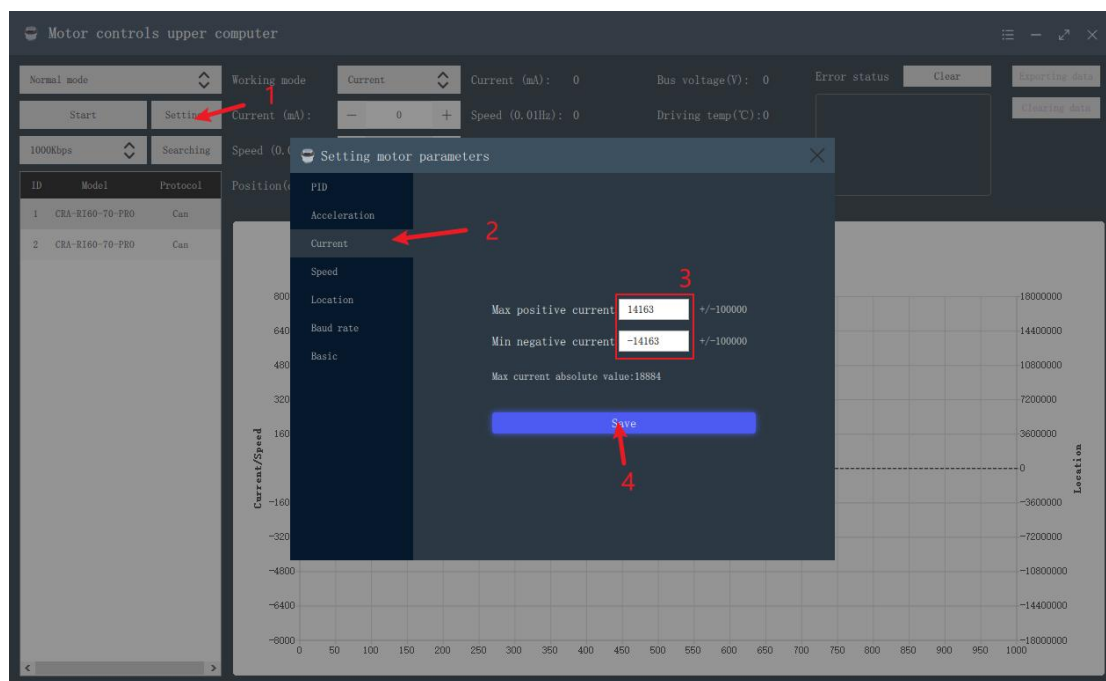
You can set the maximum positive current of the motor and the minimum negative current of the motor. These Settings can also be set according to the demand (the default parameter is 0 if you do not set it).

The maximum positive current (parameters can be set within -100000-100000) such as -1000001,1000001 are not set

The minimum negative current (parameter can be set within -100000-100000) such as -1000001,1000001 are not set

For example, the maximum positive current of the motor is "input 14163", and the minimum negative current of the motor is "input -14163". After clicking "Save", the motor parameters will be set successfully

The inserter will automatically read the corresponding data and fill in the corresponding input box



3.1.2.3.4.Speed Set

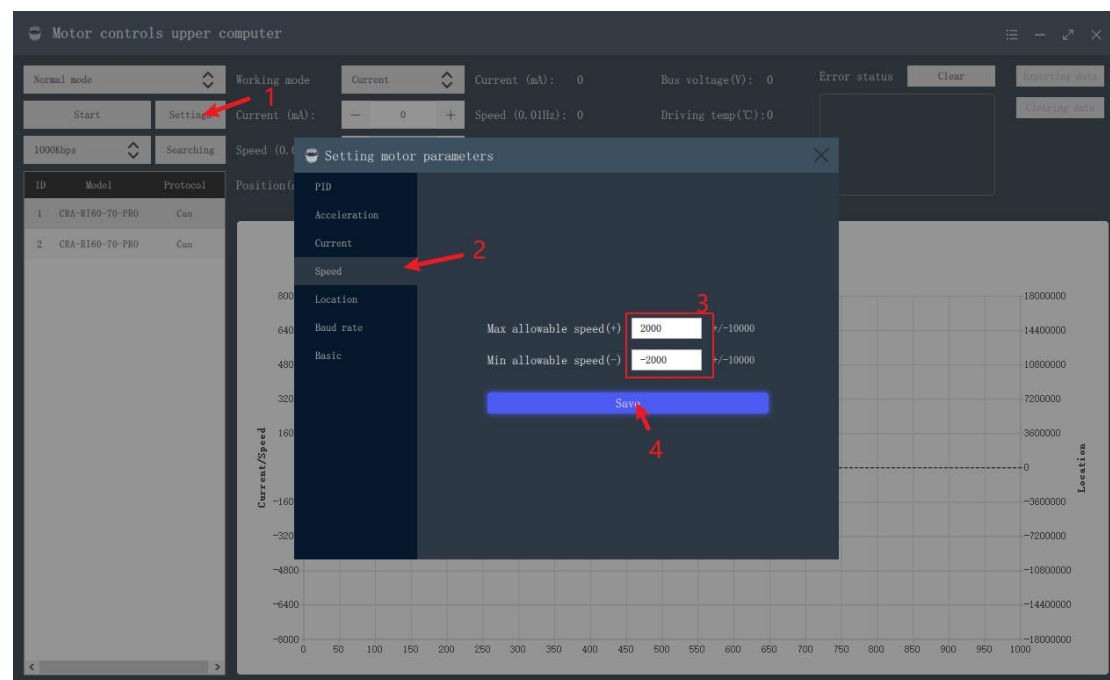
You can set the maximum positive allowed speed of the motor and the minimum negative allowed speed of the motor. You can also set these Settings according to your needs without setting them (the default parameter is 0 if you do not set them).

The maximum forward allowed speed (parameters can be set within -10000-10000) such as -100001,100001 are not set

The minimum negative allowable speed (parameters can be set within -10000 to 10000) such as -100001,100001 are not set

For example, the maximum positive allowable speed of the motor is "input 2000", and the minimum negative allowable speed of the motor is "input -2000". After clicking "Save", the motor parameters will be set successfully

The inserter will automatically read the corresponding data and fill in the corresponding input box



3.1.2.3.5.Location Set

The motor position offset, maximum positive position and minimum negative position can be set. These Settings can also be set according to the demand (the default parameter is 0 if not set).

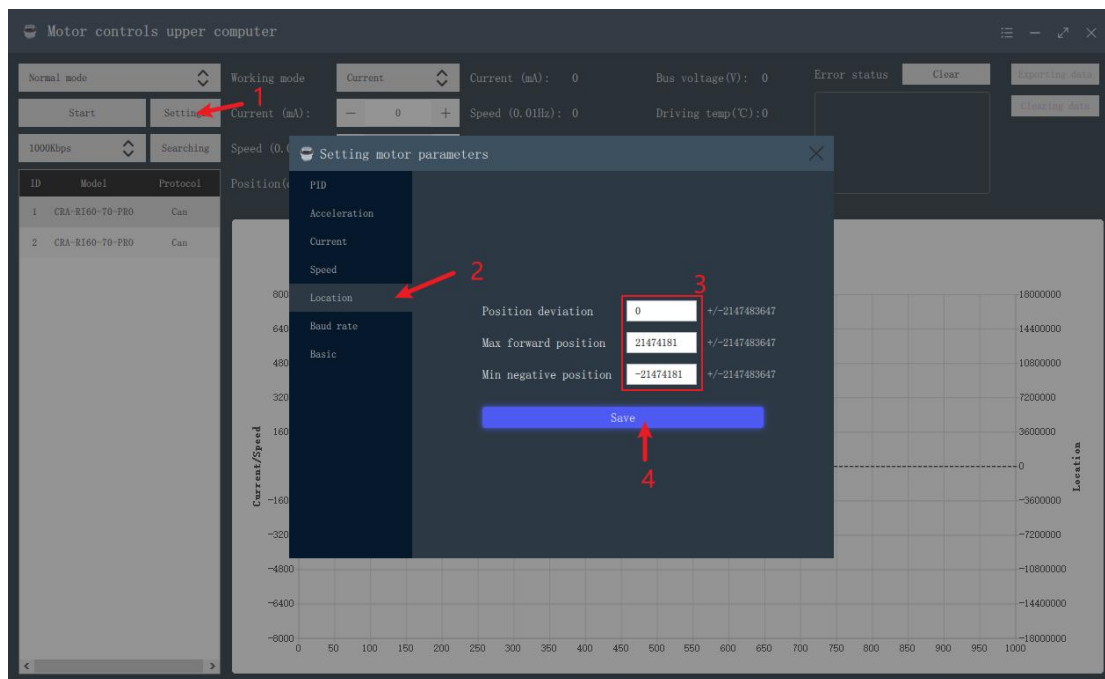
Position offset (parameter can be set within -2147483647-2147483647)

Minimum forward position (parameter can be set within -2147483647-2147483647)

Minimum negative position (parameter can be set within -2147483647-2147483647)

For example, the maximum positive position of the motor "input 21474181", the minimum negative position of the motor "input -21474181" click "save" after the motor parameters are set successfully

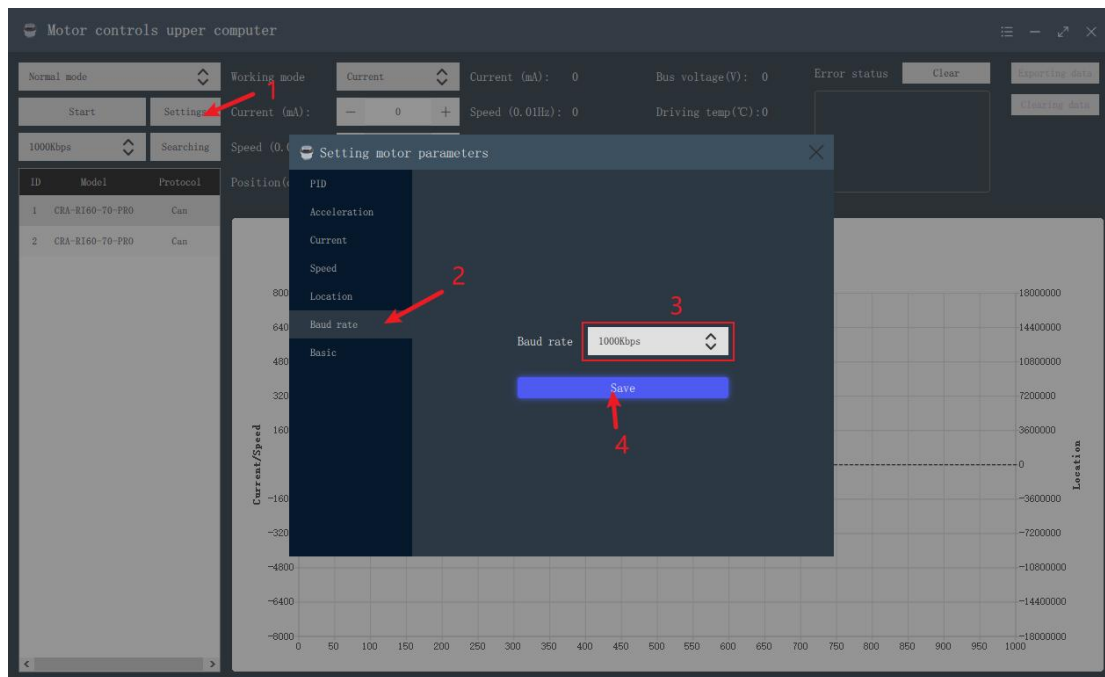
The inserter will automatically read the corresponding data and fill in the corresponding input box



3.1.2.3.6.Baud rate Set

The communication baud rate of the motor can be set

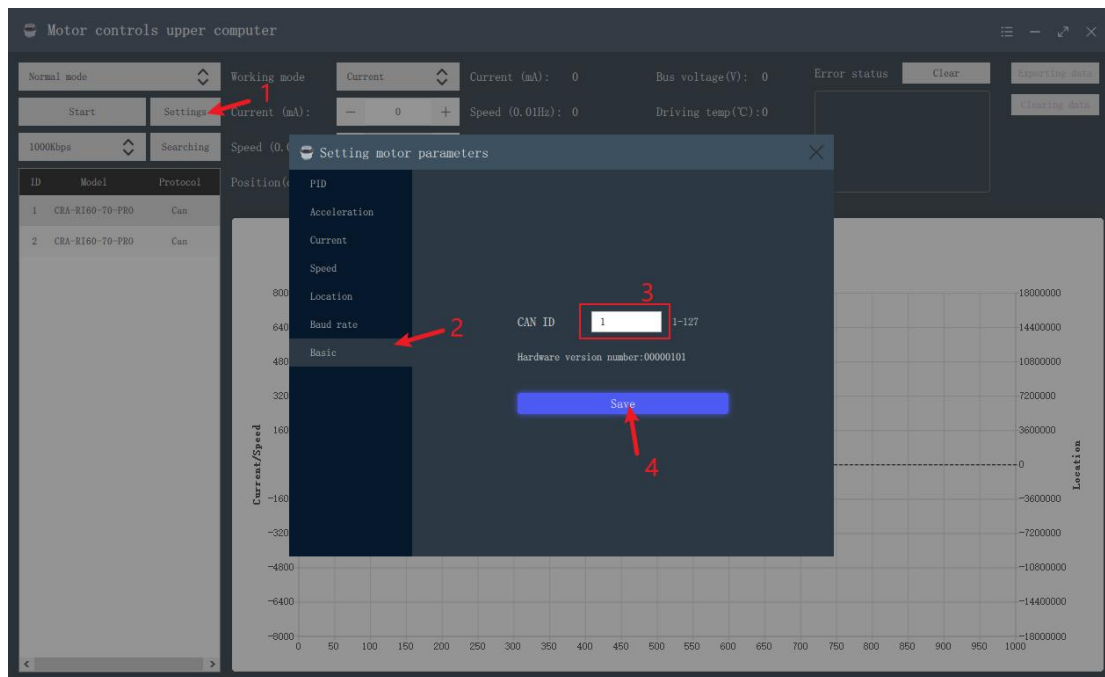
Click "1000Kbps" and the drop-down box shows: 1000Kbps, 500Kbps, 250Kbps, 125Kbps, 100Kbps, 50Kbps. Select the corresponding Baud rate and click Save, After successful saving, the baud rate of the main interface switches to the baud rate after setting



3.1.2.3.7. Basic Setup

Set the canid of the motor

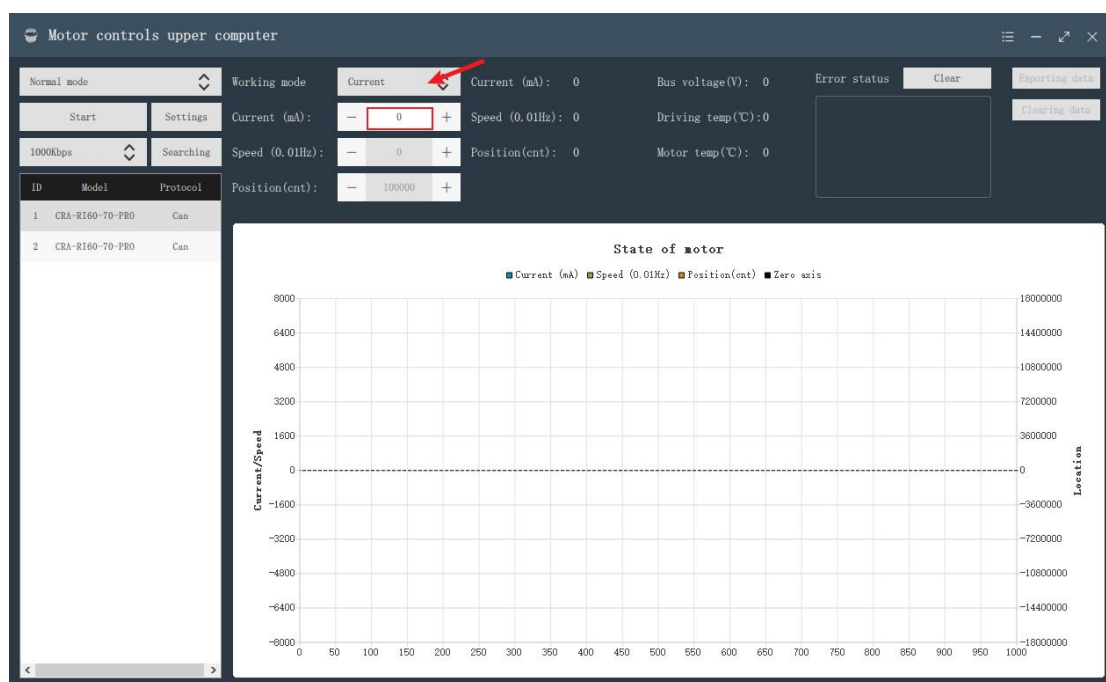
Enter "3" and click "Save" to prompt successful setting, and the list becomes 3 for the motor ID

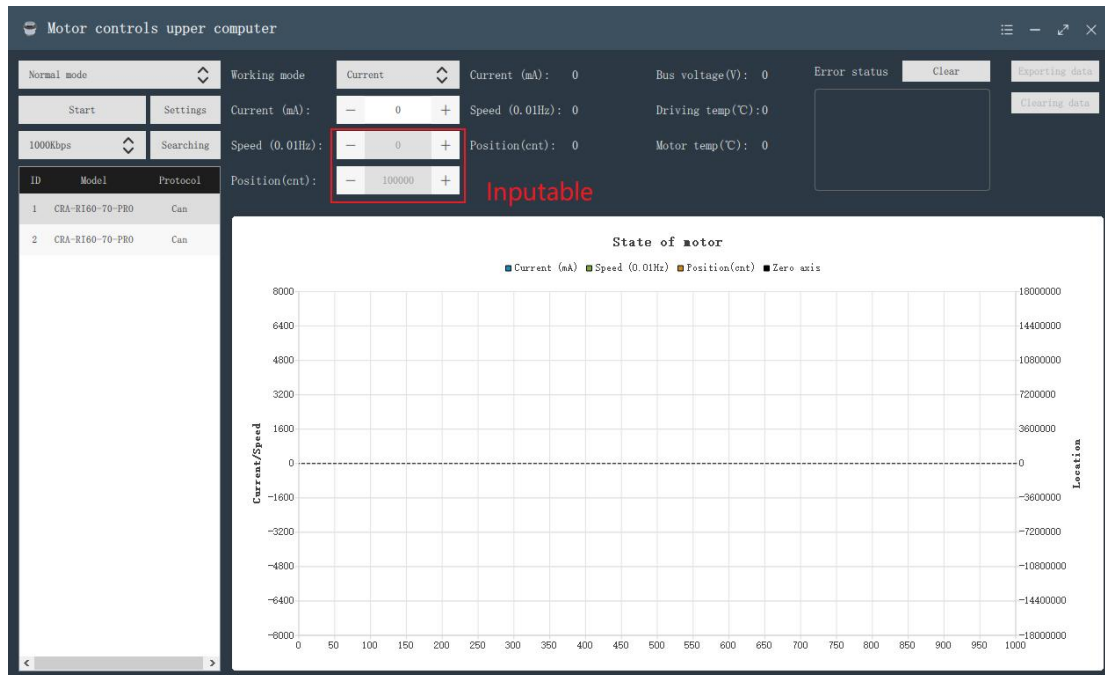


3.1.3.Control motor (Normal mode)

3.1.3.1.Mode of current

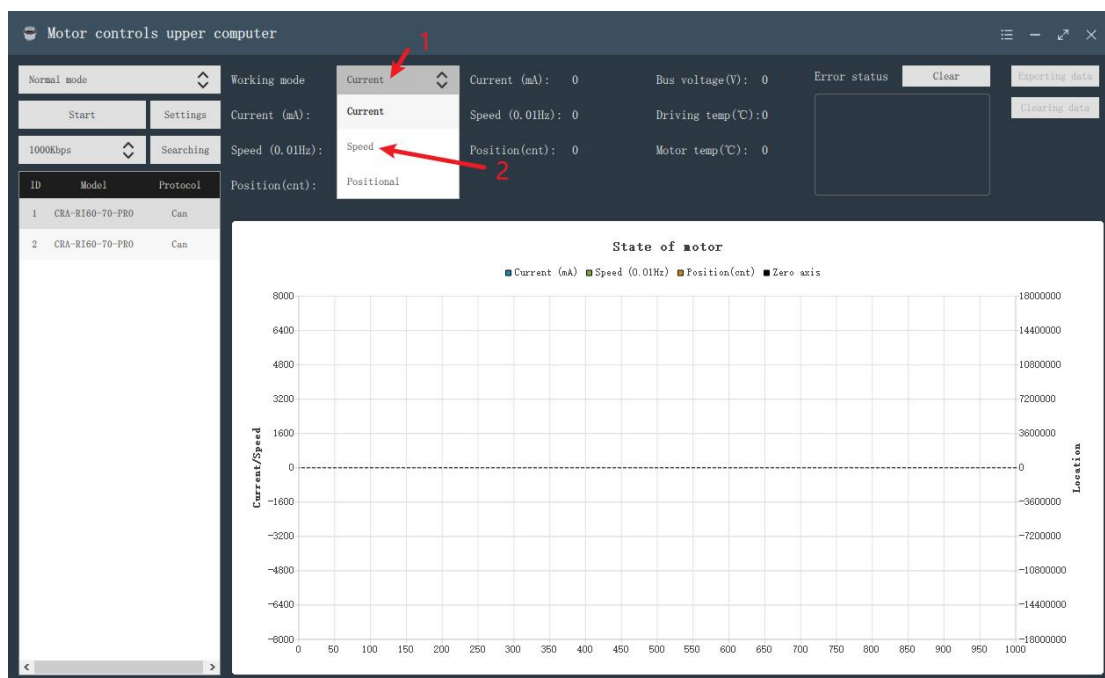
In the "Working mode" drop-down list, "click Current mode" to appear a drop-down box, which displays current mode, speed mode and position mode (the default is to select current mode). The current parameter input box can be input (0-100000), speed and bit Setting is not inputable. For example, if the current input box is set to 100, click Enter to set the current of 100 to take effect. Click the increase or decrease button to set the parameters and send the corresponding mode parameters

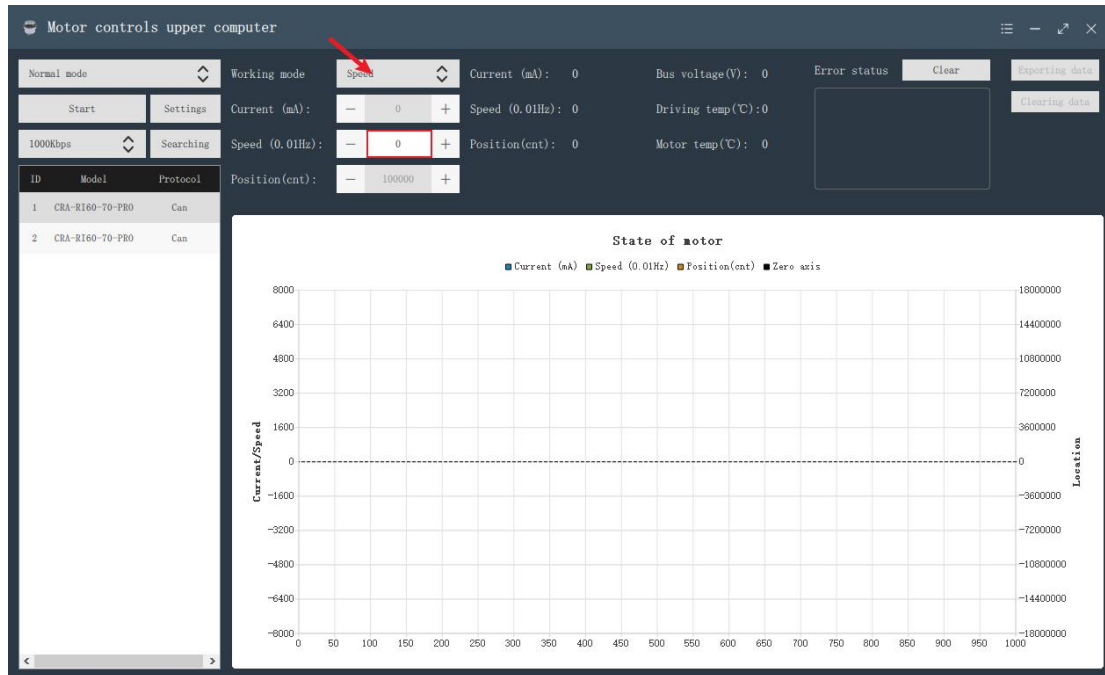




3.1.3.2.Speed mode

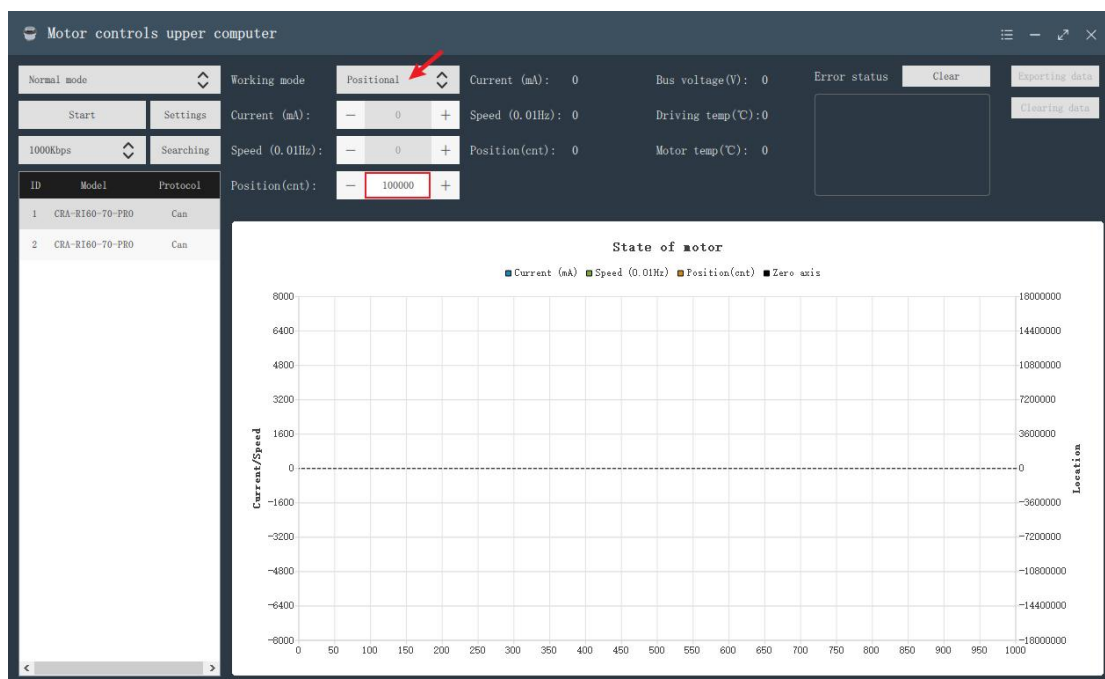
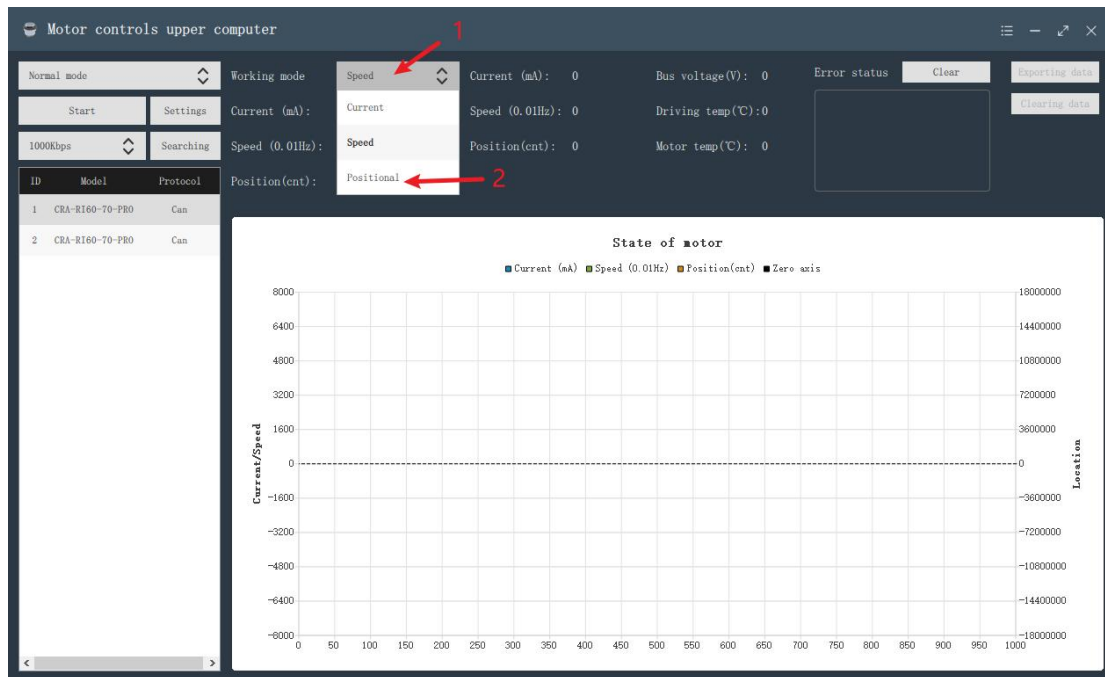
"Click current mode" in the drop-down list of "working mode". Click "Speed mode" to set the speed parameters (the current input box and position input box are not allowed to be input when gray is placed, but the speed input box is allowed to be input). If you input 100 in the speed input box, click Enter to set the speed of 100 to take effect. Click the increase or decrease button to set the parameters and send the corresponding mode parameters





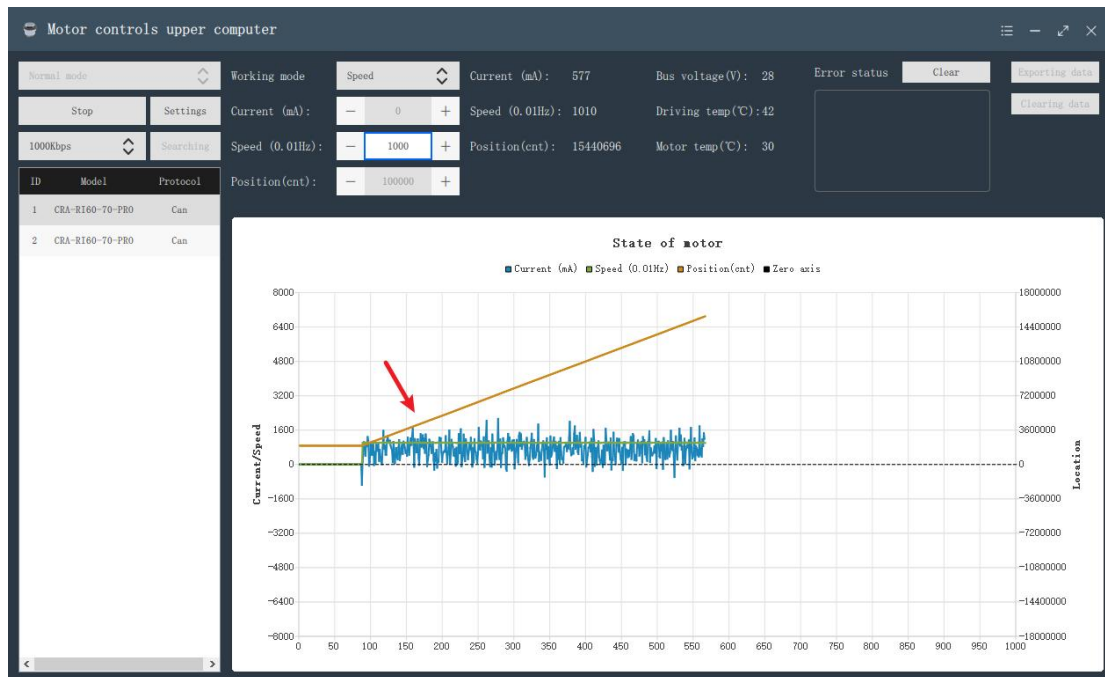
3.1.3.3.Location mode

"Click current mode" in the drop-down list of "working mode", and a drop-down box appears. Click "Position mode" to set the position parameters (the current input box and speed input box are not allowed to be input when gray is placed, but the position input box is allowed to be input). If 100 is input in the position input box, click Enter to set the position 100 to take effect. Click the increase or decrease button to set the parameters and send the corresponding mode parameters



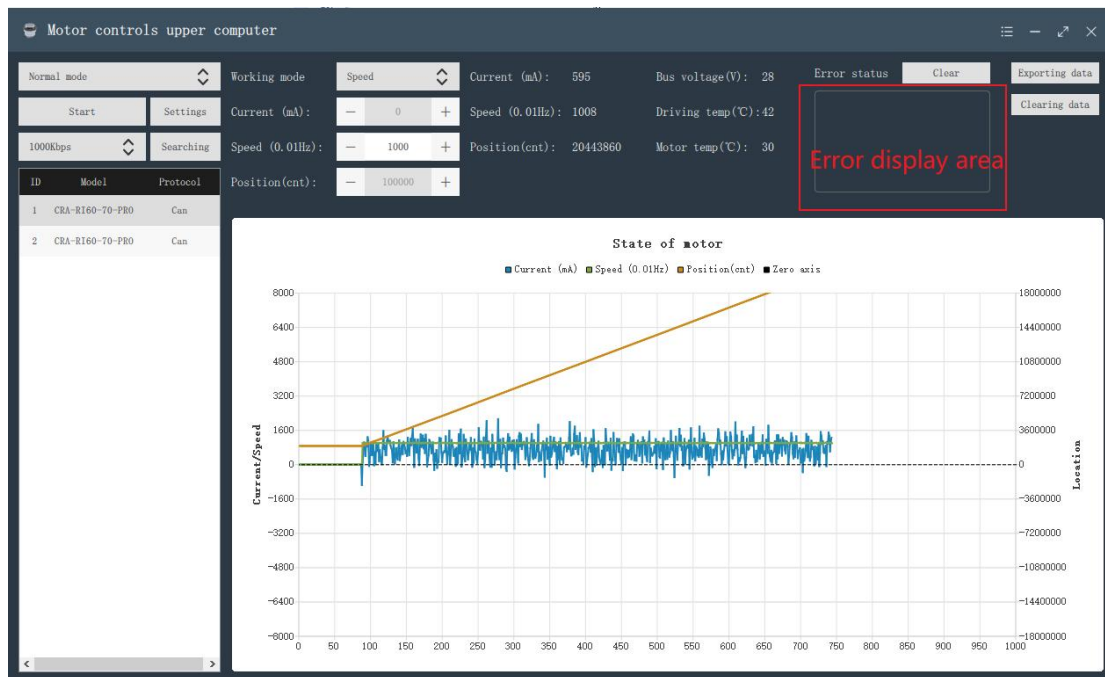
3.1.4. Motor running state and error state, clear

Click "Start motor" to start the motor, and the host computer will display the running state of the motor in real time

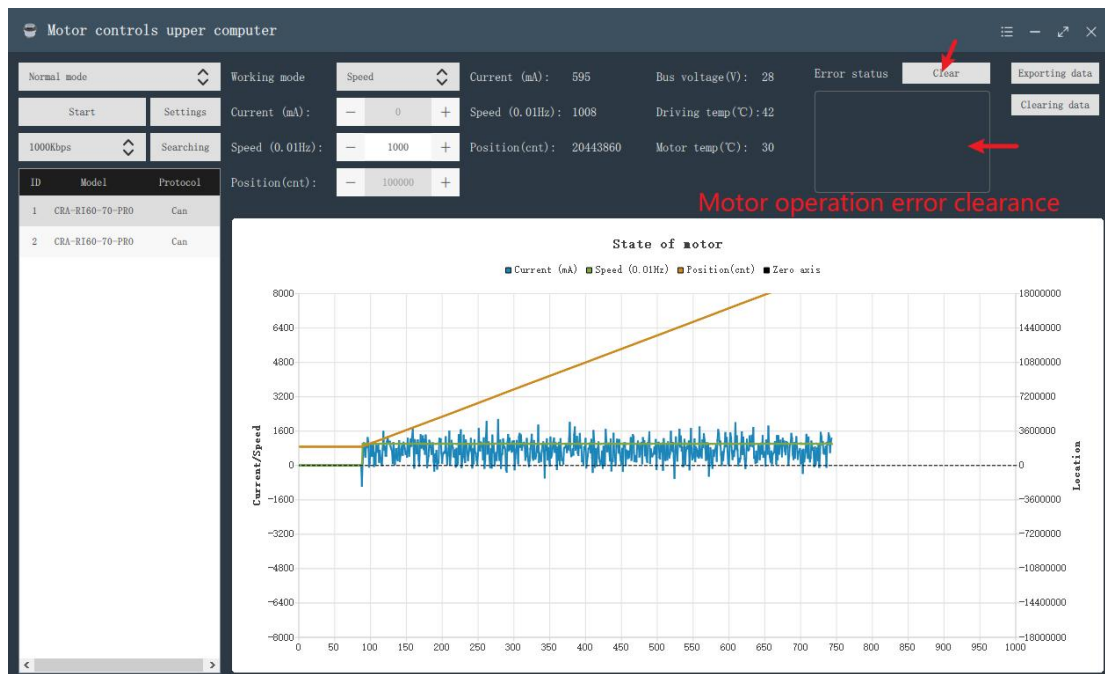


Click "Stop motor", the motor will stop running, and the real-time data and waveform diagram will stop showing

If there is an error in the operation of the motor, it will stop running and the error type will be displayed in the error status box of the host computer

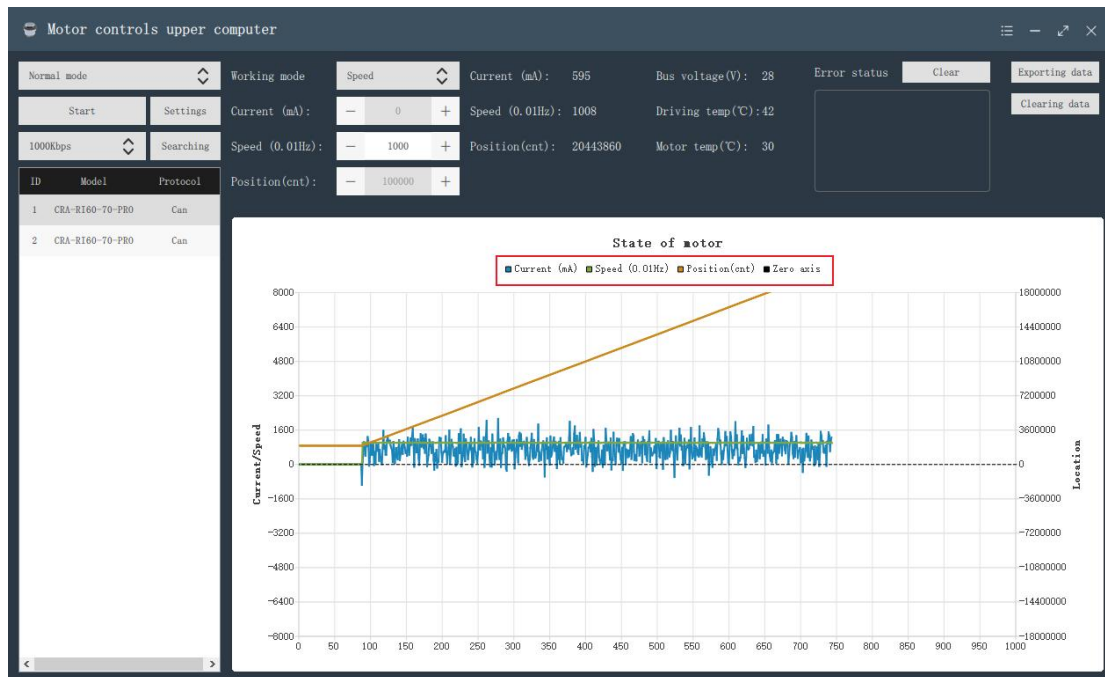


When the troubleshooting is completed,click "Clear Error" to clear the motor error



3.1.5.Wave form diagram

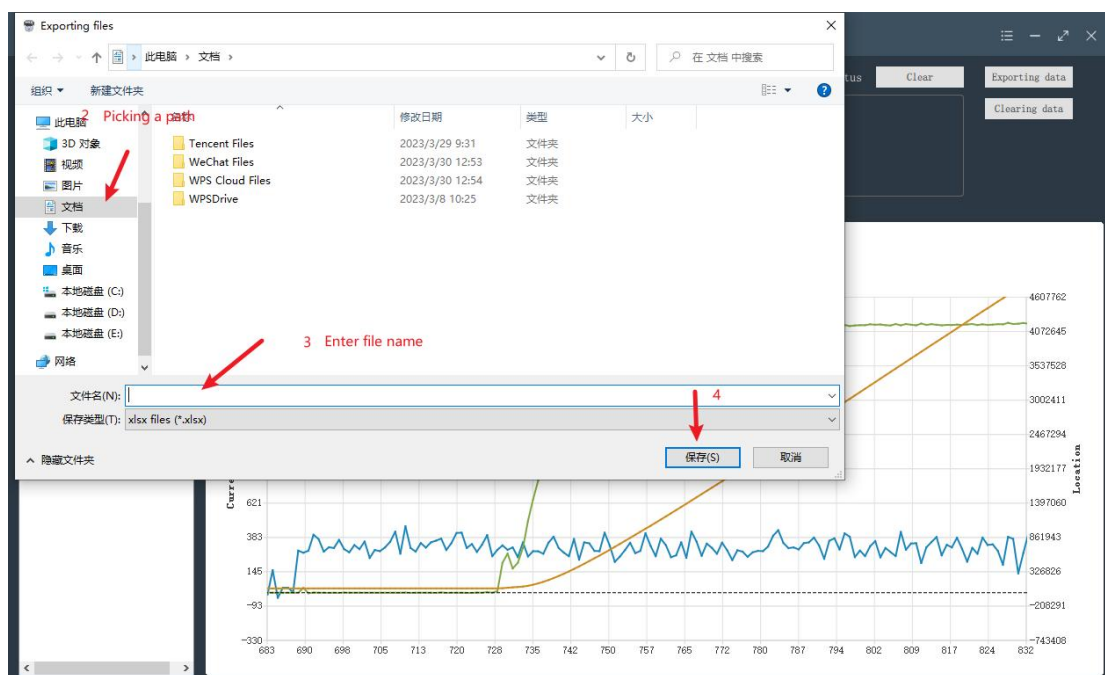
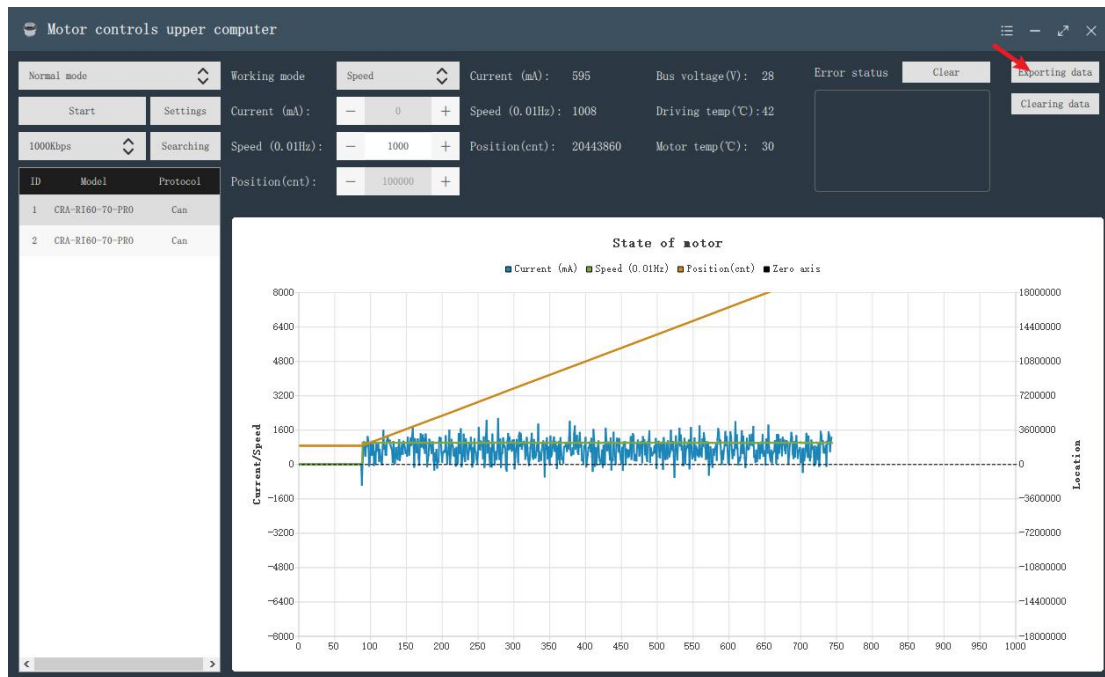
The wave plot contains the current (blue), speed (green), and position (yellow) curves of the motor during operation, and the dots are 0 axes (black).



Moving the mouse wheel will enlarge and shrink the waveform, and holding down the left mouse button will change the position of the waveform according to the position of the mouse. (The coordinate axis will also change when the position is reduced, enlarged and changed.)

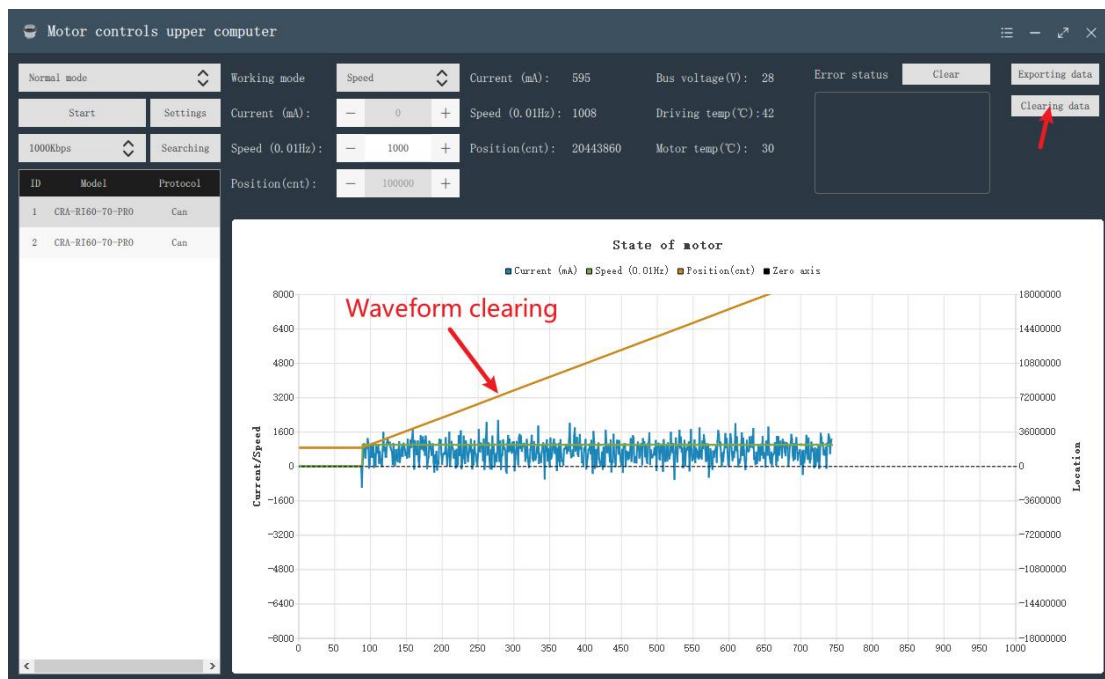
3.1.6.Data export and purge

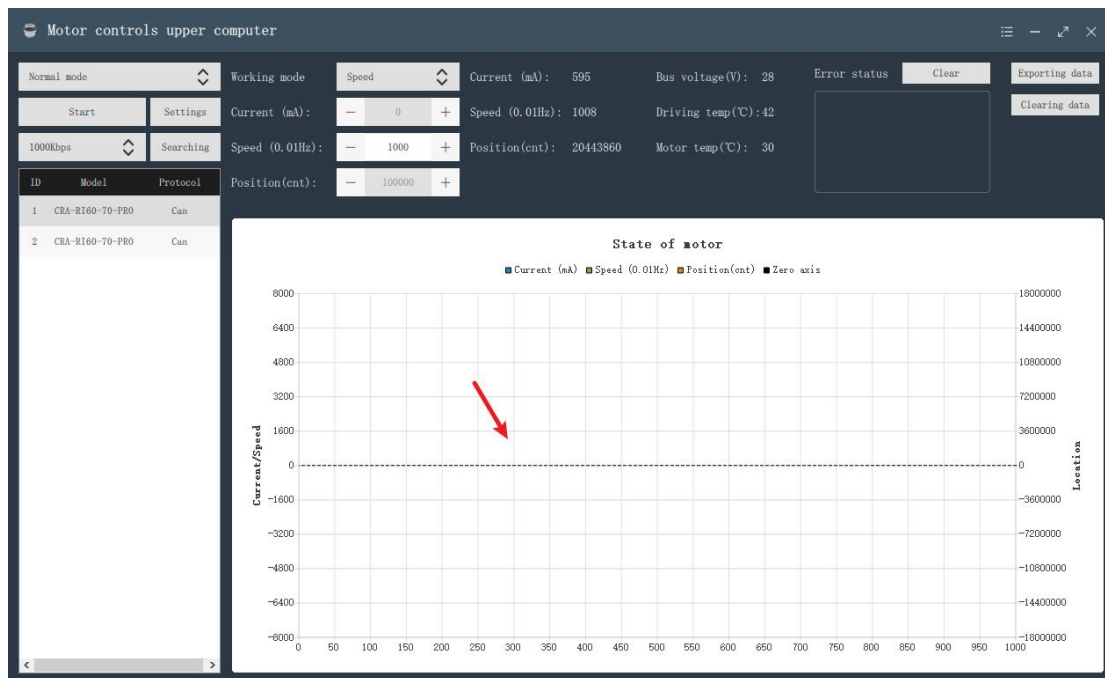
Click "Export data" to open and select the path that needs to be saved. Input the file name and click "Save" to export the data to xlsx. The data includes current, speed, position, bus voltage, drive temperature, and motor temperature



1	电流	速度	位置	总线电压	驱动温度	电机温度
2	0	0	2119534012	30	23	36
3	0	0	2119534012	30	23	36
4	-473	0	2119534012	31	23	36
5	223	0	2119533619	30	23	36
6	452	0	2119533119	31	23	36
7	661	0	2119532924	31	23	36
8	1063	0	2119532951	30	23	36
9	1015	-74	2119532951	30	23	36
10	1423	-74	2119533418	30	23	36
11	1390	147	2119533418	30	23	36
12	864	147	2119534162	31	23	36

Click "Clear Data" to run data clear and waveform chart clear

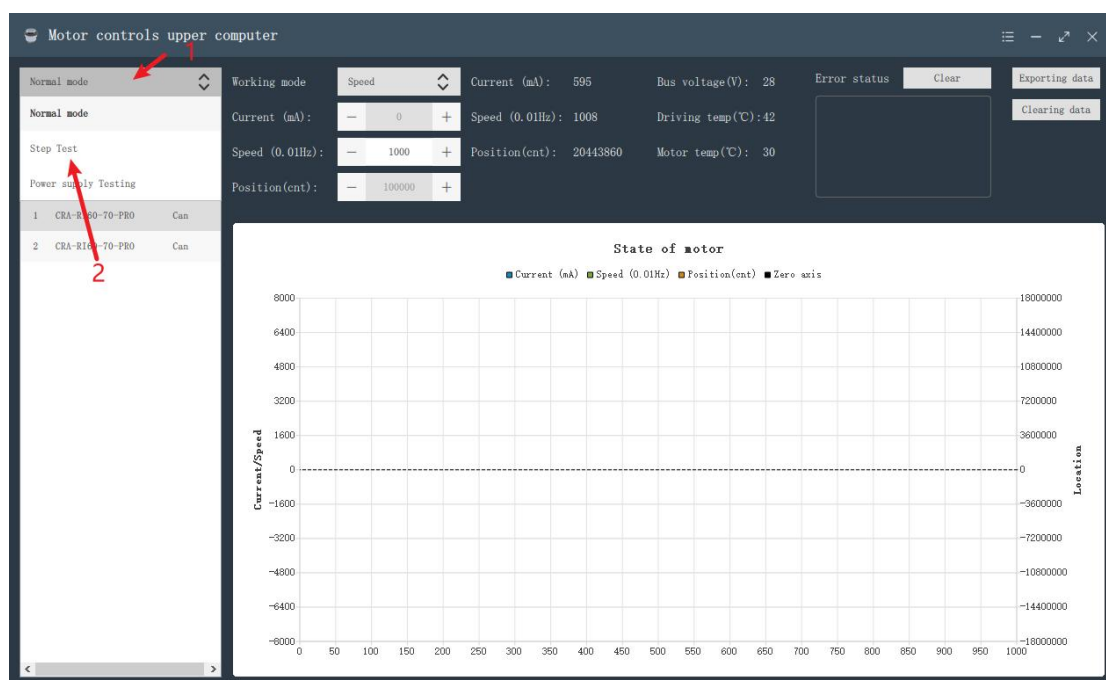




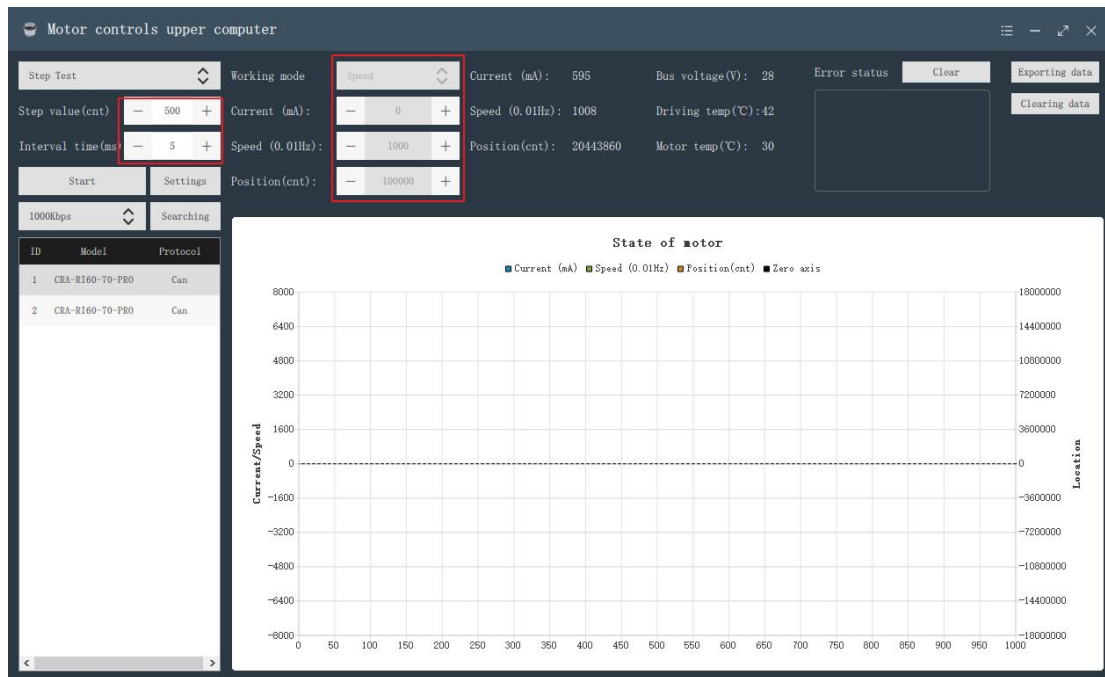
3.1.7 Step test

Click the drop-down box in the upper left corner and click "step Test" in the box to enter the step test interface.

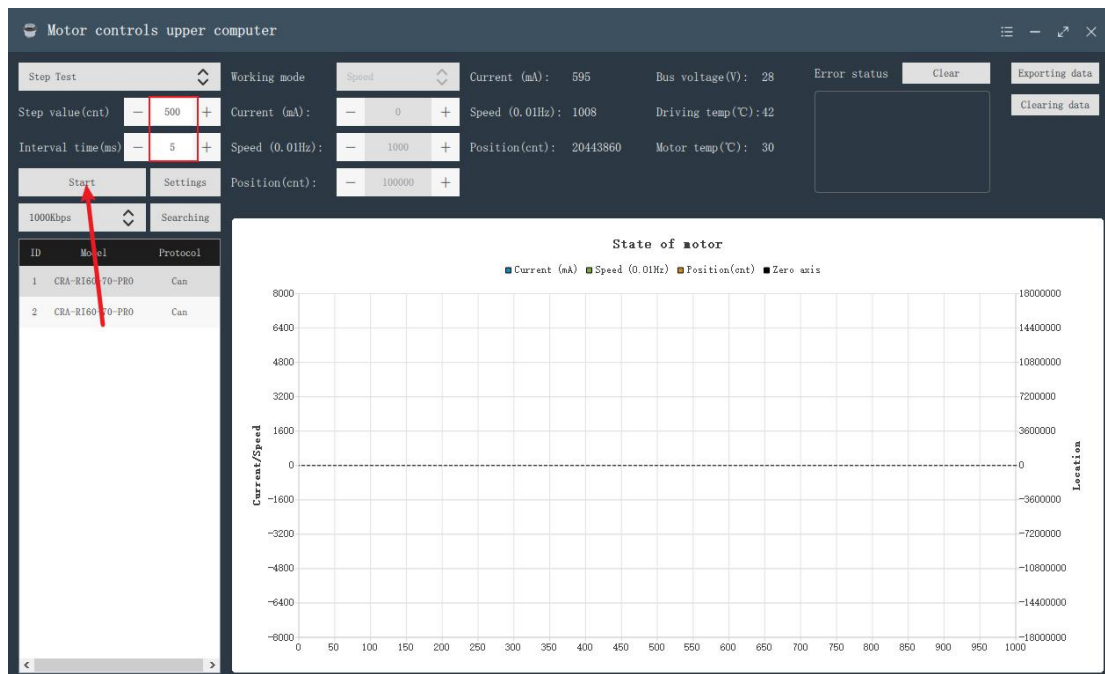
Note: When using step test, please ensure that the current position of the motor is between the maximum position and the minimum position; otherwise, the motor cannot perform step test. You can start the motor in normal mode, select position mode, and enter 0 (or any other value between maximum and minimum position).



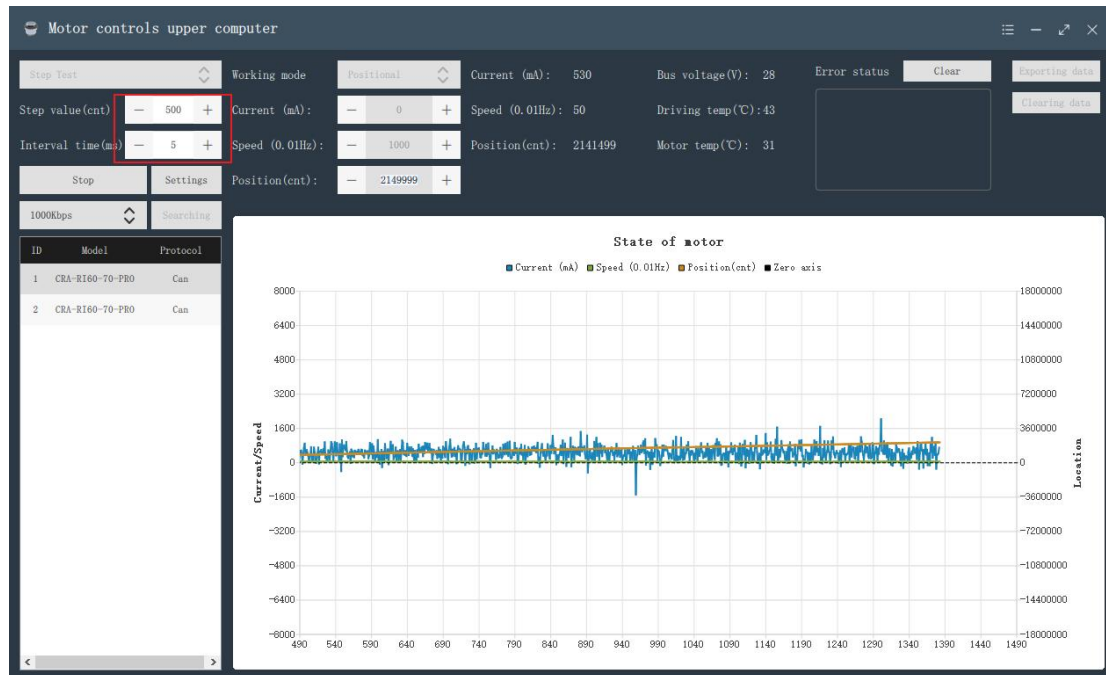
Step value and interval input boxes will be added to the "step test" interface, and related keys of the control motor will be gray.



Input step value (1-100000) and interval time (1-100), click start motor, step test can be carried out.

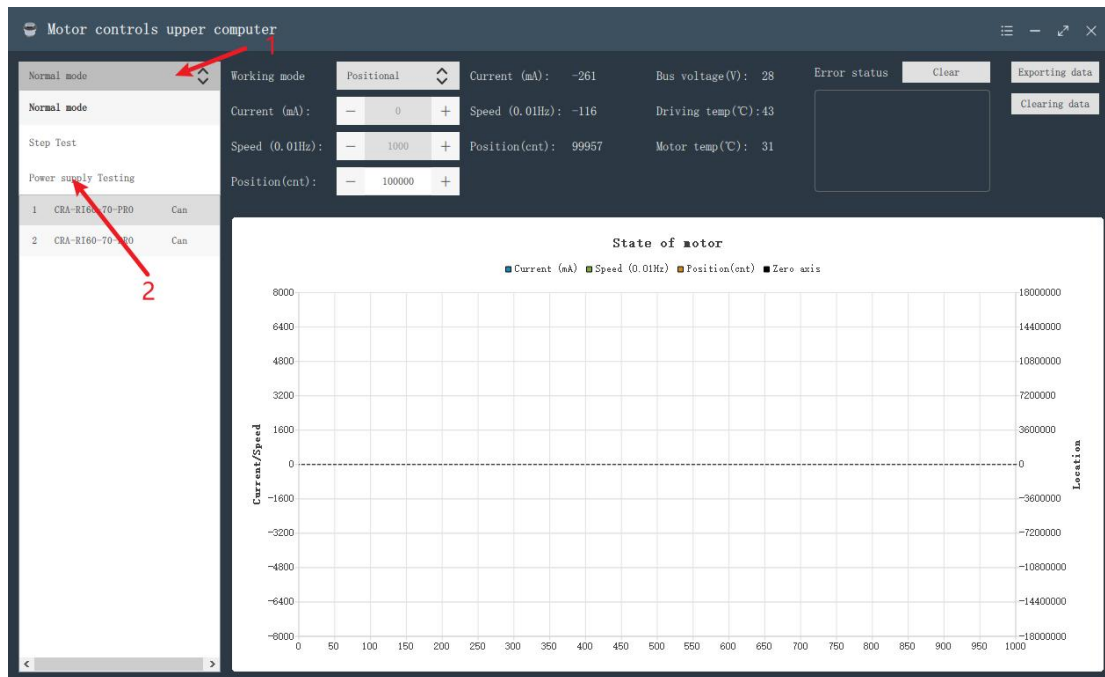


For example, if you enter step 500, the interval is 5. The motor will increase the position value by 500 every 5 ms. When the maximum position is reached, it will start to decrease the position value by 500. After reaching the minimum position, it will increase again, and so on. Both the step value and the interval time can be changed during testing.

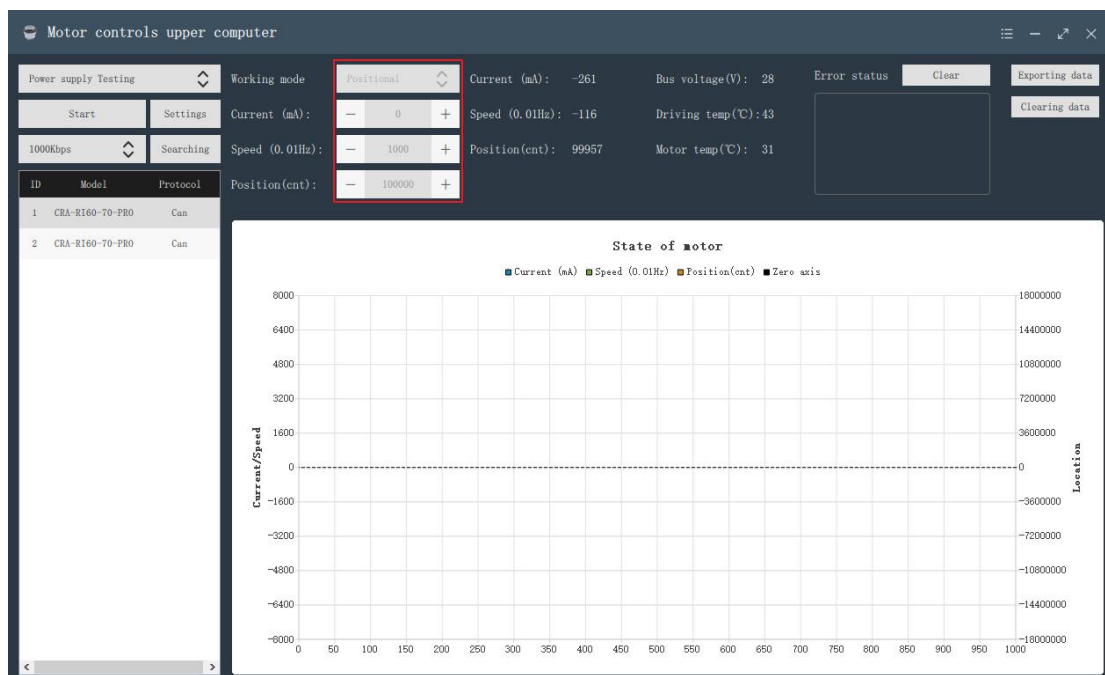


3.1.8 Power supply testing

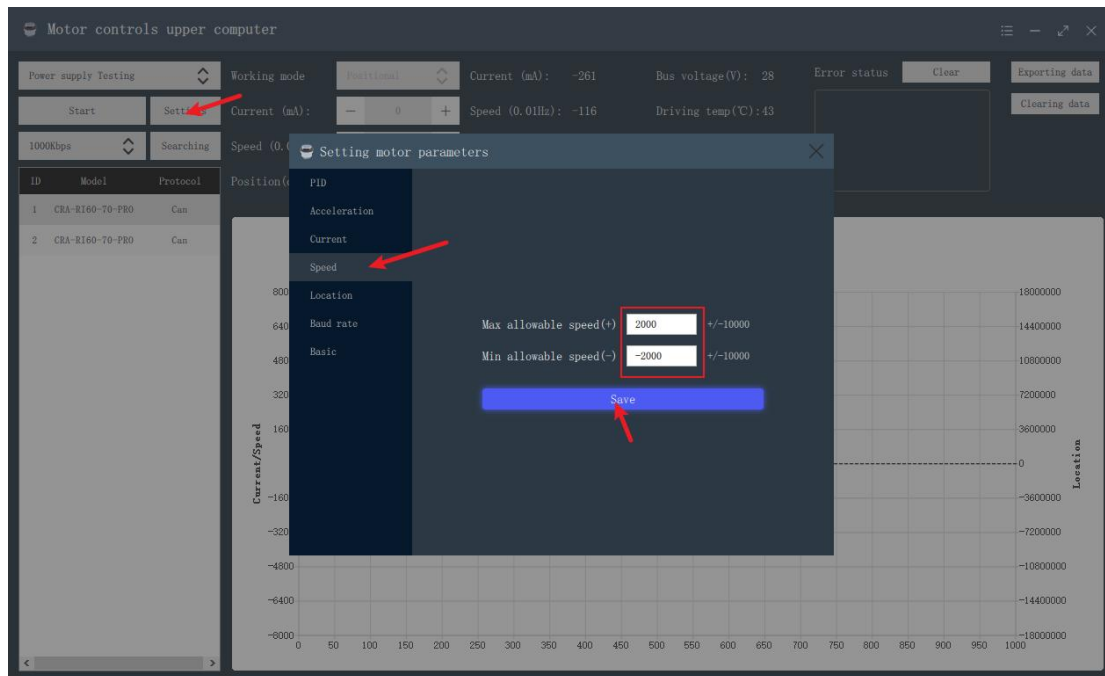
Click the drop-down box in the upper left corner, and click "Power Test" in the box to enter the power test interface.



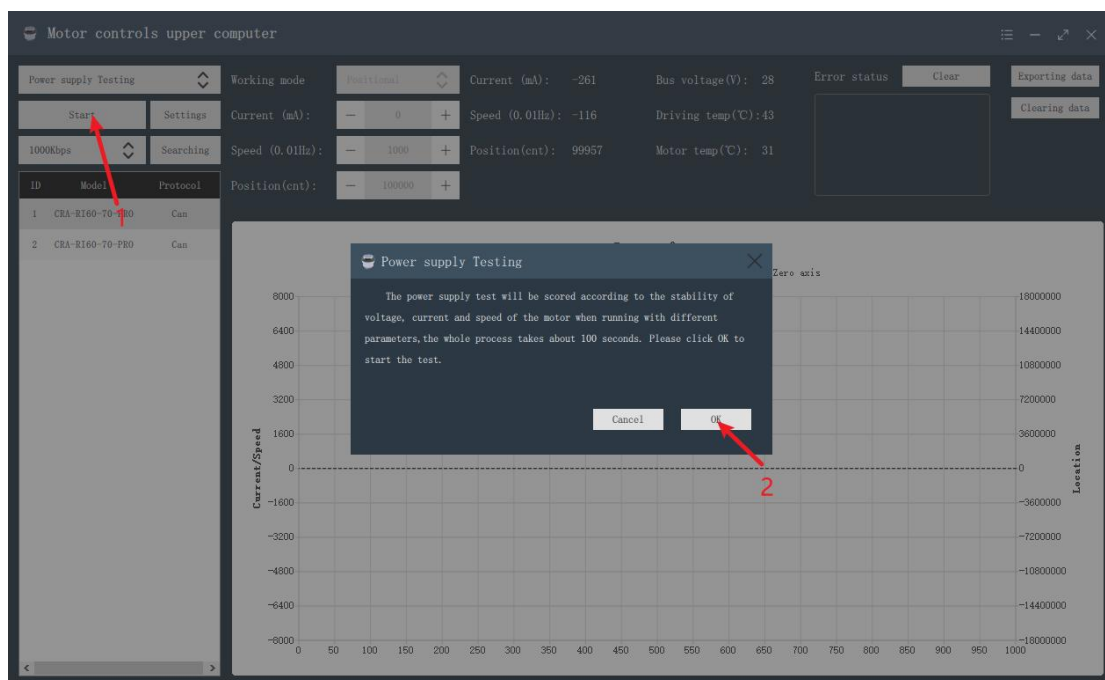
"Power Test" interface, the control motor related controls set ash.



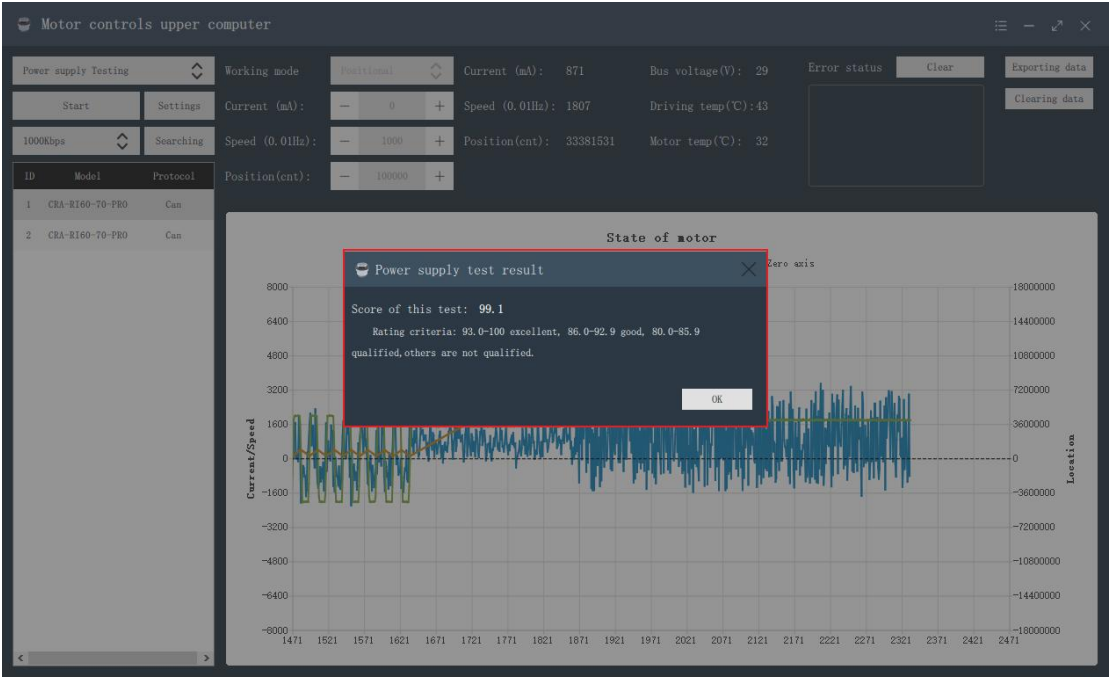
"Power Test" carries out different running states according to the speed parameters of the motor. The speed parameters are set before the test.



Click "Start the motor", and a pop-up appears in the middle of the software. Click "OK" to start the power test.



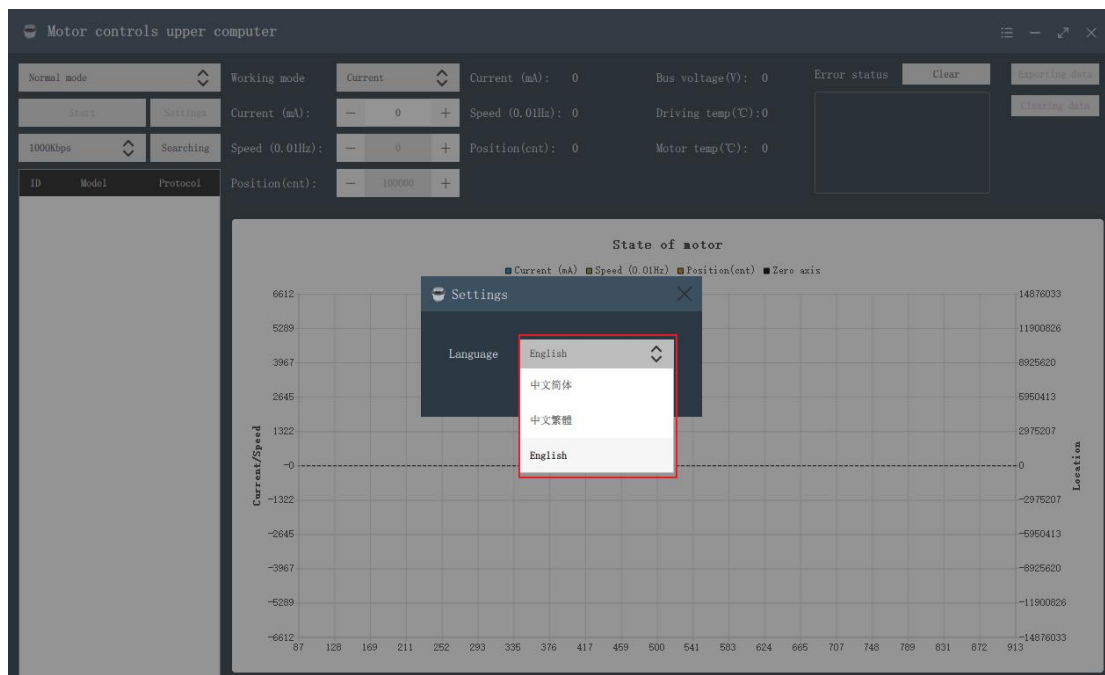
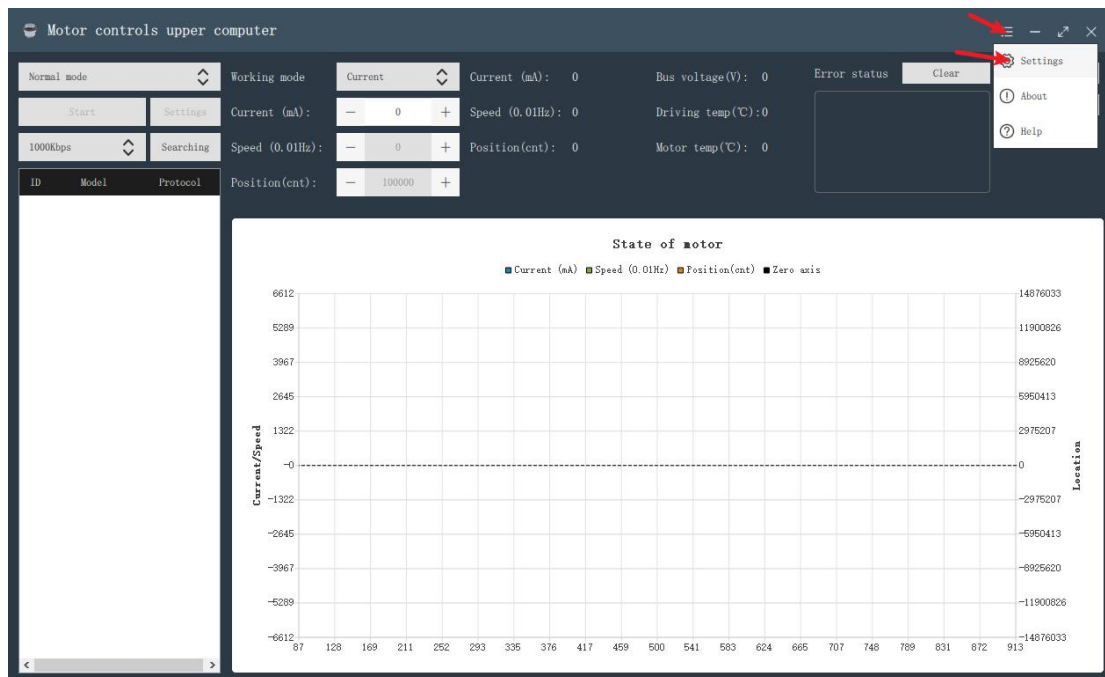
The test process is about 100 seconds. When the test is over, the motor automatically shuts down and a pop-up window showing the test results appears in the middle of the software interface.



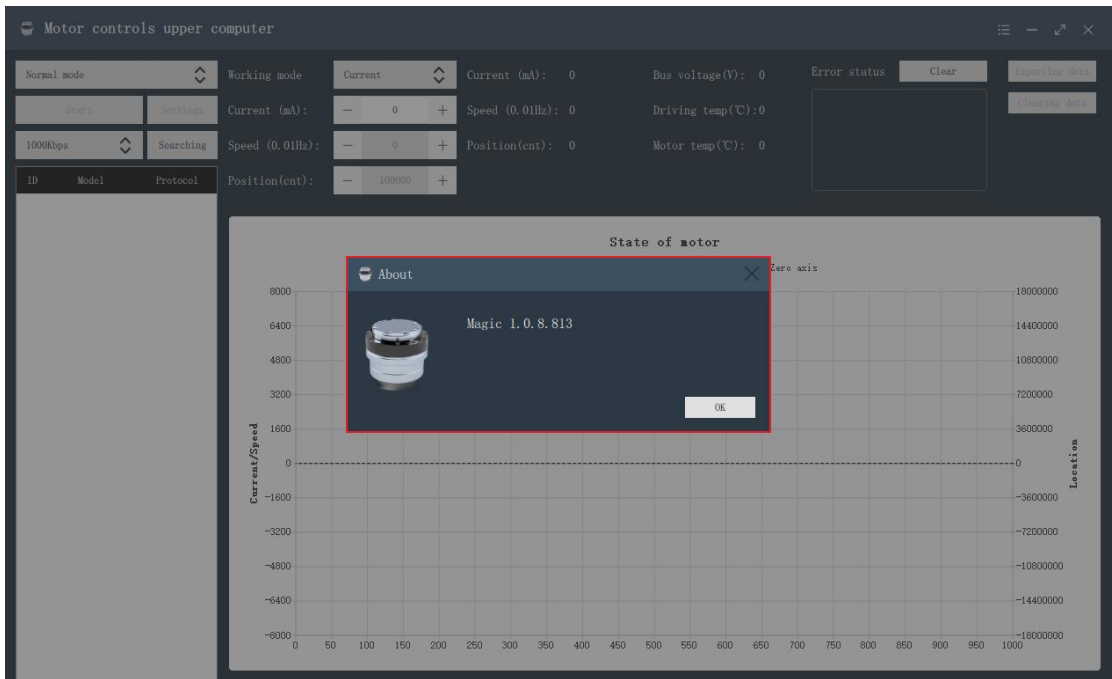
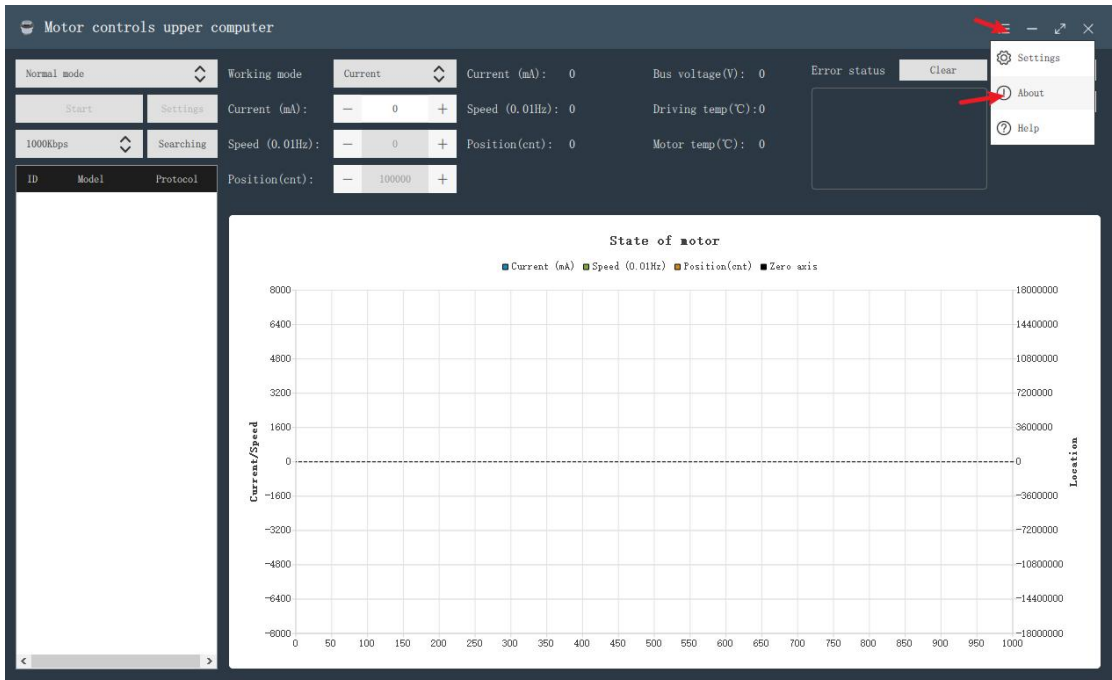
3.1.9 Menu

3.1.9.1 Settings

Click "Menu" and then click Settings, you can set the interface to English, 中文简体, 中文繁体



3.1.9.2 About



3.1.9.3 帮助

