

# ServoTuning User Manual

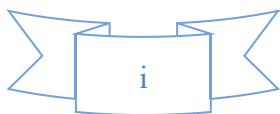
(V1.00)



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ServoTuning software is auxiliary debugging software for servo systems in a PC environment, features include a parameter configuration wizard, parameter read/write and save functions, parameter import/export capabilities, status inquiry, and real-time variable oscilloscope monitoring, significantly enhancing debugging efficiency.

## 1、Preparation before operation

This software is a portable version, Locate file  ServoSoftware\_English in directory file ServoTuning\_English and double-click it to run it directly.

Windows 7 and later operating systems do not require driver installation; Windows XP and earlier operating systems require installation of the .NET driver package(users need to download it themselves. If an error occurs during software operation, a prompt will pop up to install the corresponding .NET driver package ).

User must supply their own 485-to-USB converter for connecting the servo to PC. Driver installation depends on converter specification.

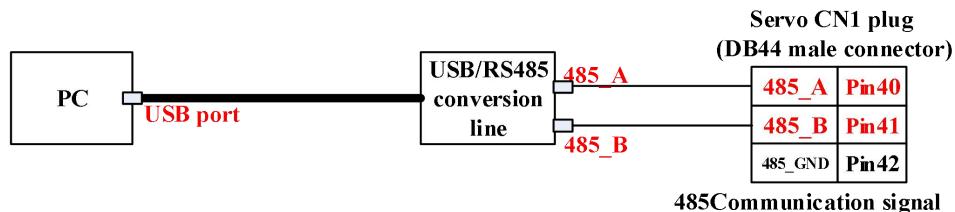
Attention: **Please ensure your servo has RS-485 communication functionality to work with this software.**

Suggested RS485 to USB conversion cable (alternative brands are acceptable):



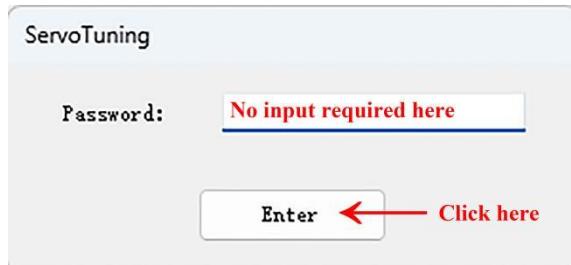
## 2、PC and servo connection instructions

After completing the above preparations, connect the PC to the servo drive's 485 communication port using the USB/RS485 converter cable as shown in the diagram below:



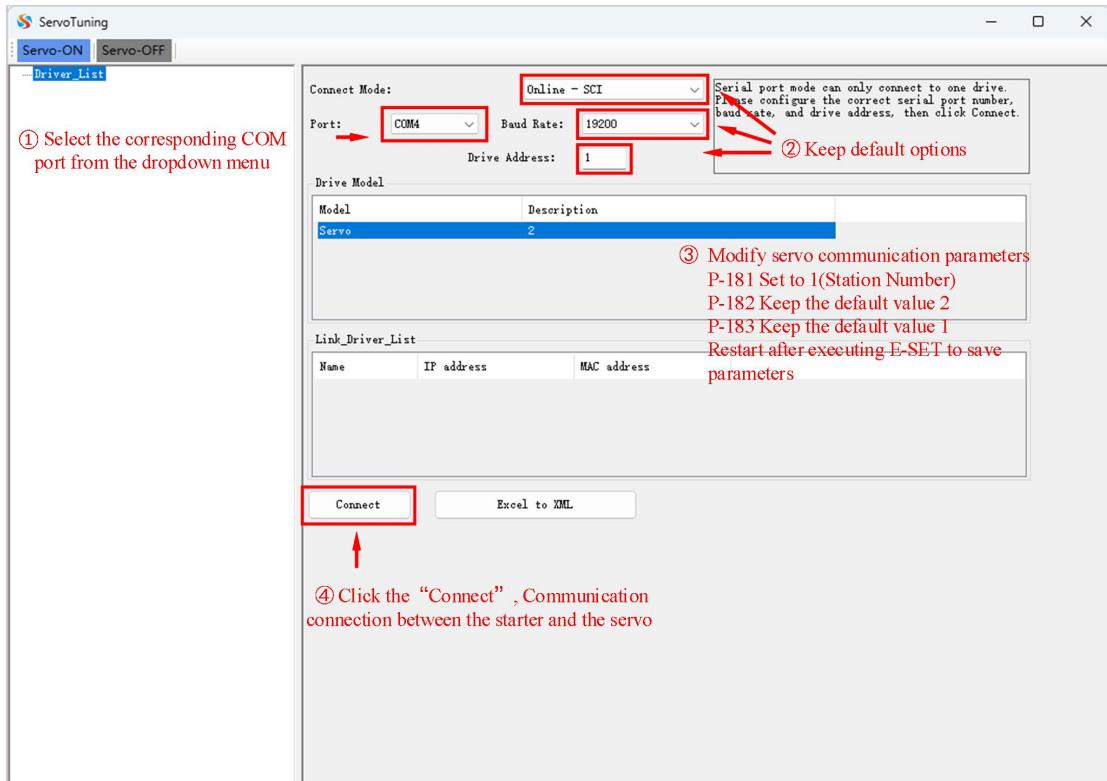
## 3、Start software

This software is a portable version, Locate file in directory file ServoTuning\_English and double-click it to run it directly.(Do not modify or delete any other files in this directory, as this may cause software malfunction).Create a desktop shortcut for the .exe file to launch the software directly. Startup interface below:

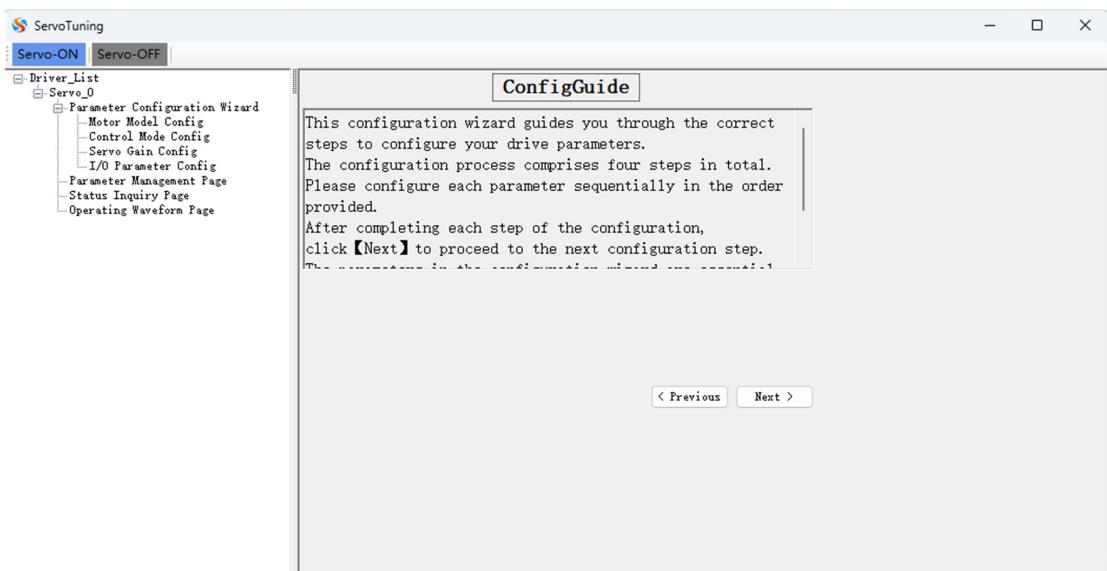


## 4、Configure communication port and parameters

The data interaction between ServoTuning software and the servo drive is established via the PC's serial port and the drive's RS485 port. Proper configuration of the PC's communication port and servo drive communication parameters (P-181/P-182/P-183) is required. Users must correctly configure the PC's communication port and servo communication parameters according to the following steps ①②③④:



**Attention :** After clicking the “Connect” button as described above, if the connection fails, a “Communication Error” prompt will appear. Please check the following: The connection cable is normal or not/Servo communication parameters are set correctly or not/Servo power loss or not, The display interface after a successful connection is as follows:



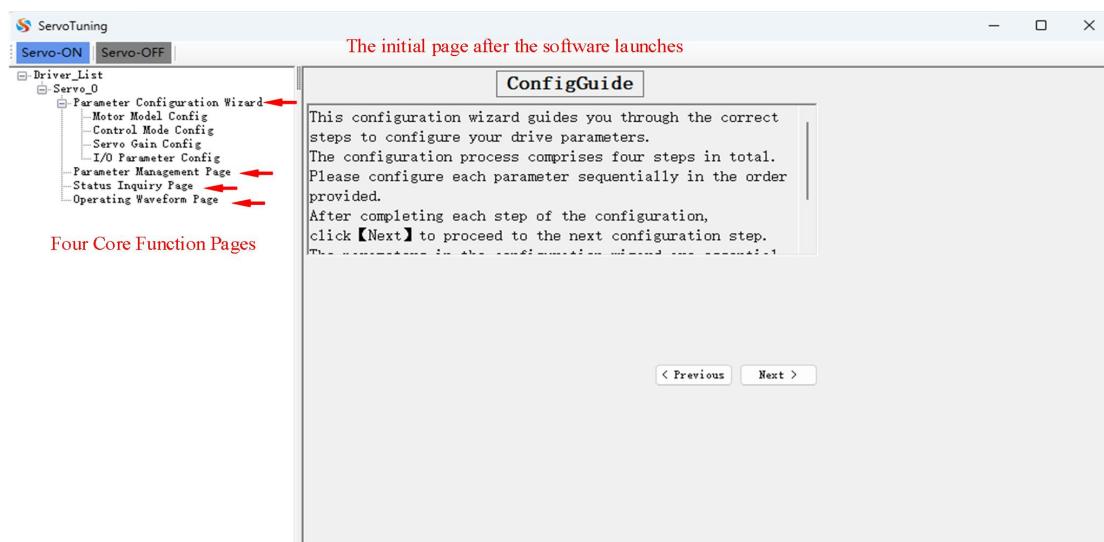
## 5、Parameter Configuration Wizard instructions

Parameter Configuration Wizard guides users through the correct steps to configure common parameters for servo. It is divided into four subpages: Motor Model Config (motor model parameter configuration), Control Mode Config (control mode parameter configuration), Servo Gain Config (servo gain parameter configuration), and I/O Parameter Config (Input/Output Parameter Function Configuration). The parameter configuration steps are as follows:

- ① On the Motor Model Config page, Set Motor Series (P-099) and Motor Code (P-002), then **perform the E-DEF operation (this step must be performed)**, restore the motor's default control parameters.
- ② On the Control Mode Config page, set the Control mode (P-004) and the basic parameters for the corresponding mode according to actual requirements.
- ③ On the Servo Gain Config page, adjust the stiffness and filter parameters as needed based on the actual performance.
- ④ On the I/O Parameter Config page, configure the functional parameters for DI / DO according to actual requirements.

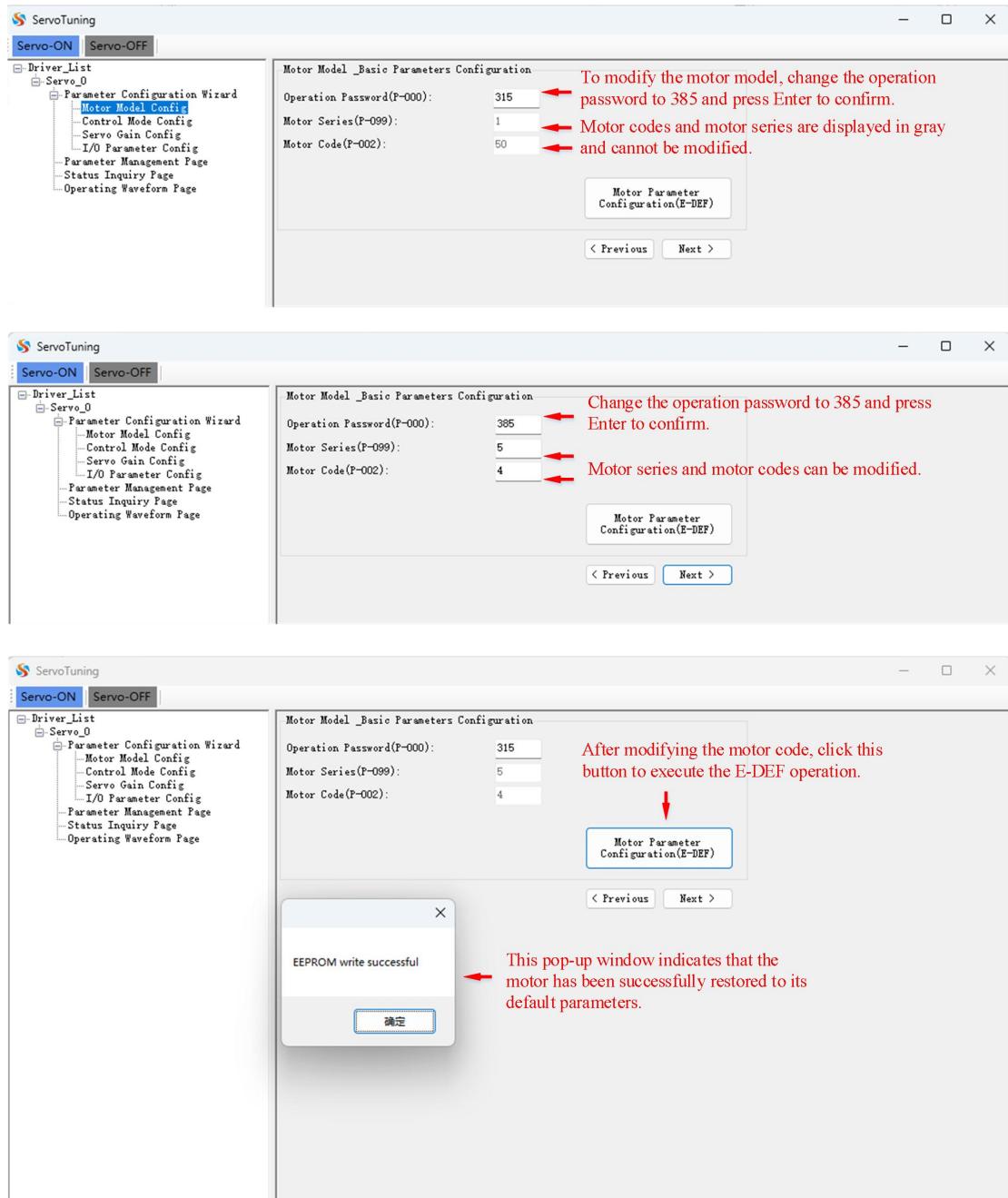
After completing the above parameter settings, then **perform the E-SET operation**, the set parameters will be saved to the memory chip. The Configuration Wizard page lists only the essential parameters required for normal operation of the servo. Configuration of other parameters must be performed on the “Parameter Management Page.”

The interface of the parameter configuration wizard is displayed as follows:



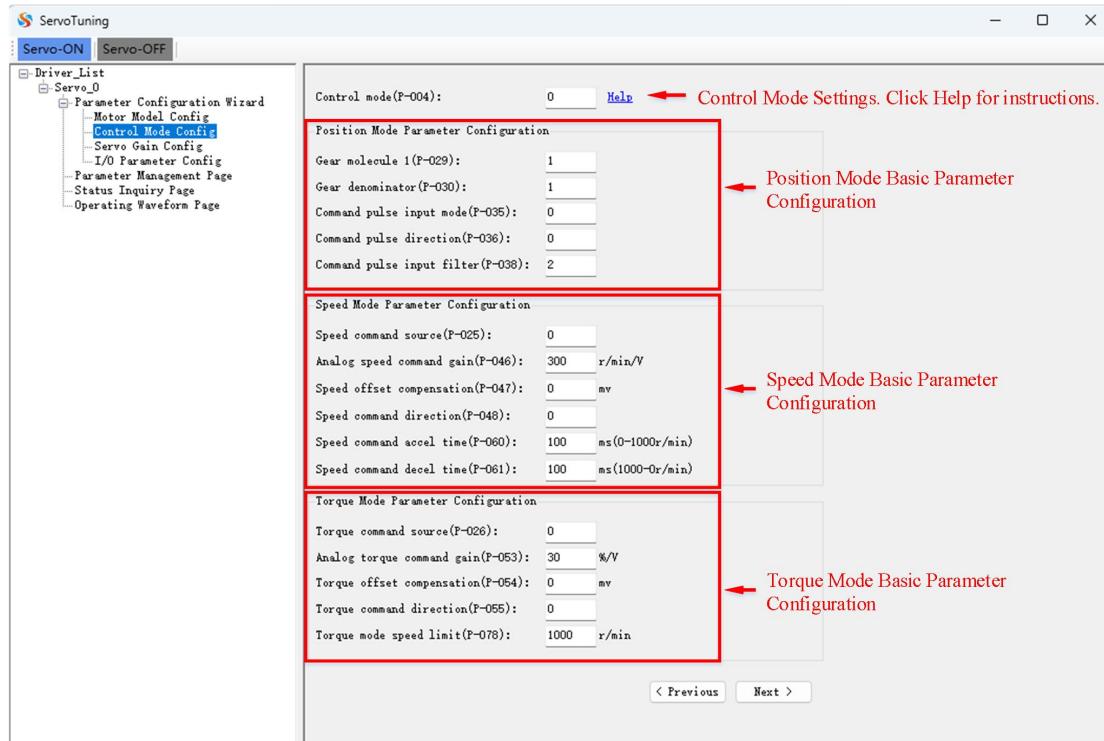
## 5.1 Motor Model Config

On the Motor Model Config page , Set Motor Series (P-099) and Motor Code (P-002), then **perform the E-DEF operation (this step must be performed)**, restore the motor's default control parameters. The specific operation instructions are shown in the figure below (after modifying the values, press the Enter key on your computer to confirm):



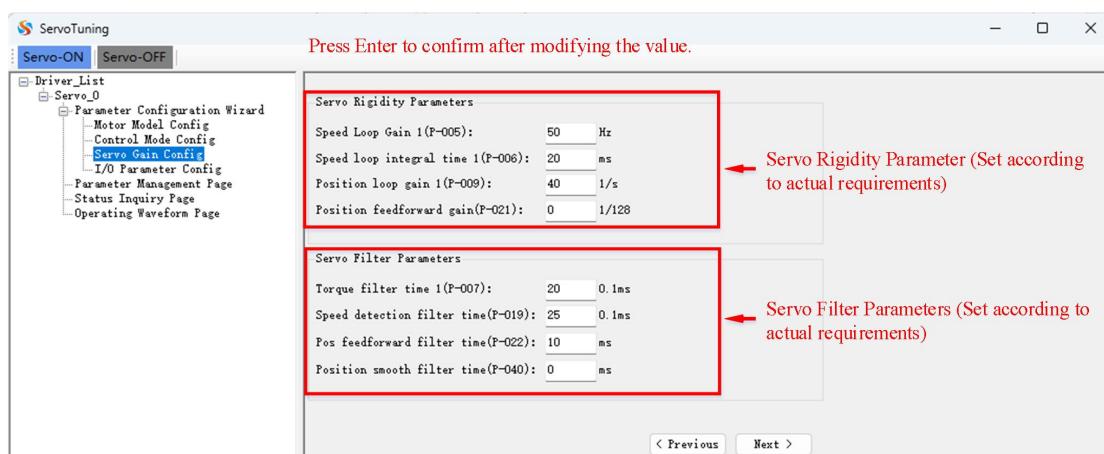
## 5.2 Control Mode Config

After completing the motor model configuration and E-DEF operation, click “Next” to enter the Control Mode Config page. On this page, you can set the servo's control mode (P-004) and related parameters for position mode, speed mode, and torque mode. Specific operation instructions are shown in the figure below (press Enter to confirm after modifying values):



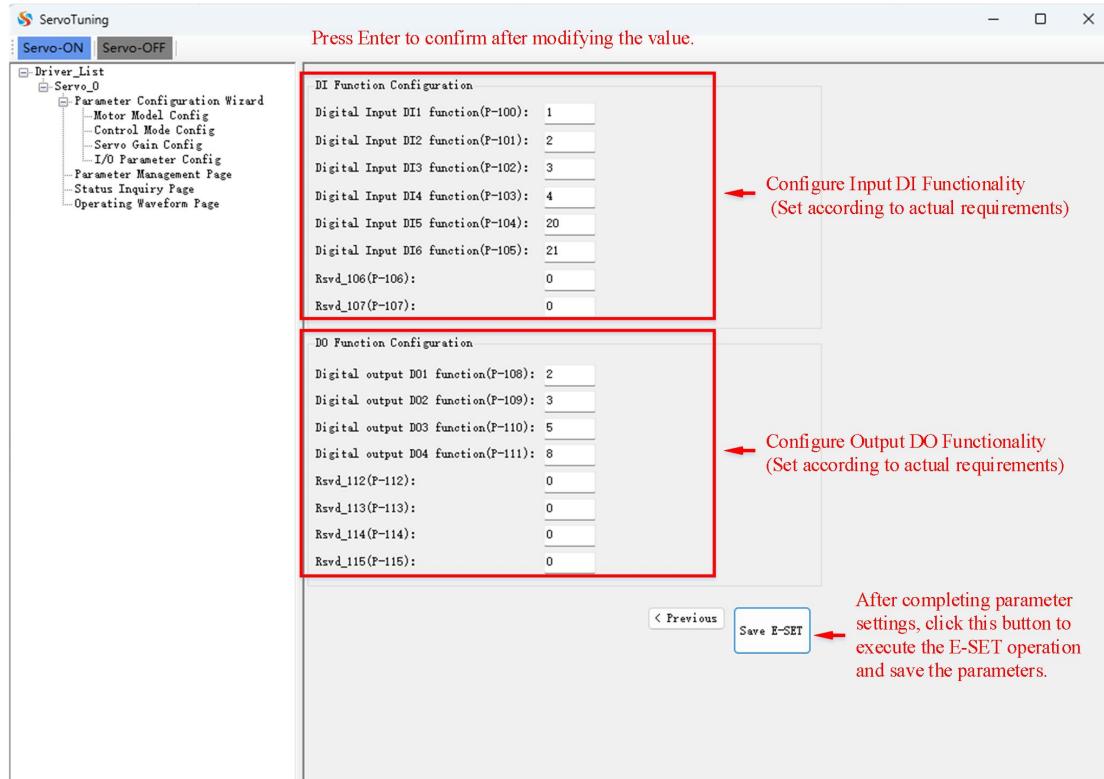
## 5.3 Servo Gain Config

On the Servo Gain Config page, you can adjust the stiffness and filter parameters as needed based on the actual performance. The specific operation instructions are shown in the figure below (press Enter to confirm after modifying values):



## 5.4 I/O Parameter Config

On the I/O Parameter Config page, you can set the functional parameters for DI and DO according to actual requirements. The specific operation instructions are shown in the figure below (press Enter to confirm after modifying values):

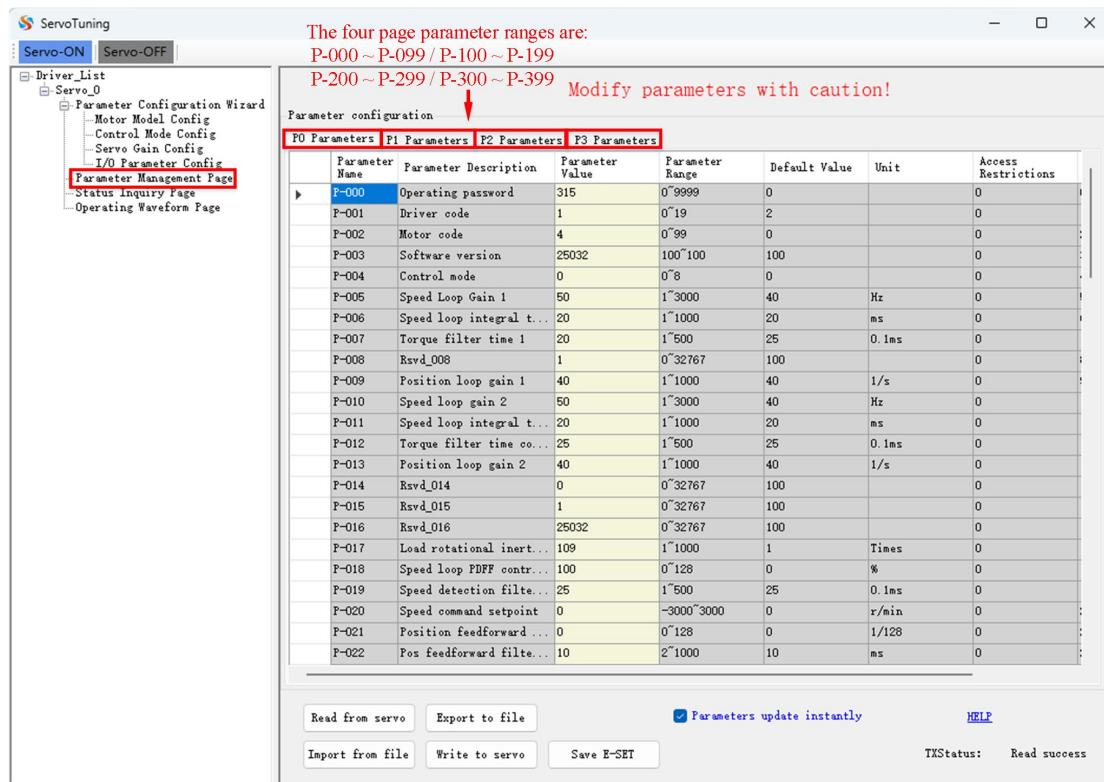


## 6、Parameter Management Page user guide

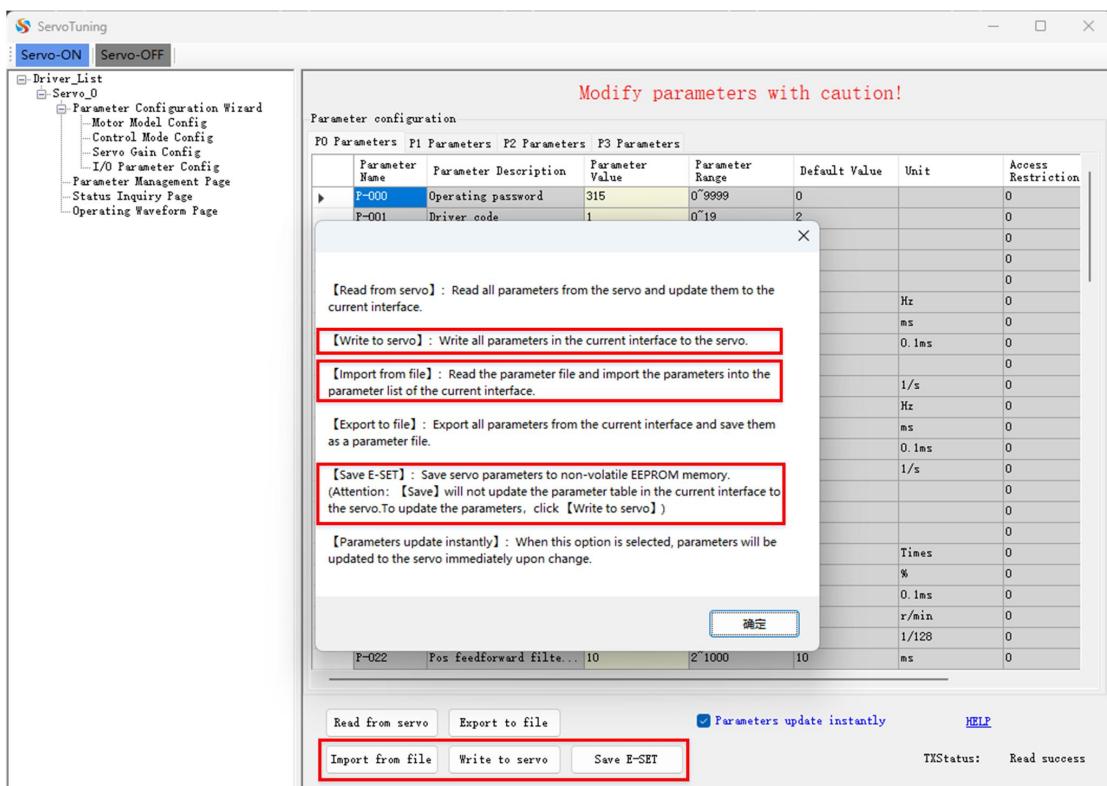
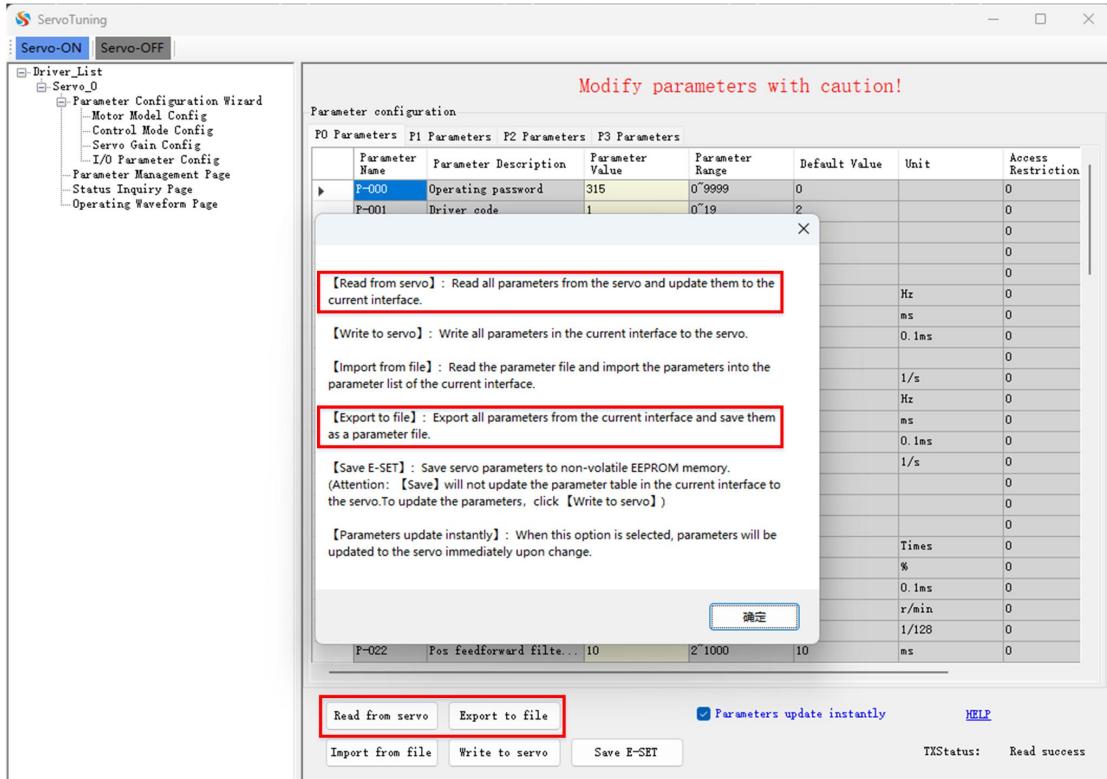
Parameter Management Page enables reading, modifying, and saving all parameters. It also allows exporting parameters from a debugged servo drive as a parameter file, or importing saved parameter files into a new servo drive awaiting debugging.

### 6.1 Function description of parameter management

The interface and related functions of the Parameter Management Page are shown in the following figures:



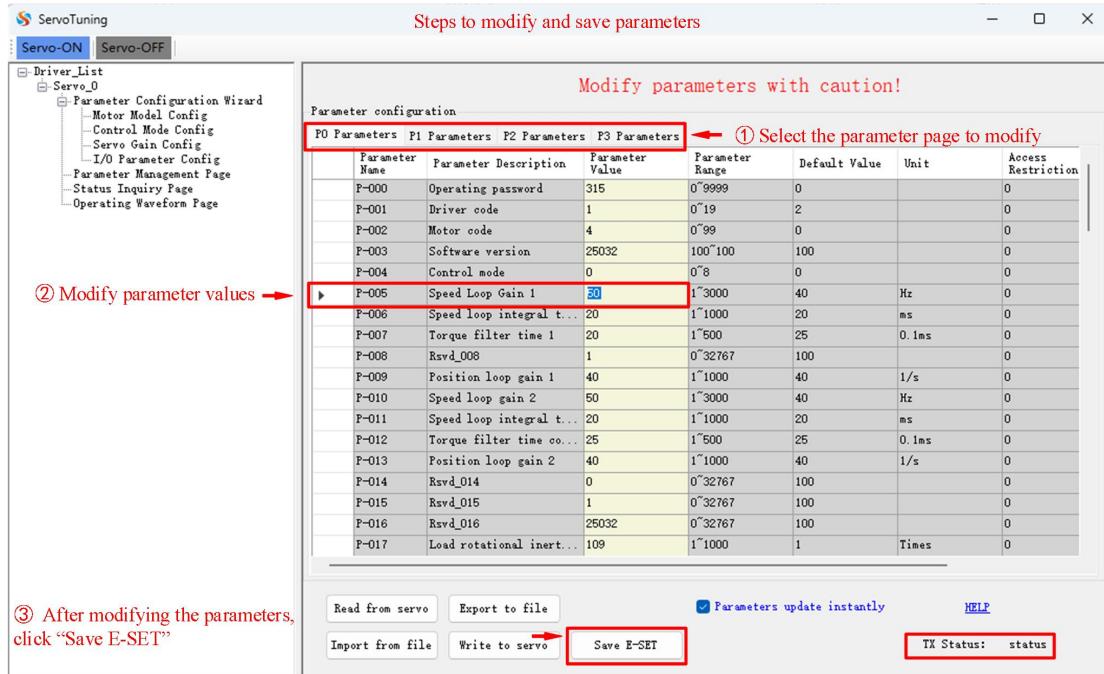
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## 6.2 Steps for modifying/saving parameters

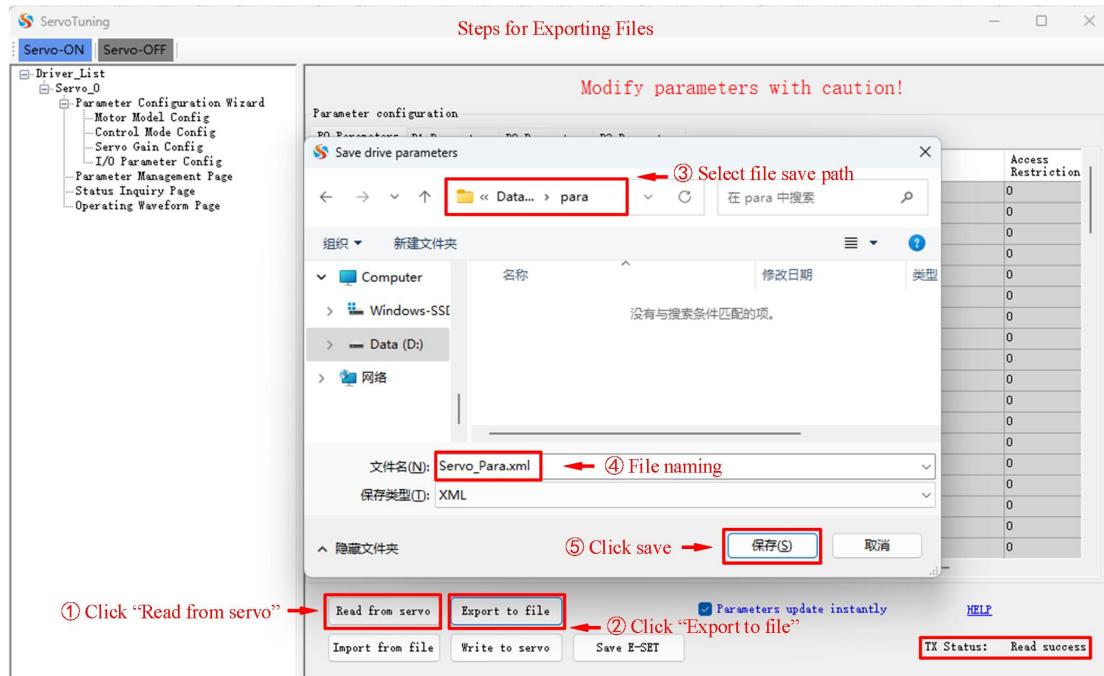
The steps for modifying/saving parameters are shown in the following diagram

①②③ :



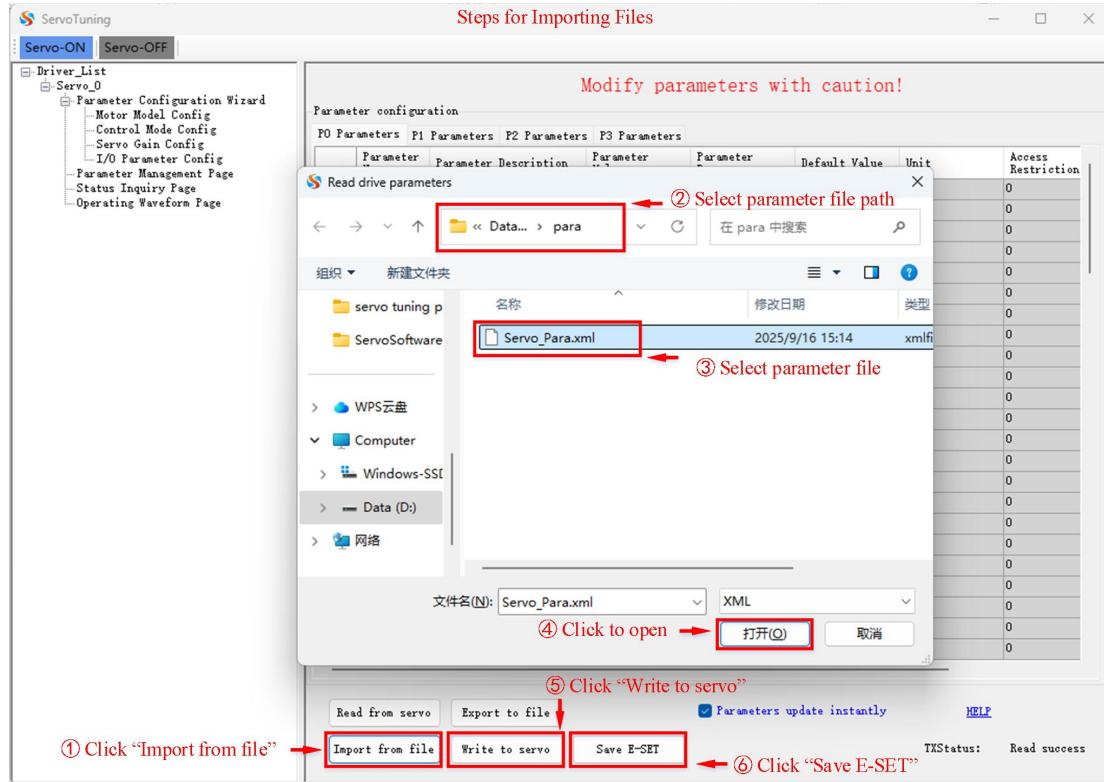
## 6.3 Steps for exporting parameter files

The steps to export and save the parameters of a debugged servo as a parameter file are shown in the following diagram ①②③④⑤ :



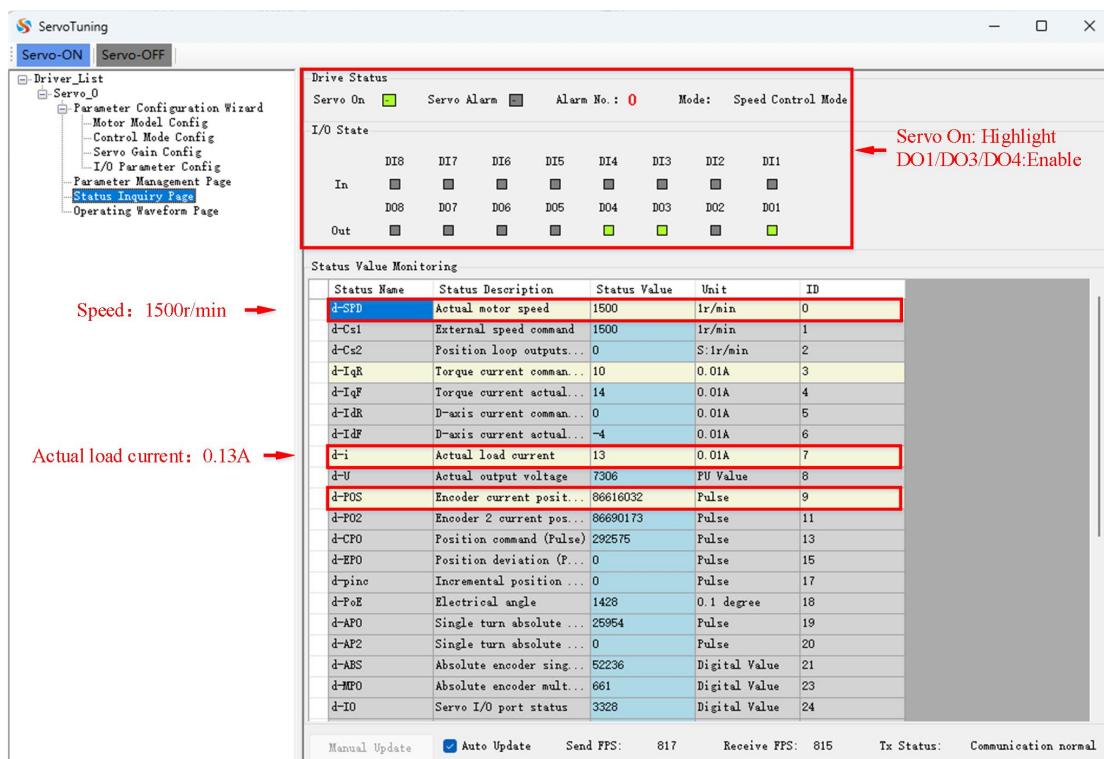
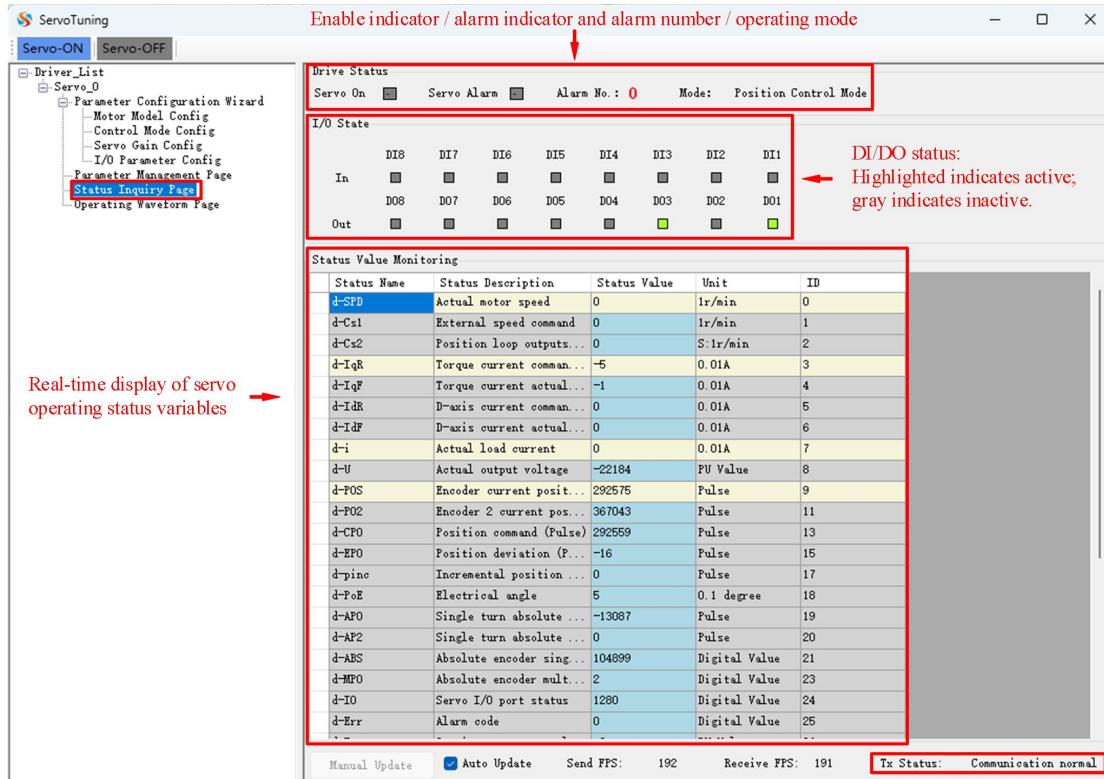
## 6.4 Steps for importing parameter files

The steps to import the saved parameter file into the new servo drive to be debugged are shown in the following diagram ①②③④⑤⑥:



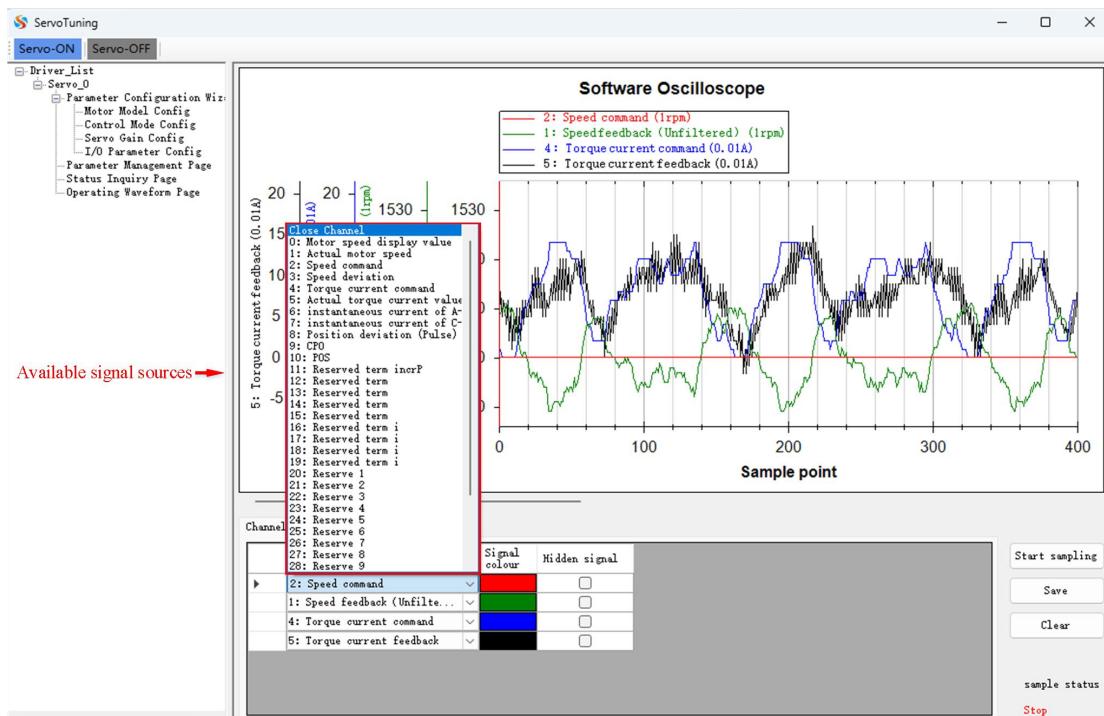
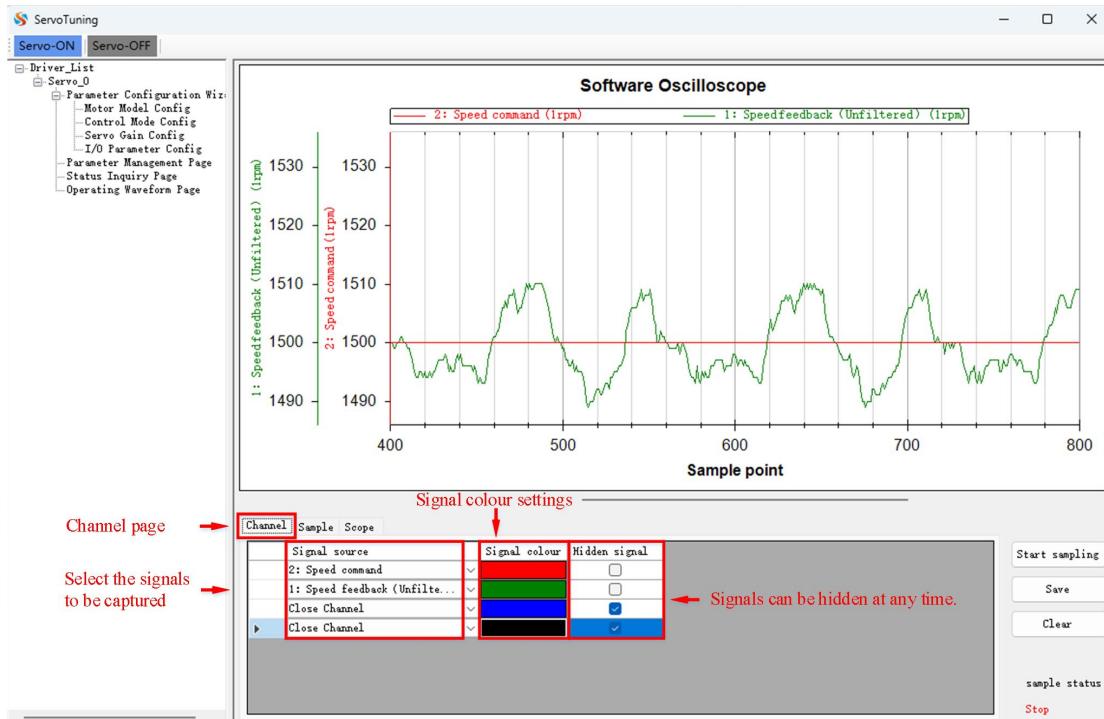
## 7、Status Inquiry Page

The interface and related display items of the Status Inquiry Page are illustrated in the following figures:

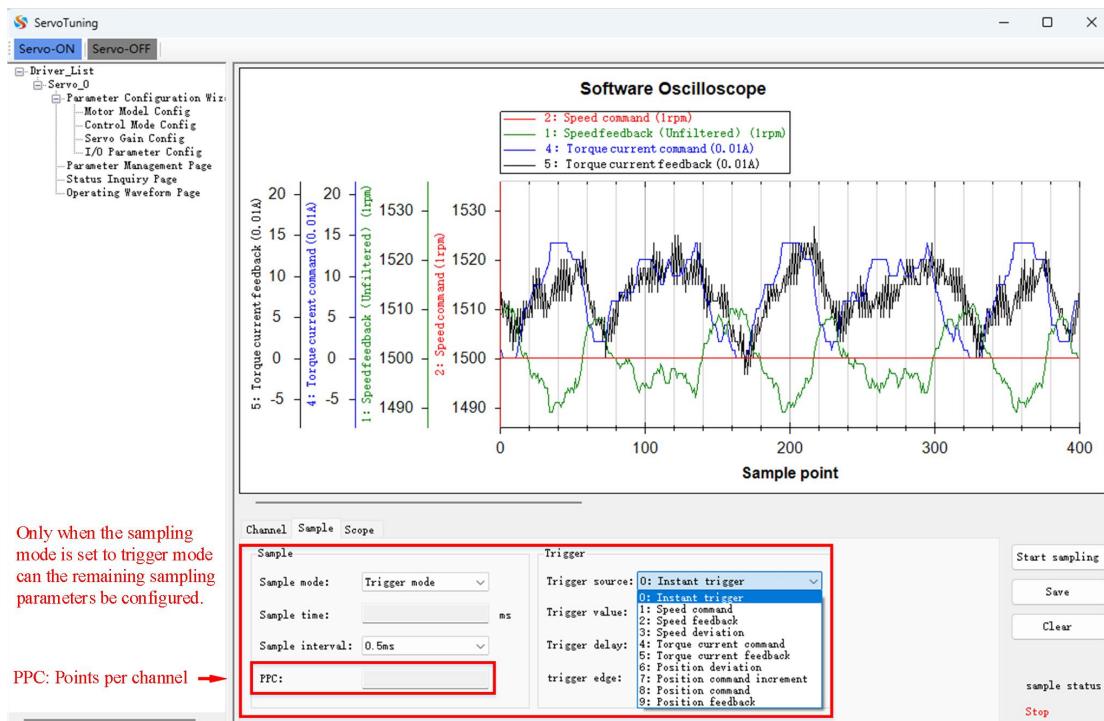
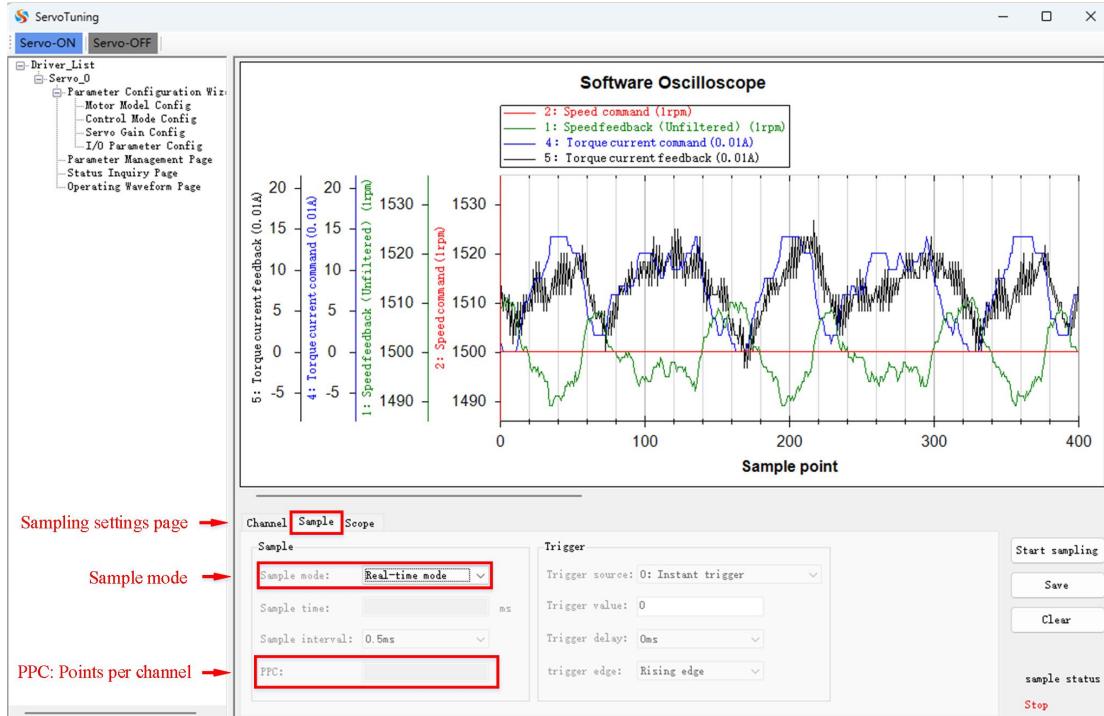


## 8、Operating Waveform Page user guide

First, select the desired signal to capture on the Channel page. Four channels can be collected simultaneously. For unused channels, it is recommended to select “Close Channel” and choose “Hidden signal”.



The Sample page allows you to configure parameters such as sampling mode and trigger method. When the trigger mode is set to real-time mode, other parameters cannot be configured. In this case, the real-time signal will be displayed, but the sampling accuracy of this mode is relatively poor.



After configuring the signal channel and sampling parameters, click “Start sampling” to capture the signal. Click ‘Save’ to export the waveform to a file, and click “Clear” to erase all waveforms.

On the Scope page, the Sample status displays the sampling status in real time. Selecting “Auto-zoom” automatically adjusts the waveform display. You can configure the oscilloscope's axes to modify the size and position of the displayed waveform.

