

# **DRIVES PC MONITORING SOFTWARE USER MANUAL**

**EURA DRIVES ELECTRIC CO., LTD**

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# 1. Overview

EuraDV is Drivers PC monitoring software of inverter E2000/E2100/E800/E810/EP66/EM30/E2000-P/E600/E2100-P/E2300/EP66-P and servo SD20-G/SD20-E/SD10-Z/SDE15-G/SDE20-G products, which independently developed by EURA DRIVES ELECTRIC CO., LTD. EuraDV can support oscilloscope, parameters management, system status monitor and other dedicated function module.

## 1.1 Operating Environment

### ➤ Hardware Environment

**CPU: Main frequency 1G Hz and above**

**RAM: Above 256MB**

**Hard Disk: Above 40GB**

### ➤ Software Environment

**Operating System: Windows XP、Windows 7、Windows 8、Windows 10**

### ➤ Field Environment

**If the site interference, please use the industrial computer, isolated serial conversion equipment and shielded connection line, so as not to interfere with the data transmission error, resulting in abnormal EuraDV operation.**

## 1.2 Software Parameters

➤ **Servo Station Number: Inverter(0~255) , Servo(1~254)**

➤ **Quantity of Supported Parameter: 2048**

➤ **Real-time Oscilloscope Sampling Period: 20~500ms**

➤ **Max Quantity of Cam Point: 450**

## 1.3 Corresponding to the lower computer program version number

➤ **Servo SD20-G: 1.0408 and above versions;**

➤ **Servo SDE15-G: 15.00 and above versions;**

➤ **Servo SDE20-G: 2.12 and above versions;**

- **Servo SD20-E: 1.0304 and above versions;**
- **Servo SD10-Z: 1.34 and above versions;**
- **Inverter E600: 1.00 and above versions;**
- **Inverter E2000/E2100: 5.20 and above versions;**
- **Inverter E2000-P: 1.10 and above versions;**
- **Inverter E2100-P/E2300: 6.10 and above versions;**
- **Inverter E800L/E810L: 3.00 and above versions;**
- **Inverter E800H/E810H: 5.20 and above versions;**
- **Inverter EP66: 1.20 and above versions;**
- **Inverter EP66-P: 2.00 and above versions;**
- **Inverter EM30: 1.14 and above versions;**

## 2. Software Installation

- Run the installing software: EuraDV V1.24 Setup\_EN.exe, the first page of setup wizard displays. Operate in sequence as prompts till the automatic installation has finished.

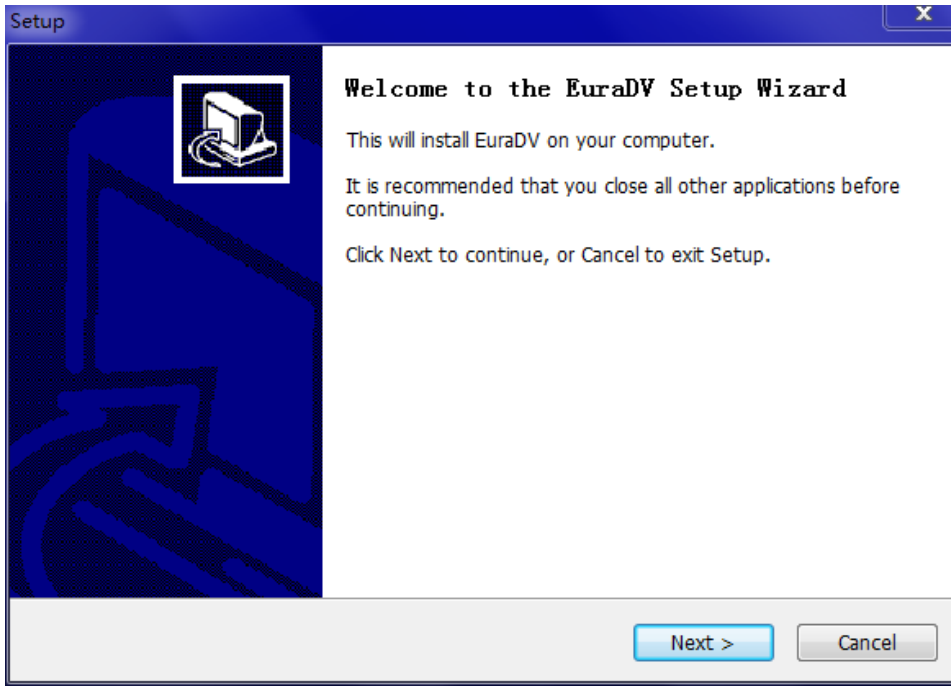


Fig 2-1 Setup Wizard

- Left click "Next", enter the interface of install, repair or uninstall options, select "Install".

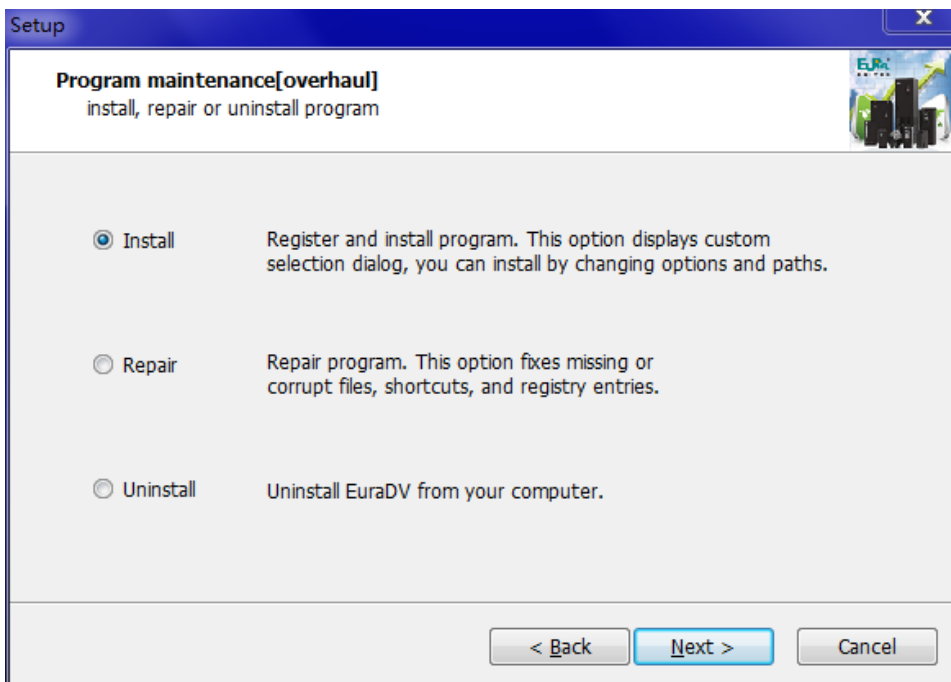


Fig 2-2 Setup Wizard

- Left click “Next” to confirm the installation agreement, select “I accept the agreement”.

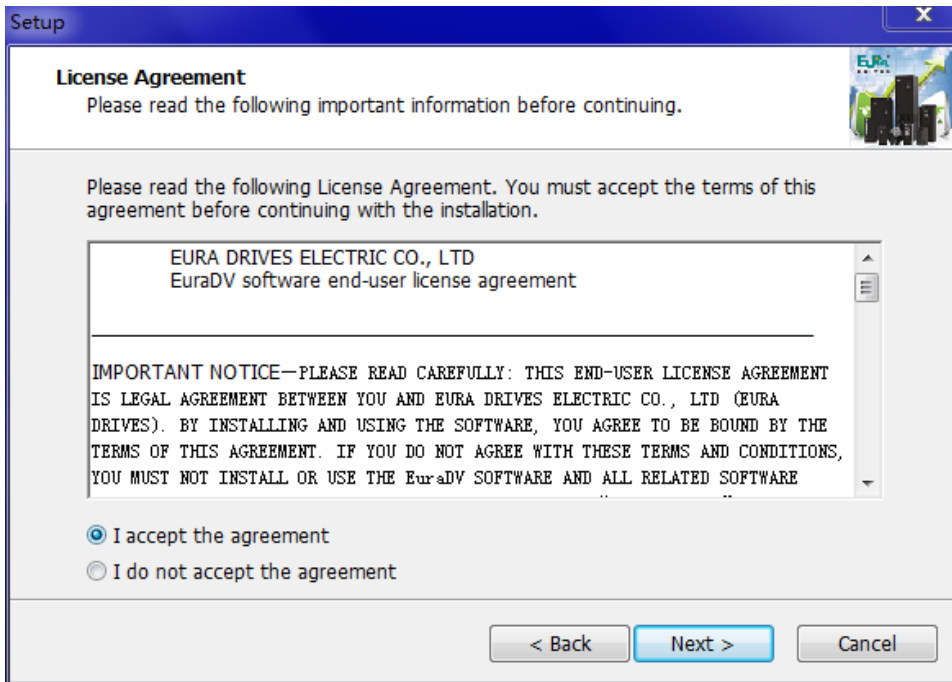


Fig 2-3 Setup Wizard

- Left click “Next” to confirm the installation path of EuraDV. User can select either default path or other installation path.

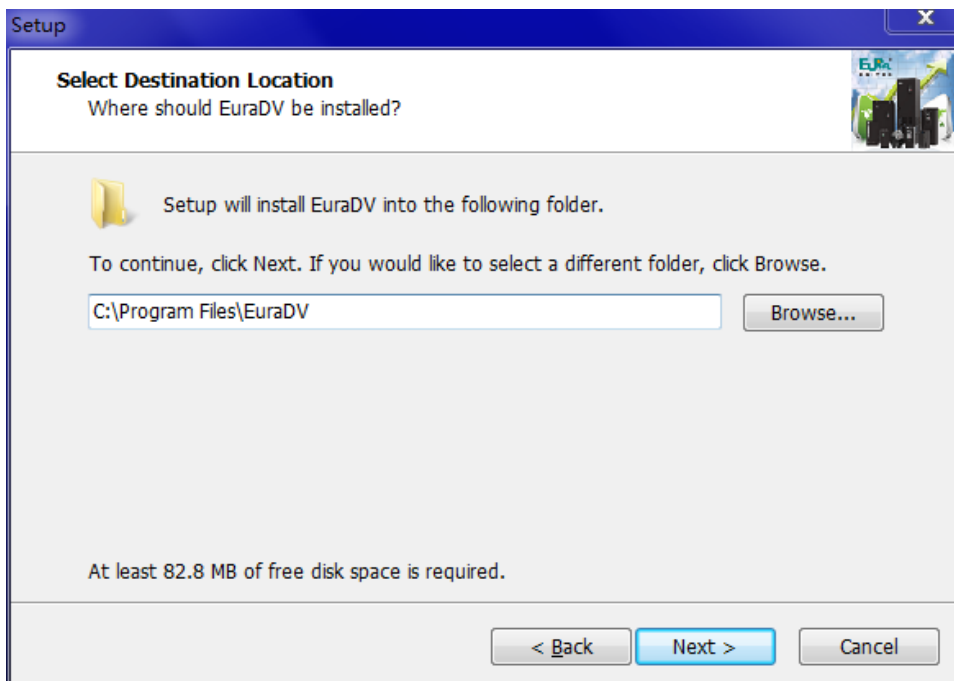
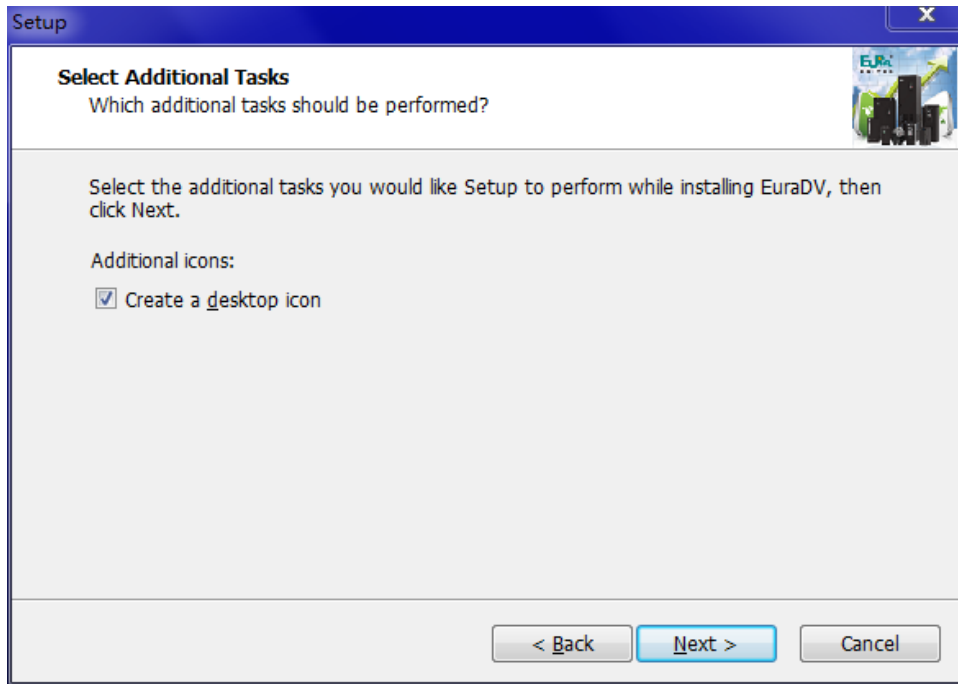


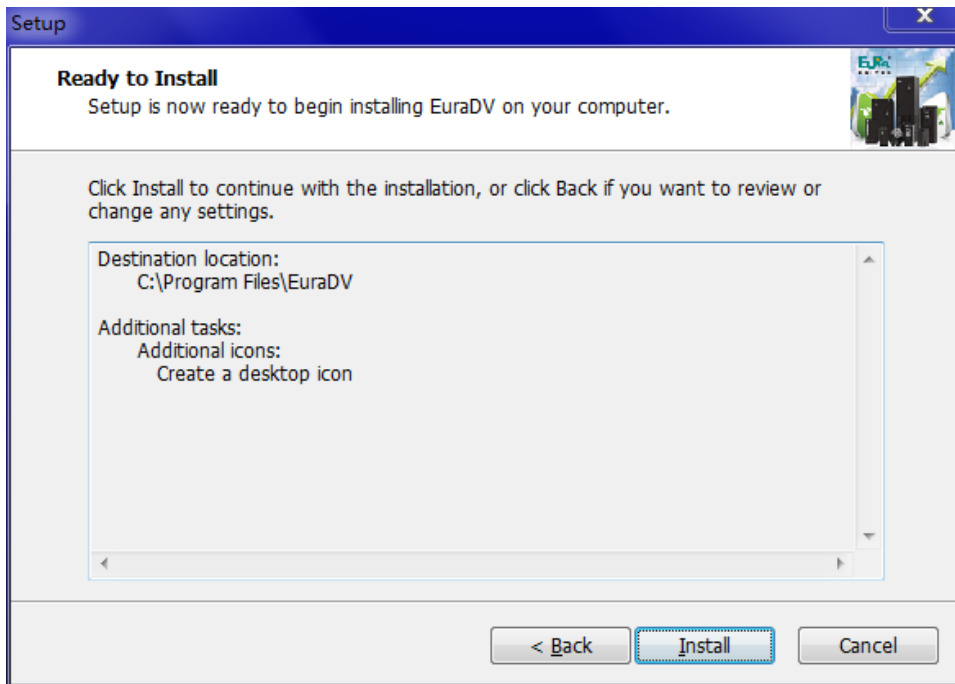
Fig 2-4 Setup Wizard

- **Left click “Next” to confirm whether to create a desktop icon or not.**



**Fig 2-5 Additional Task**

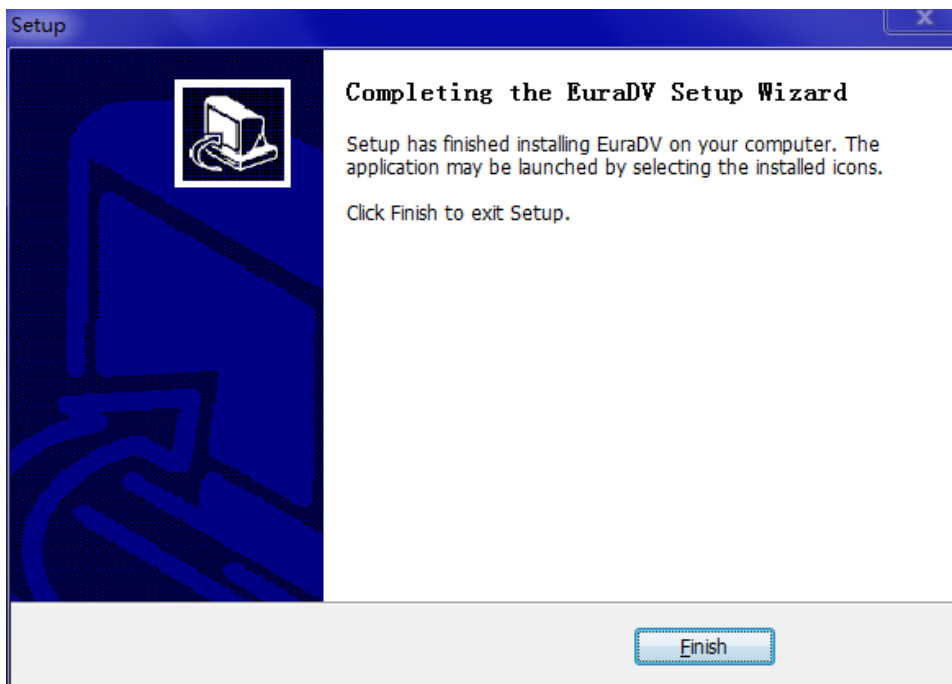
- **After user select whether to create a desktop icon or not, click “Next”, it will prompt: Setup is ready to begin.**



**Fig 2-6 Ready to Setup**



- Click “Install” to start installation. Click “Finish”, see fig 2-7.



**Fig 2-7 Installation Completed**

### 3. Software Instructions

This chapter mainly introduces the use and functions of software, which includes create a project, communication setting, open function module, the use of function module and other functions.

#### 3.1 Use Flow of Program

1. User double-clicks EuraDV.exe or desktop shortcut. First use will popup language selection window(Fig 3-1);

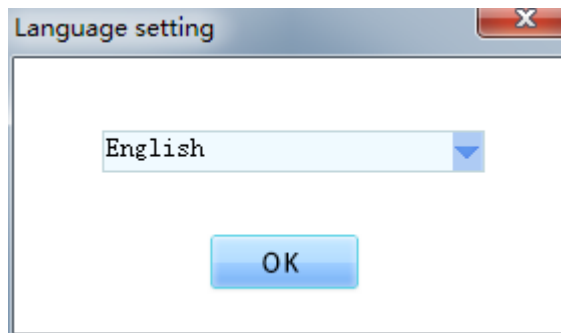


Fig 3-1 Language Selection

2. Language selection finished, click “OK” to access main interface of program (Fig 3-2);

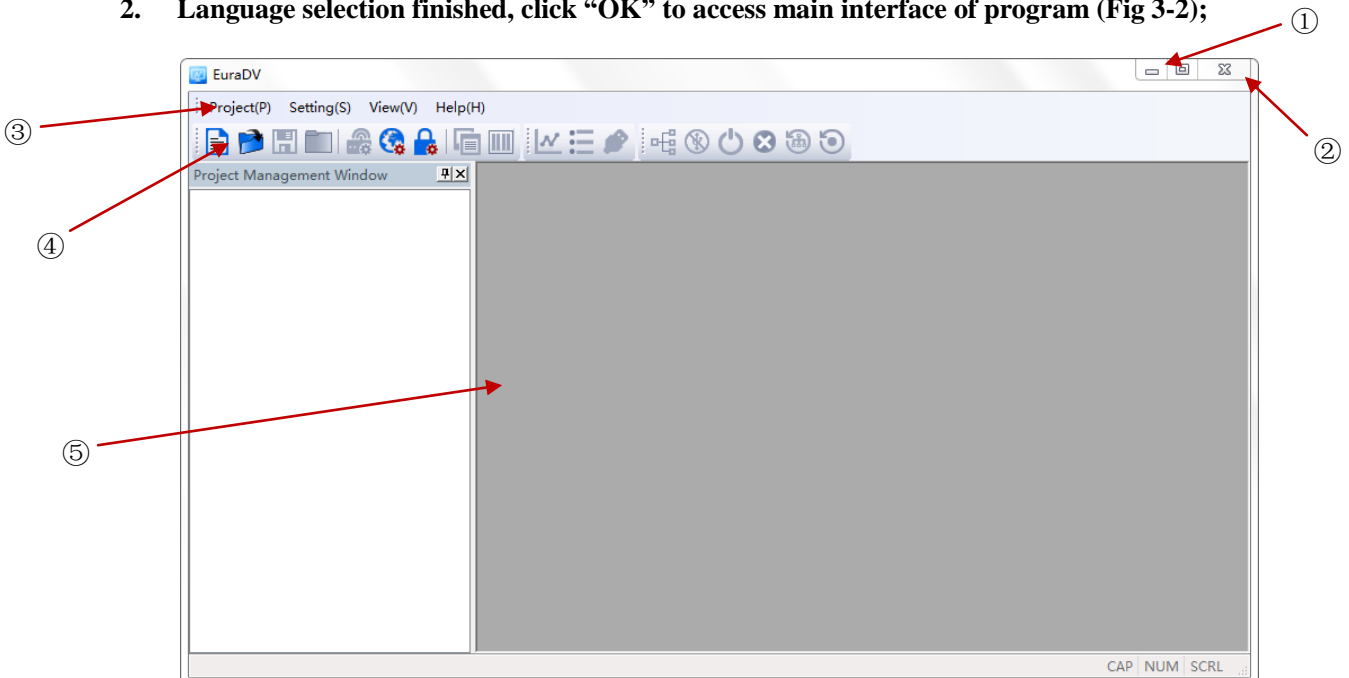


Fig 3-2 Main Interface

- ① Minimize button   ② Close button   ③ Toolbar   ④ Feature bar shortcut  
⑤ Program main function zone

3. Create new project, user clicks [Project] → [New Project], enter project name firstly, popup new project window after [Save](Fig 3-3);

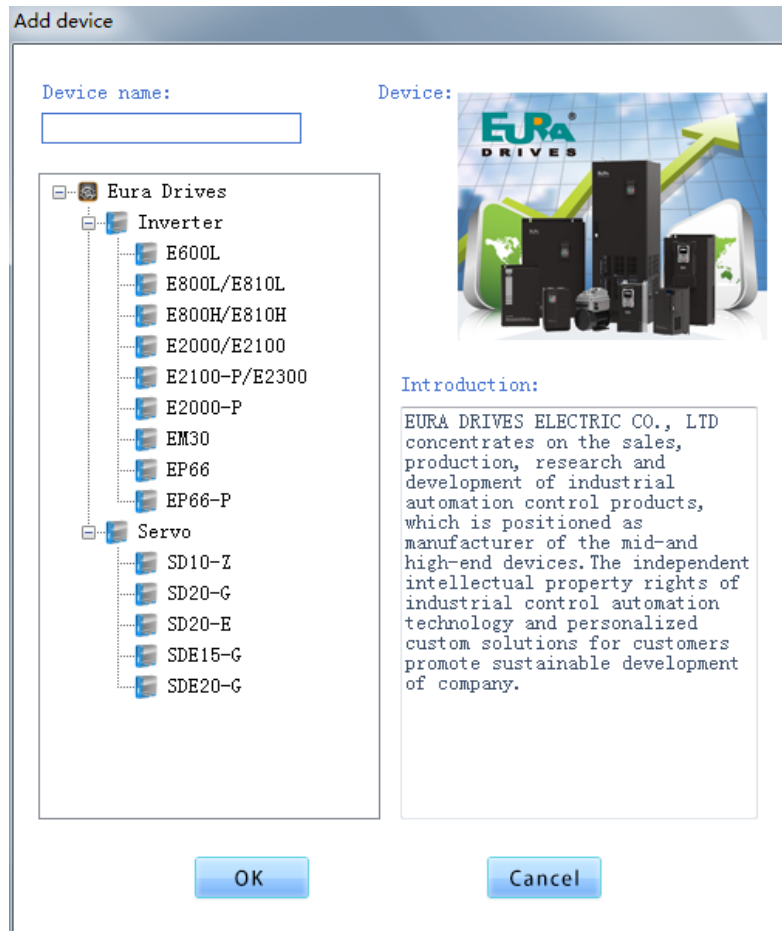


Fig 3-3 New Project Interface

4. After user selects product type, click “OK” to popup new project window(Fig 3-4);

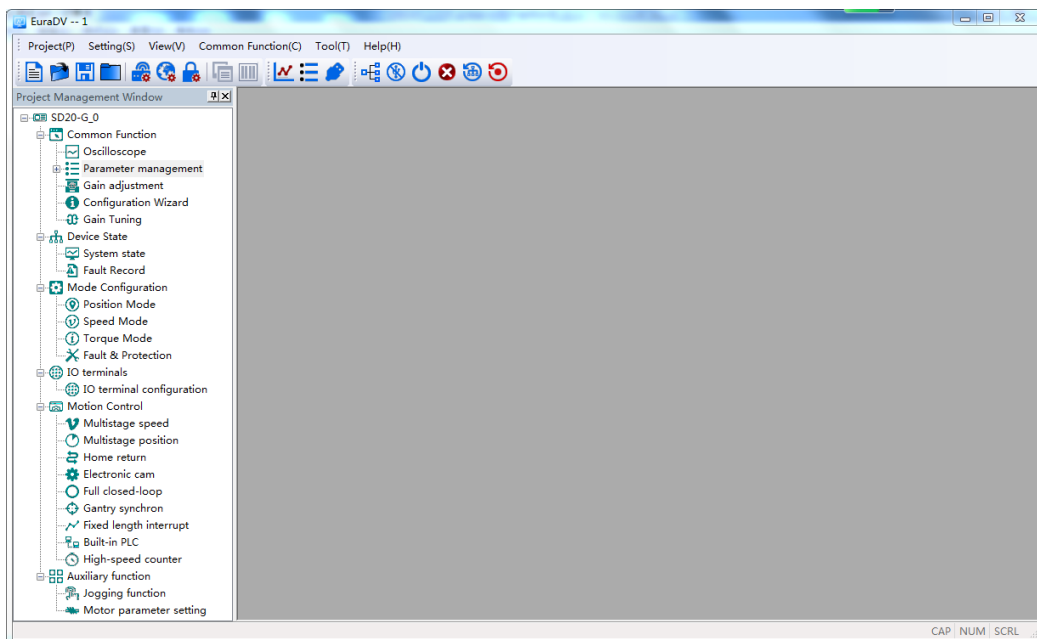


Fig 3-4 New Project Main Interface

- Connect hardware equipment, user clicks [Setting]→ [Communication Setting] or click corresponding shortcut to access communication setting window(Fig 3-5); User selects corresponding [Device Address] & [COM port], then set parameters according to demands, click [Link] button or [Auto detection] button, program will search the communication parameter information automatically, click [Link] button again to realize the communication link after searching finished.

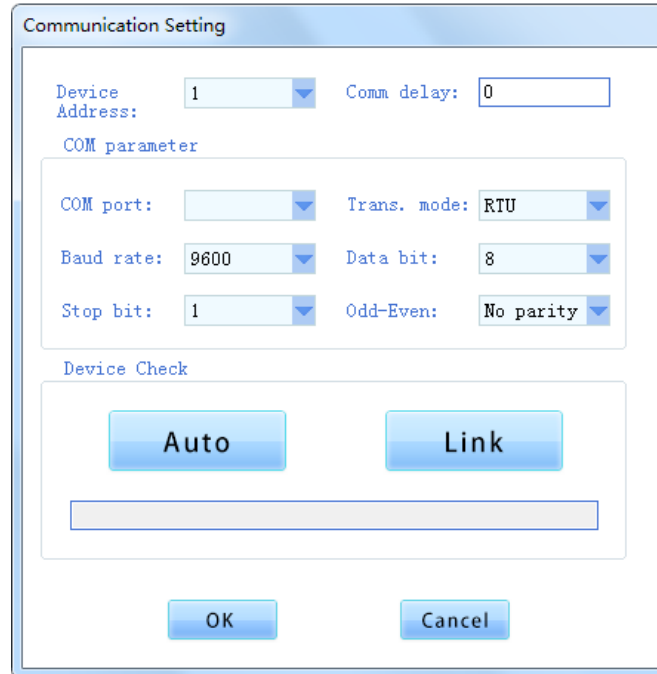


Fig 3-5 Communication Setting Interface

- User can double-click the program function tree in the left side of interface to enter the corresponding function interface, for instance, click "Parameter Management" -"All Parameters", the window of parameter management will display in the right side of program interface (Fig 3-6);

SN	Param...	Function Definition	Value	Unit	Co...	Min Value	Max Value	Defa...	Effective Mode
0	Po000	Motor code	-	N/A	ALL	Four-parameter	Four-parameter	-	read only
1	Po001	Setting of Control mode and rotary direction	d 1 1	N/A	ALL	Two-parameter	Two-parameter	d 1 1	Repower on
2	Po002	Max speed (Absolute value)	-	r/min	ALL	0	30000	-	effective immediately
3	Po003	Numerator of frequency-division number of Encoder pulse	-	N/A	ALL	1	65535	-	effective immediately
4	Po004	Servo-on mode	0	N/A	ALL	0	7	0	Repower on
5	Po005	Denominator of frequency-division number of Encoder pulse	-	N/A	ALL	1	2147483647	-	effective immediately
6	Po007	Change rate of load inertia	20	N/A	ALL	1	100	20	effective immediately
7	Po008	Rotary inertia mode	0	N/A	ALL	0	3	0	effective immediately
8	Po009	Interval time of off-line rotary inertia identification	100	ms	ALL	10	2000	100	effective immediately
9	Po010	Rigidity selection	6	N/A	ALL	1	40	6	effective immediately
10	Po011	Switch of field weakening controller	1	N/A	ALL	0	1	1	effective immediately
11	Po013	First rotary inertia ratio	200	0.01	ALL	1	30000	200	effective immediately
12	Po014	Motion trail accel/decel time	1000	ms	ALL	200	5000	1000	effective immediately
13	Po015	Motion range of off-line rotary inertia identification	-	N/A	ALL	200	2147483647	-	effective immediately
14	Po017	Z pulse frequency-division output width	-	N/A	ALL	2	65535	-	effective immediately
15	Po018	Fluse output setting	b0001	N/A	ALL	Four-parameter	Four-parameter	b0001	effective immediately
16	Po019	Virtual Z output period	10000	N/A	ALL	1	2147483647	10000	effective immediately
17	Po030	Second rotary inertia ratio	100	0.01	ALL	1	30000	100	effective immediately
18	Po031	Inertia switchover mode	0	N/A	ALL	0	2	0	effective immediately
19	Po100	Internal enabled	0	N/A	ALL	0	1	0	effective immediate...
20	Po101	First speed loop proportional gain	-	0.1Hz	ALL	0	30000	-	effective immediately
21	Po102	First speed loop integral time	-	0.1ms	ALL	0	30000	-	effective immediately
22	Po103	Second speed loop proportional gain	240	0.1Hz	ALL	0	30000	240	effective immediately
23	Po104	Second speed loop integral time	1250	0.1ms	ALL	0	30000	1250	effective immediately
24	Po105	First speed loop filter time constant	-	0.01ms	F, S	1	20000	-	effective immediately
25	Po106	Second speed loop filter time constant	-	0.01ms	F, S	1	20000	-	effective immediately
26	Po107	Torque feedforward gain	500	N/A	F, S	0	1000	500	effective immediately
27	Po108	Torque feedforward gain filter	200	0.01ms	F, S	1	30000	200	effective immediately
28	Po109	Acceleration time (only valid in speed mode)	200	ms	S	1	65535	200	effective immediately
29	Po110	Deceleration time (only valid in speed mode)	200	ms	S	1	65535	200	effective immediately
30	Po111	S curve accele/decel time	100	ms	S	1	15000	100	effective immediately
31	Po112	S curve start	0	N/A	S	0	1	0	effective immediately
32	Po113	Internal speed given 1	1000	0.1...	Sr	-32000	32000	1000	effective immediately
33	Po114	Internal speed given 2	2000	0.1...	Sr	-32000	32000	2000	effective immediately
34	Po115	Internal speed given 3	3000	0.1...	Sr	-32000	32000	3000	effective immediately

Fig 3-6 Interface of Parameter Management

### 3.2 Shortcut Feature Bar & Primary Function

#### ◆ Shortcut Feature Bar



: New Project


: Open Project

: Save Project

: Close Project

: Parameter Setting

: Language Setting: Chinese & English

: Permission Setting: set password for project

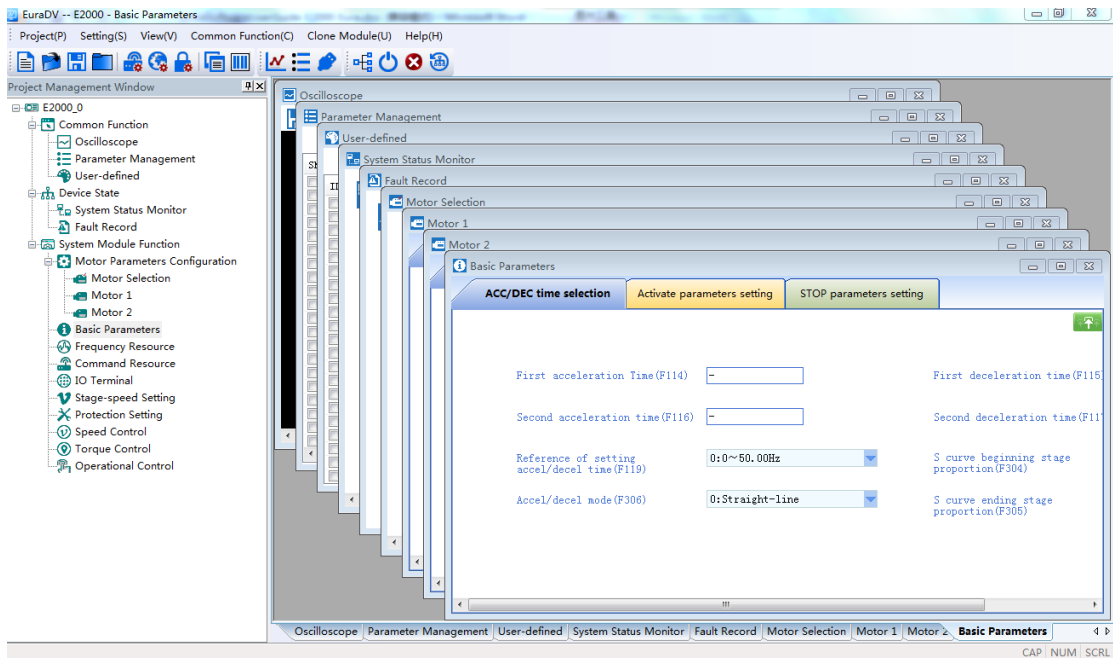
The screenshot shows a dialog box titled "Permission Setting" with a close button (X) in the top right corner. The dialog is divided into three sections:

- State of user permission:** A box containing the text "Current User Name: user" and "User Permission: Ordinary permission".
- User permission level verification:** A box containing two input fields labeled "User Name:" and "User Password:", and a "Verify" button.
- Change current user password:** A box containing three input fields labeled "Old Password:", "New Password:", and "Re-enter New Password:", and a "Change" button.


Fig 3-7 Permission Setting Windows

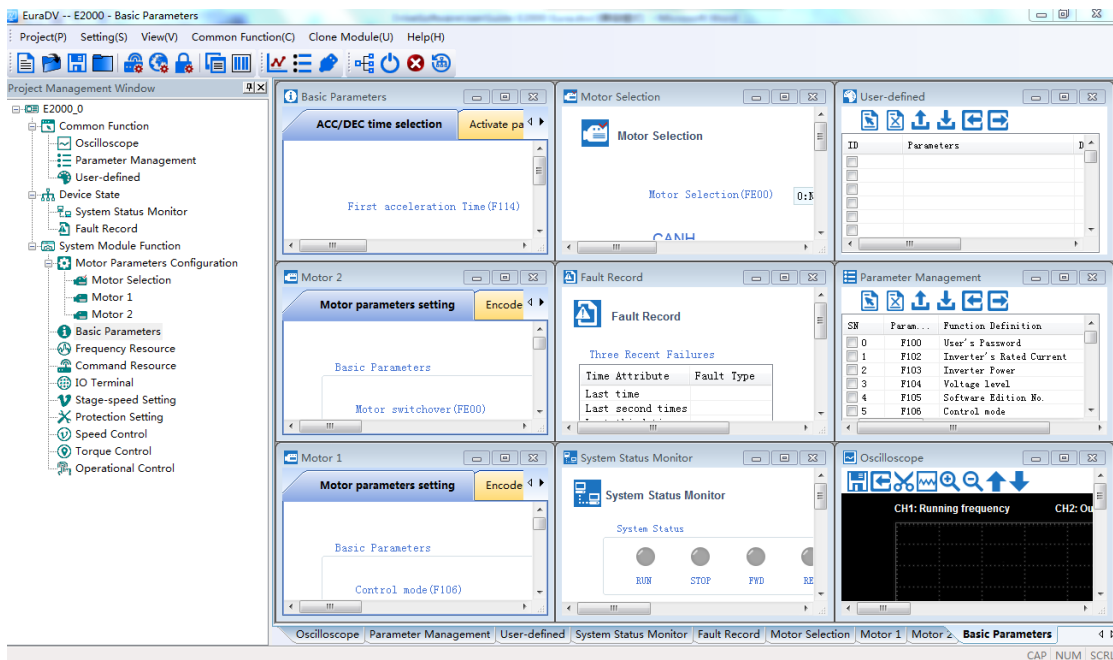
The user rights account name is user, the initial password is 12345, the user can change the password and modify the password by the user.

: Stack Windows: opened windows are displayed in stacked way to users. (Fig 3-8)



**Fig 3-8 Stack Windows**

 **Tiled Windows:** opened windows are displayed in tiled way to users. (Fig 3-9)



**Fig 3-9 Tiled Windows**

 **Oscilloscope:** quick open [Real-time Oscilloscope] interface

 **Parameter Management:** quick open [Parameter Management] interface

**Note:** Copy U disk and the function to import and export of Parameter Management cannot be used to each other.

 : Clone Module

Firstly, modify communication parameters, select com. port, set transaction mode as RTU mode, baud rate as 9600, data bit as 8, stop bit as 2, see figure 3-10. Click [OK] after completion. Don't click on [Auto] or [Link]. (Fig 3-10)

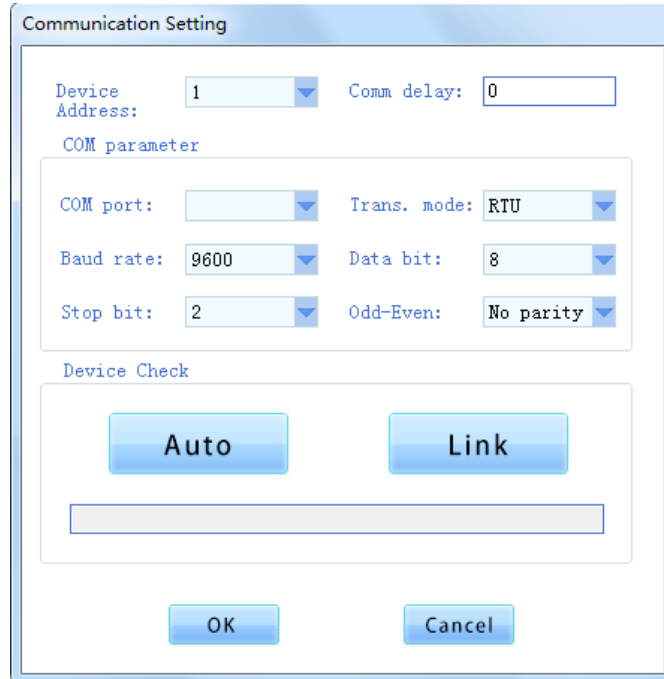


Fig 3-10 Communication Parameter Setting of Clone Module

Click , then the interface displays as fig 3-11 below.

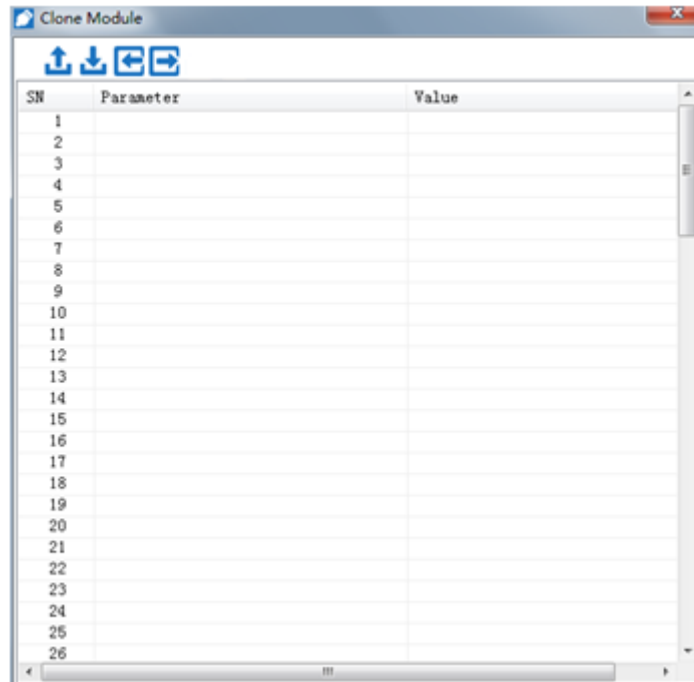


Fig 3-11 Parameter Setting of Clone Module

Click  to upload parameter.(Fig 3-12)

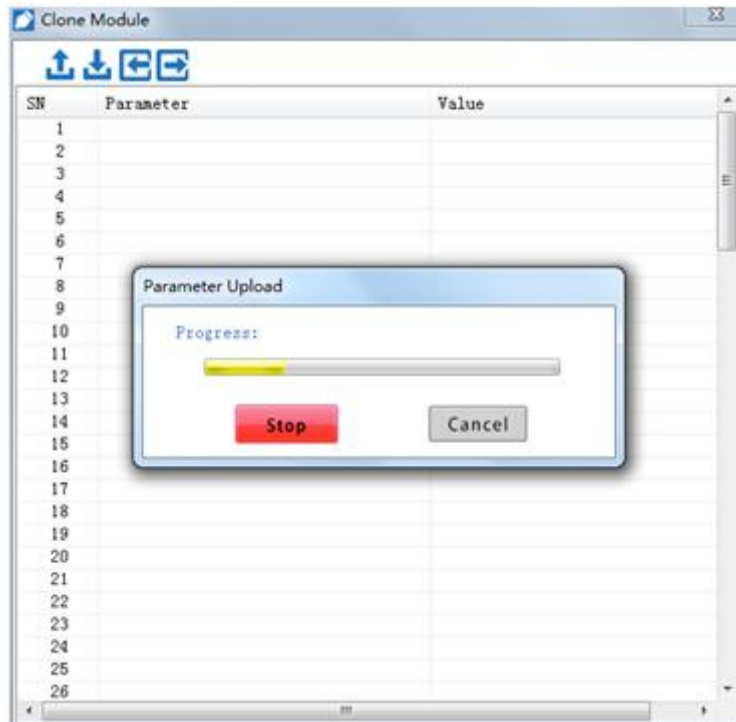


Fig 3-12 Upload Parameter

After modifying the parameter, click  to download the parameter. (Fig 3-13)

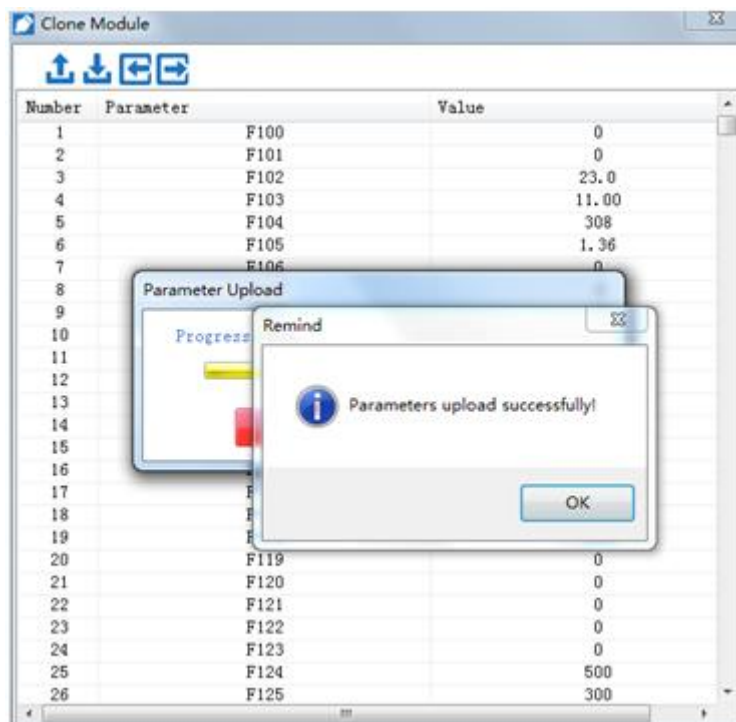


Fig 3-13 Download Parameter

**Note:** when copying the U disk to switch between the U disk and the communication converter function, we need to restart the host computer software, so as not to appear the





failure of the host computer serial port lookup.

Click  to complete local import/export function of parameter list.

: Connecting Device

: Release Serial Port

: Run(servo for "servo restart" function)

: Emergency Shut Down (The mode of stop for SD10-Z & E2000 is free halt.)

: Fault Reset

: Return To Factory

#### ◆ Primary Function

Find “Manual Framing” in “Tool” option ,Tool Bar.The following is the introduction of the “Manual Framing”. (Fig 3-14)

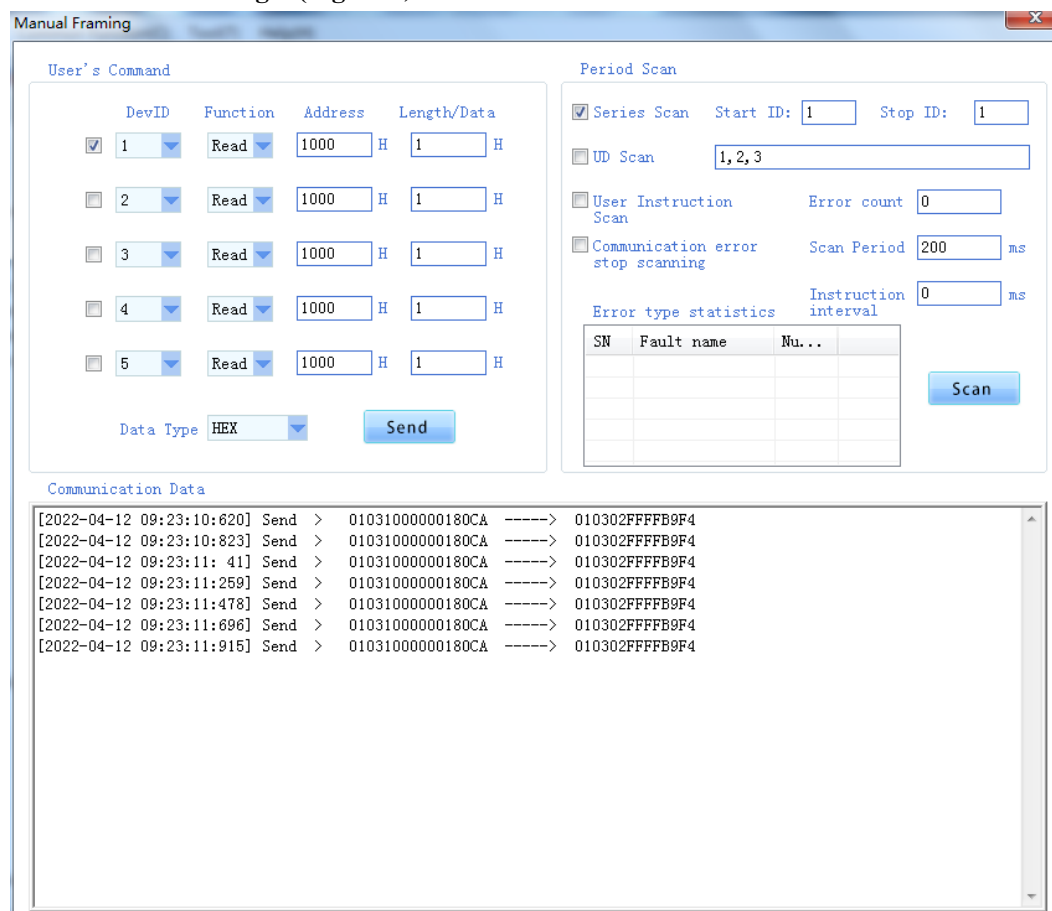


Fig 3-14 Manual Framing

Upper left is the user instruction area, the user can set the "equipment", "function", "address", "length or data" and "data types" parameter, address of the default as hexadecimal data, through the "data types" drop-down box to modify the "length" input field data types; Setup has been completed, the user can click on "send" button to send data, send content will be displayed in the "communications data frames below.

For scanning "cycle" at the upper right area, scanning mode is divided into "sequential scan", "custom scan" and "user instruction scan".

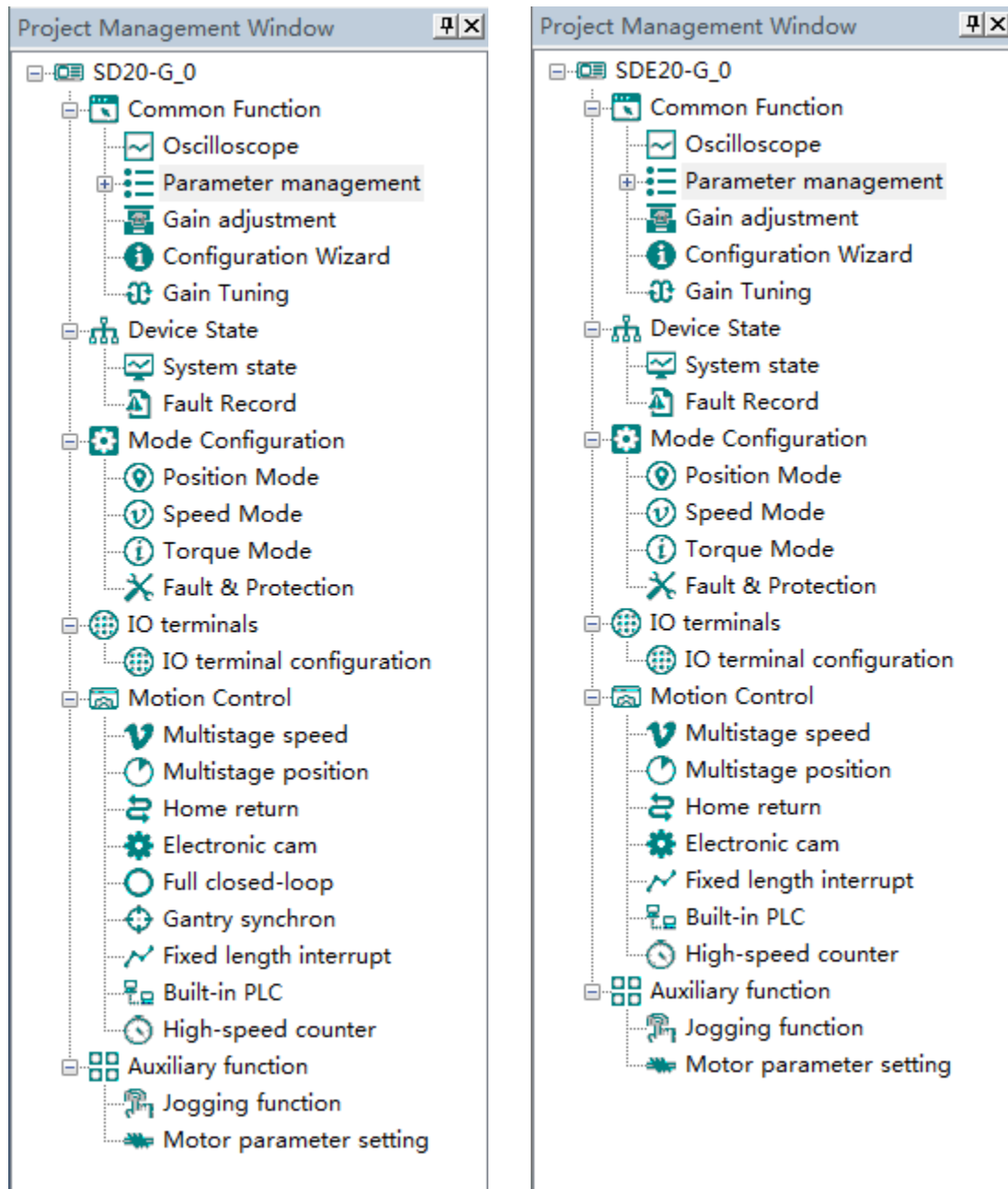
Sequential scan is based on the user set the start and end of station, station number increase or decrease according to the order modified, click the "scan" button, the program will be subject to scan cycle scanning action in turn.

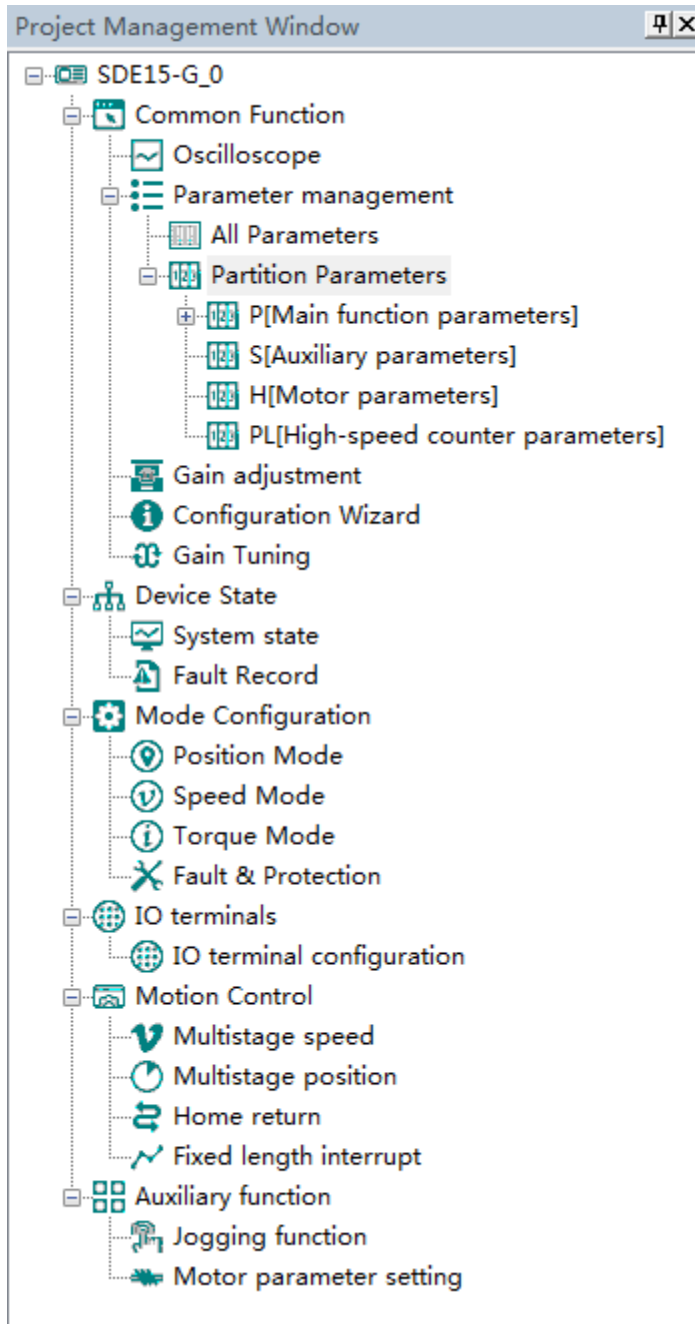
Custom scan functions can be user manual editing for scanning equipment station number sequence, middle stand number ', 'space, click the "scan" button, the program will be based on user defined according to the scanning cycle sequence scan.

The scan function of user instructions is to click the "scan" button according to the selection of user instructions in the upper left corner to send user instructions circularly.

### 3.3 Project Management

#### ◆ SD20-G/SDE15-G/SDE20-G















The main program interface left for engineering management window, the user can in the toolbar of the "view" select the "show" and "hidden", the double tree above the module name you can open the corresponding function module window.

Note:

- 1) SDE20-G does not support "Gull closed-loop" and "Gantry synchron" functions;
- 2) SDE15-G does not support "Gull closed-loop"、"Gantry synchron"、"High-speed counter"、"Built-in PLC"、"Electronic cam" functions;

## 1. Common Function

### ➤ Oscilloscope

-  **Save:** Save the current oscilloscope graphics as a custom file.
-  **Import:** Import saved oscilloscope image from local storage.
-  **Screen Shot:** Save the current oscilloscope graphics as an BMP file.
-  **Cursor:** Cursor can be displayed for measuring time and amplitude.
- **CH** **Channel Select Switch:** Switch the selected on the left side of the channel.
- **+** **Increase amplitude range:** Increasing the channel amplitude range.
- **-** **Reduce amplitude range:** Reduce the channel amplitude range.
-  **Move Up:** Move up the curve.
-  **Move Down:** Move down the curve;
-  **Left Shift:** Move the curve left;
-  **Right Shift:** Move the curve right;
-  **Zoom In:** Zoom In can enlarge the operation of the curve.
-  **Zoom Out:** Zoom Out can be reduced to the curve operation.

### Zoom percentage setting

If the "zoom" setting in the current system setting "display" is not 100%, the user needs to match the current zoom setting by setting the "zoom percentage". After the setting, the upper computer software needs to be restarted to take effect.

### Oscilloscope type selection

Click on the lower left corner of the selection button  Oscilloscope

Real-time oscilloscope, complete oscilloscope type switch.

1) when the user selects an oscilloscope, the user can perform the following operation:

First, click



to popup trigger setting window (Fig 3-1-1)

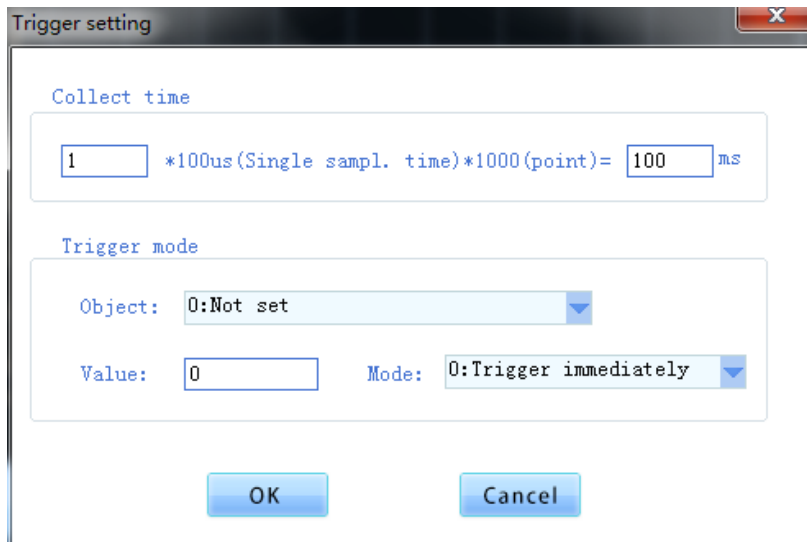


Fig 3-1-1 window of trigger setting

After setting complete, click , Click  or  to start sampling (Fig 3-1-2)



Fig 3-1-2 Oscilloscope Interface

When the driver is servo, the mode also supports the functions of "32-bit data mode data acquisition", "FFT Analysis", "Dual axis debugging" and "Function generator"(Fig 3-1-3).

1) Data acquisition function in 32-bit data mode

When the function is turned on, the servo waveform data collected by the upper computer can support 32 bits, and the data range can support - 2147483648 ~ 2147483647. The user can set it by modifying the "32-bit data mode start stop" drop-down box.

2) FFT analysis function

This function is to carry out FFT analysis on the collected waveform data. First collect the waveform or import the waveform data, and then click the "FFT Analysis" button.

### 3) Dual axis debugging function

This function can collect the waveform data of two servos at the same time, cooperate with the debugging of rigid tapping and other functions.

### 4) Function generator function

Function generator can provide instructions to each control loop during debugging without using external control source. First configure the parameters and click the "apply" button to download, then press the "start" button to turn on the function, and press the "stop" button to stop the function generator.

(1) Command source setting: which mode the command is applied to: torque, speed, position;

(2) Waveform setting: set the command type supported by each control mode

The command types supported by position mode are square wave and sine wave;

The speed mode supports the following command types: square wave, sine, forward jog, forward and reverse jog;

The command types supported by torque mode are: square wave, sine, forward jog, forward and reverse jog, pulse;

(3) Amplitude: the magnitude of the instruction, the setting range and unit will change according to the selected instruction source;

(4) Operating frequency: the frequency of command (sine wave and square wave are effective);

Running time: the action time of the instruction (positive and negative inching are effective).

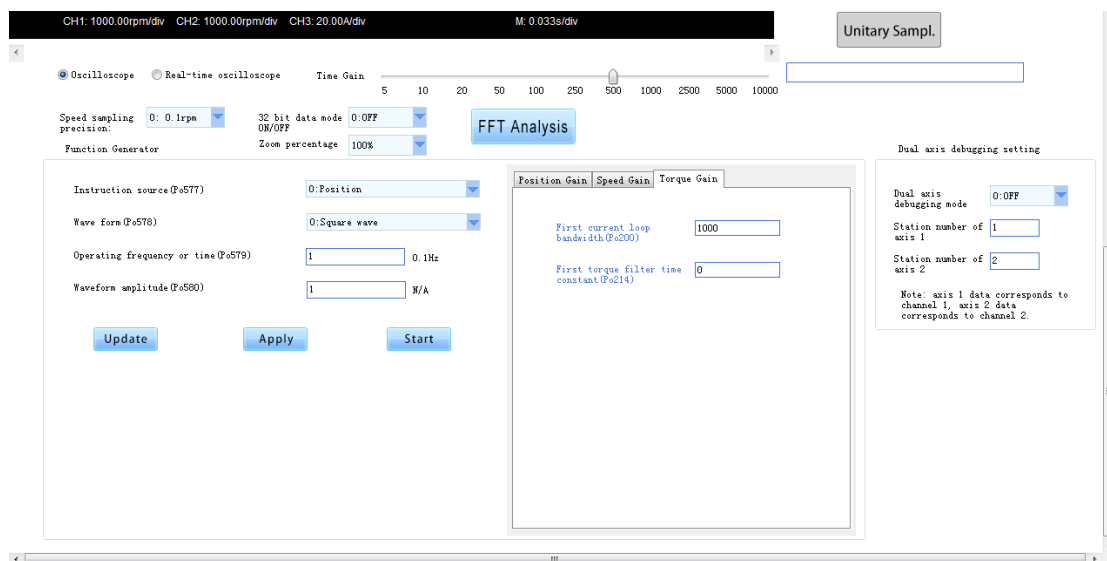
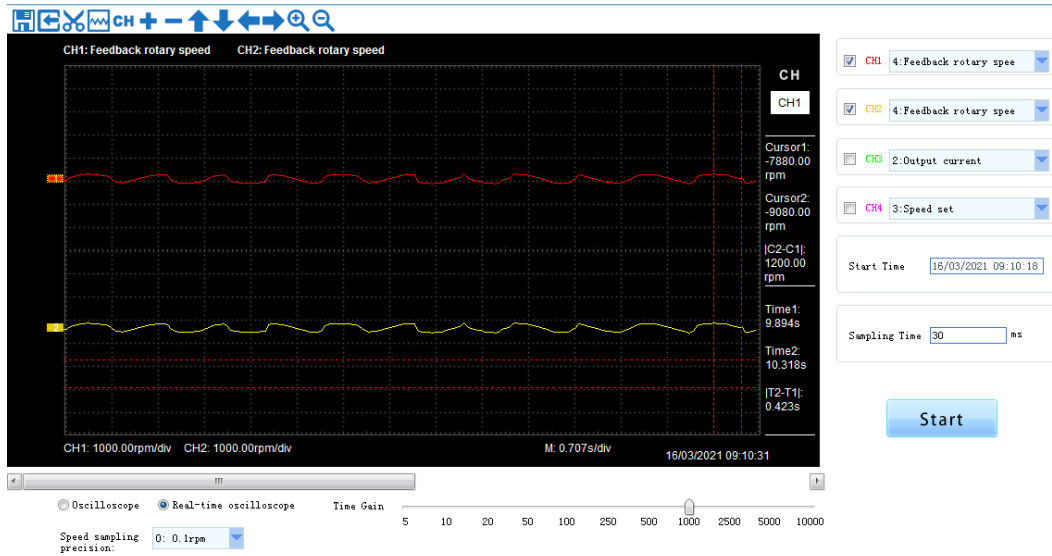


Fig 3-1-3 Oscilloscope Interface 2 (Servo)

2) when the user selects a real-time oscilloscope, the user can perform the following operation:

After setting the sampling time, click [Start], real-time oscilloscope starts to present waveform (Fig 3-1-4)



**Fig 3-1-4 Real-time Oscilloscope Interface**

3)After sampling, the operation can be carried out as follows:



**Channel waveform amplitude adjustment:**

Select waveform number, scroll up or down to adjust waveform amplitude.

**Time shaft adjustment:**

Drag[Time gain] to adjust, horizontal axis presents the time for each box.

**Waveform curve zoom operation:**

Select the picture on the left waveform corresponding to the number, click  or  button to zoom in and out of the waveform curve.

**Note:**

1. To ensure the display of oscilloscope being real-time, set communication mode as RTU and baud rate as 57600, are recommended.
2. The machine without electricity or by PC after reset, the machine will need about 6 seconds, initialization time, please don't collect during initialization waveform, so as to avoid mistakes



## ➤ Parameter Management

**Note:** The software of servo drive needs to update the latest version, so that it can support the parameter setting function of motor.

Click “parameter management” or shortcut icon in the function tree of left side to open parameter management interface (Fig 3-1-5).

SW	Parameter	Function Definition	Value	Unit	Contro...	Min Value	Max Value	Default V...	Effective Mode
0	Po000	Motor code	—	N/A	ALL	Four-parameter	Four-parameter	—	read only
1	Po001	Control mode and forward direct...	d 1 1	N/A	ALL	Two-parameter	Two-parameter	d 1 1	Repower on
2	Po002	Max rotation speed (Absolute va...	—	r/min	ALL	0	10000	—	effective immed...
3	Po003	Encoder frequency-division numbers	—	N/A	ALL	1	65535	—	effective immed...
4	Po004	Servo enabled mode selection	0	N/A	ALL	0	1	0	Repower on
5	Po005	Encoder pulse frequency-divisio...	—	N/A	ALL	1	2147483647	—	effective immed...
6	Po007	Motion range for movement of in...	10	N/A	ALL	1	100	10	effective immed...
7	Po008	Inertia recognition mode select...	0	N/A	ALL	0	3	0	effective immed...
8	Po009	Movement of inertia recognition...	100	ms	ALL	10	2000	100	effective immed...
9	Po010	Rigidity selection	6	N/A	ALL	1	30	6	effective immed...
10	Po011	Flux weakening controller switch	1	N/A	ALL	0	1	1	effective immed...
11	Po013	Rotation inertia ratio	200	0.01	ALL	1	30000	200	effective immed...
12	Po014	Movement of inertia acela/decac...	1000	ms	ALL	200	5000	1000	effective immed...
13	Po015	Motion range of off-line inert...	—	N/A	ALL	200	2147483647	—	effective immed...
14	Po017	Z pulse frequency-division outp...	—	N/A	ALL	50	30000	—	effective immed...
15	Po018	Pulse output configuration	b0001	N/A	ALL	Four-parameter	Four-parameter	b0001	effective immed...
16	Po019	Virtual Z output period	10000	N/A	ALL	1	2147483647	10000	effective immed...
17	Po100	Internal position enabled	0	N/A	ALL	0	1	0	effective immed...
18	Po101	First speed loop proportional gain	600	0.1Hz	ALL	0	30000	600	effective immed...
19	Po102	First speed loop integral time	500	0.1ms	ALL	0	10000	500	effective immed...
20	Po103	Second speed loop proportional ...	240	0.1Hz	ALL	0	30000	240	effective immed...
21	Po104	Second speed loop integral time	1250	0.1ms	ALL	0	30000	1250	effective immed...
22	Po105	First speed loop filter time co...	—	0.01ms	P, S	1	20000	—	effective immed...
23	Po106	Second speed loop filter time c...	—	0.01ms	P, S	1	20000	—	effective immed...
24	Po107	Torque feedforward gain	0	N/A	P, S	0	1000	0	effective immed...
25	Po108	Torque feedforward gain filter	100	0.01ms	P, S	1	30000	100	effective immed...
26	Po109	Acceleration time (only valid i...	200	ms	S	1	30000	200	effective immed...
27	Po110	Deceleration time (only valid i...	200	ms	S	1	30000	200	effective immed...
28	Po111	S curve acela/decac time	100	ms	S	1	15000	100	effective immed...
29	Po112	S curve starting indication	0	N/A	S	0	1	0	effective immed...
30	Po113	Internal speed given 1	1000	0.1r/min	Sr	-32000	32000	1000	effective immed...
31	Po114	Internal speed given 2	2000	0.1r/min	Sr	-32000	32000	2000	effective immed...

Fig 3-1-5 Parameter management interface

① Function shortcut icon ② Parameter information display area

Select All

Select current all parameters for the subsequent operation;

Unselect

Unselect current parameters;

Save

Save the current set value of all parameters to project file;

Import

Import parameters from local storage. EXCEL file or .Par file;

Export

This function can support all function code information exported to EXCEL or Par file to save, also can support the export modified or checked function code information to the EXECL file to save;

### Upload

The function is to upload the current selected function code parameter values from the device to the program. After uploading successfully, the function code is changed to green;

### Download

Download current selected parameters from PC/PLC to servo drive;

### Comparison

This function can support the comparison with the current value in the driver or with the factory value, and the corresponding comparison result window will pop up;

## ➤ Gain adjustment

**Gain adjustment**

**Rigidity parameter setting**

Rigidity selection(Po010)  Rigidity selection 2(Po028)

**Gain parameter setting**

First rotary inertia ratio(Po013)	<input type="text" value="113"/>	Second speed loop proportional gain(Po103)	<input type="text" value="750"/>
First speed loop proportional gain(Po101)	<input type="text" value="1100"/>	Second speed loop integral time(Po104)	<input type="text" value="866"/>
First speed loop integral time(Po102)	<input type="text" value="5672"/>	Second speed loop filter time constant(Po106)	<input type="text" value="900"/>
First speed loop filter time constant(Po105)	<input type="text" value="200"/>	Second current loop bandwidth(Po201)	<input type="text" value="1500"/>
First current loop bandwidth(Po200)	<input type="text" value="1100"/>	Second torque filter time constant(Po215)	<input type="text" value="166"/>
First torque filter time constant(Po214)	<input type="text" value="376"/>	Second position loop gain(Po302)	<input type="text" value="5770"/>
First position loop gain(Po301)	<input type="text" value="7831"/>	Position loop feedforward gain(Po303)	<input type="text" value="0"/>
Torque feedforward gain(Po107)	<input type="text" value="500"/>	Filter time constant of position feedforward(Po326)	<input type="text" value="200"/>
Torque feedforward gain filter(Po108)	<input type="text" value="200"/>		

**Model tracking control parameter setting**

Model feed forward mode setting(Po175.A)

**Fig 3-1-6 Gain adjustment interface 1**

**Model tracking control parameter setting**

Model feed forward mode setting(Po175.A)

Model tracing control gain 1(Po176)	<input type="text" value="65"/>	Model tracing control gain 2(Po178)	<input type="text" value="100"/>
Model tracing control gain compensation 1(Po177)	<input type="text" value="1000"/>	Model tracing control gain compensation 2(Po179)	<input type="text" value="1000"/>
Model tracing control speed feedforward(Po180)	<input type="text" value="1000"/>	Model tracing control forward bias(Po181)	<input type="text" value="1000"/>
Model tracking control reverse bias(Po182)	<input type="text" value="1000"/>		

**Jitter suppression parameter setting**

Jitter suppression setting(Po175.B)  Model forward feedforward shaking rejection fre. (Po193)

**Fig 3-1-7 Gain adjustment interface 2**

### Upload

Upload parameters displayed in current page from servo drive.

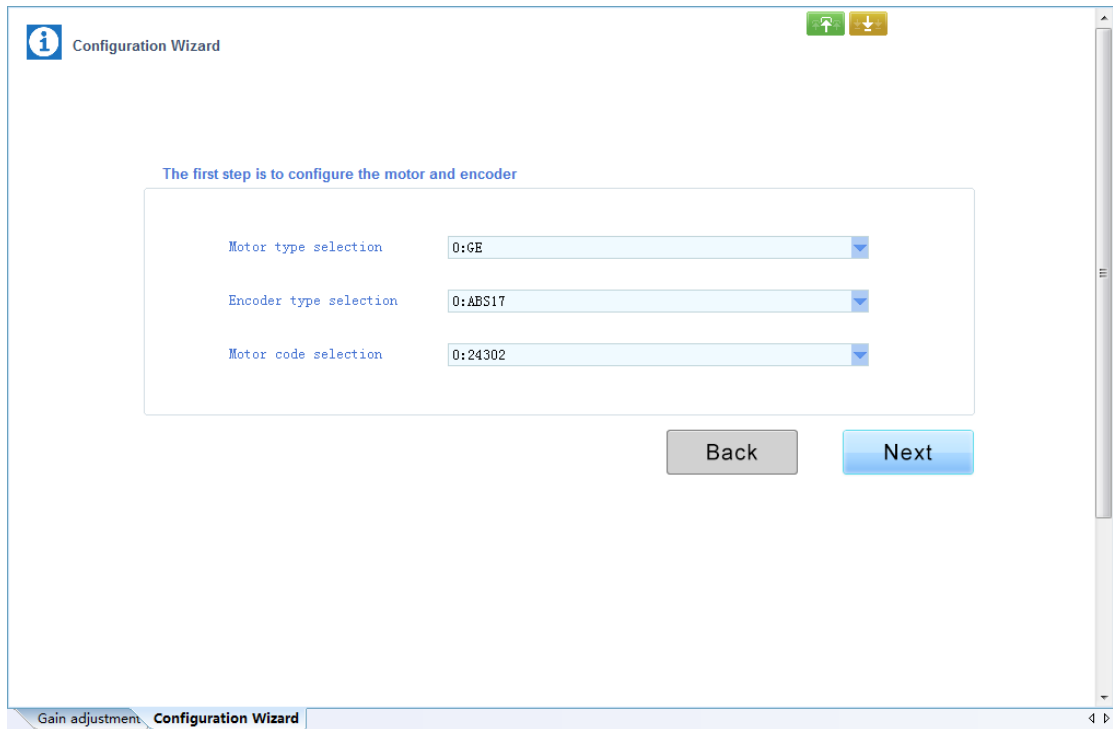
### Download

Download parameters in the box

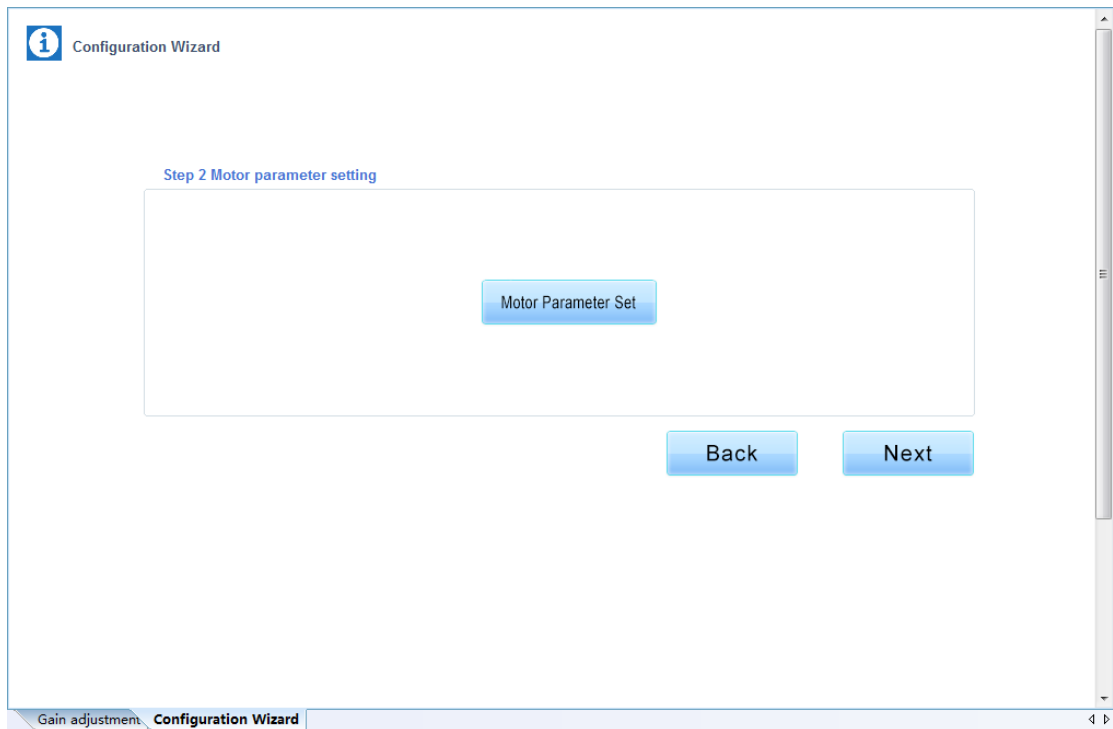
**Note: 1.** Click  on the [Rigidity parameter setting] to refresh the rigidity table.

**2.** The function table module to modify the servo rigidity does not refresh gain table.

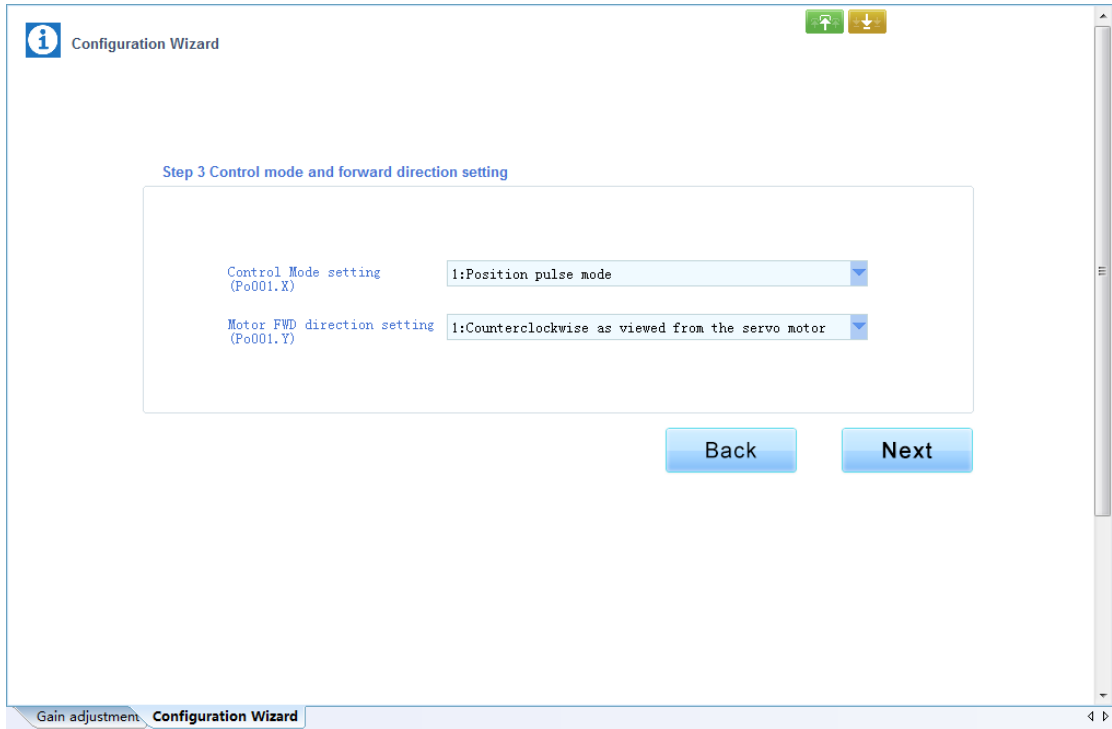
## ➤ Configuration Wizard



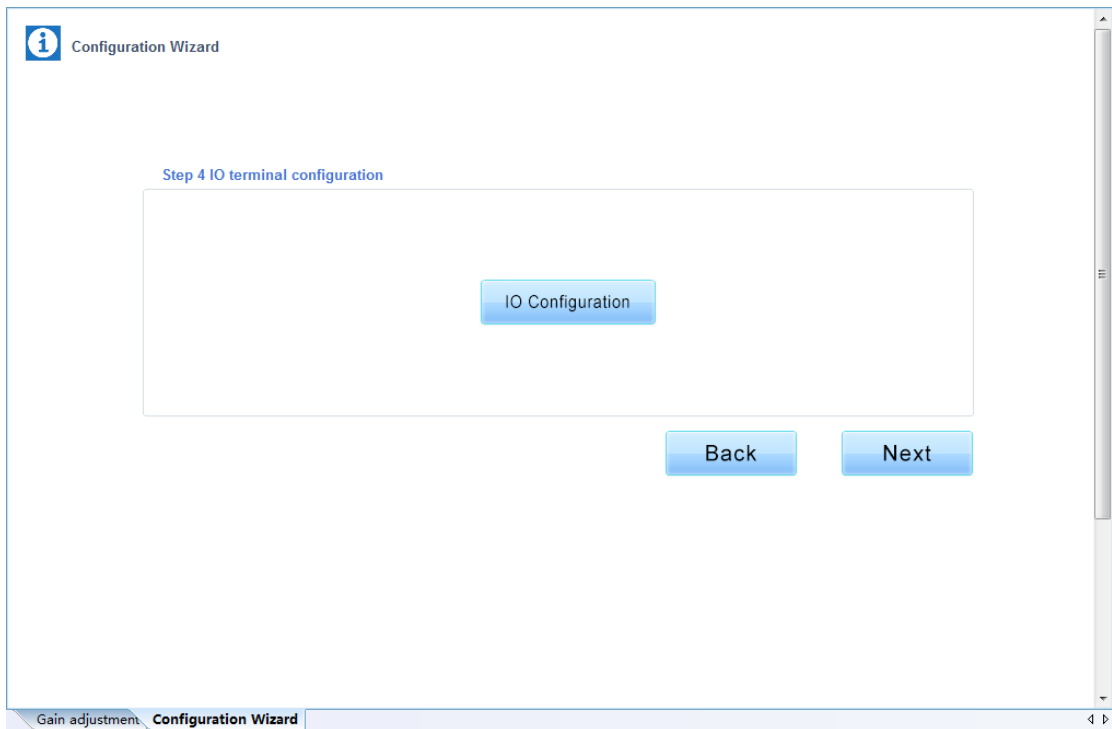
**Fig 3-1-8 Configuration Wizard interface 1**



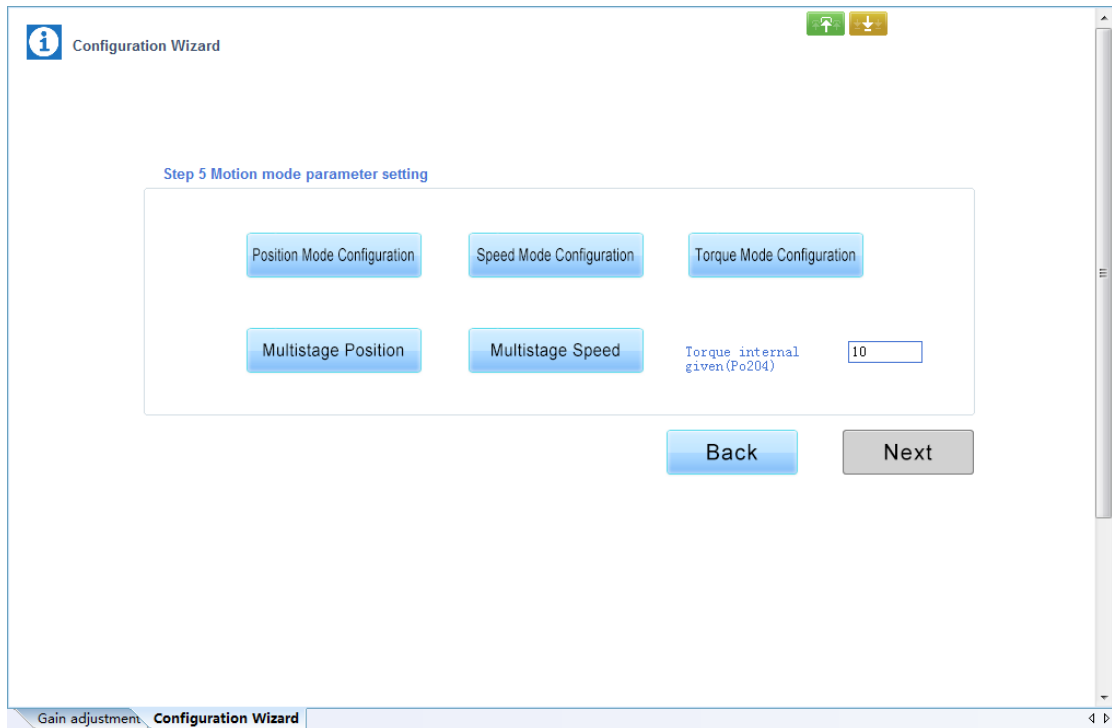
**Fig 3-1-9 Configuration Wizard interface 2**



**Fig 3-1-10 Configuration Wizard interface 3**



**Fig 3-1-11 Configuration Wizard interface 4**



**Fig 3-1-12 Configuration Wizard interface 5**



**Upload parameters displayed in current page from servo drive.**



**Download parameters in the box.**



**Enter the next configuration interface.**



**Return to the previous configuration interface.**

## ➤ Gain Tuning

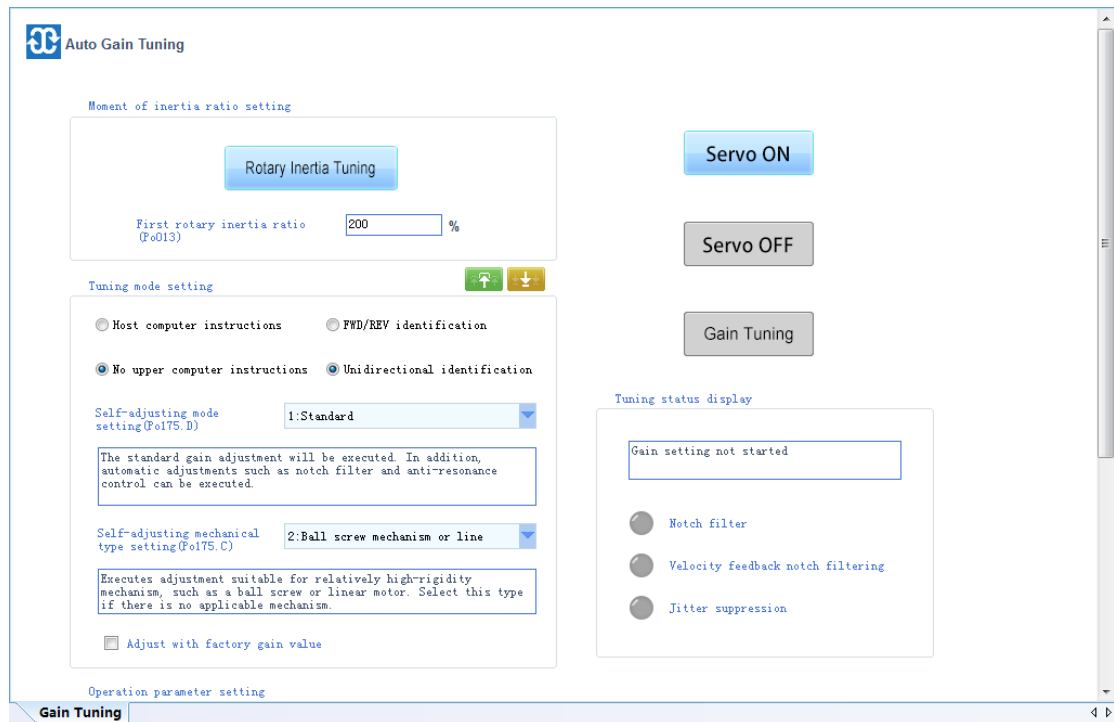


Fig 3-1-13 Gain Tuning interface 1

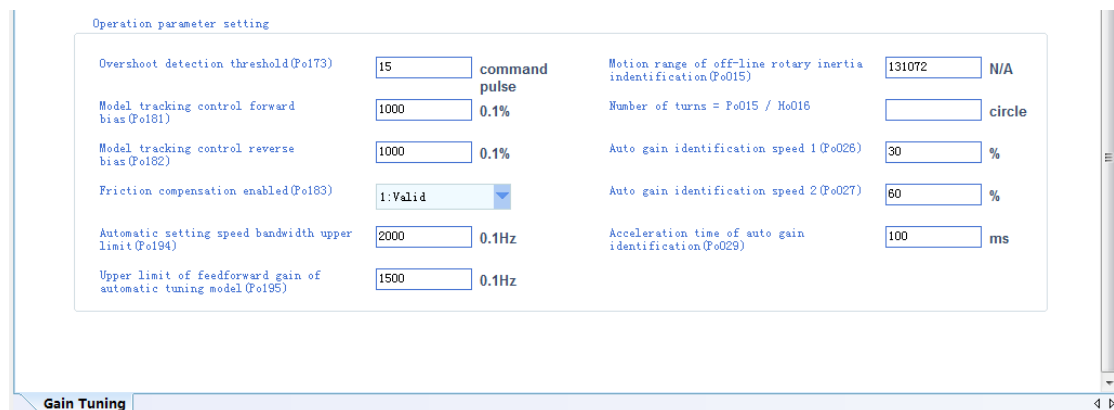




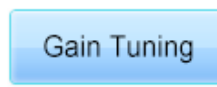
Fig 3-1-14 Gain Tuning interface 2

Click  to upload the original parameters of [Gain Tuning], or modify directly without [upload]; then click  to download the set parameters.

After downloading the parameters, if it is "No upper computer instruction" mode, click

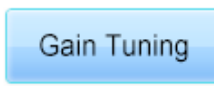


to enter parameter setting mode, click



;If it is "Host

computer instructions " mode, Click directly



, The current setting state

will be displayed in the lower status display box.

## 2. Device State

### System State

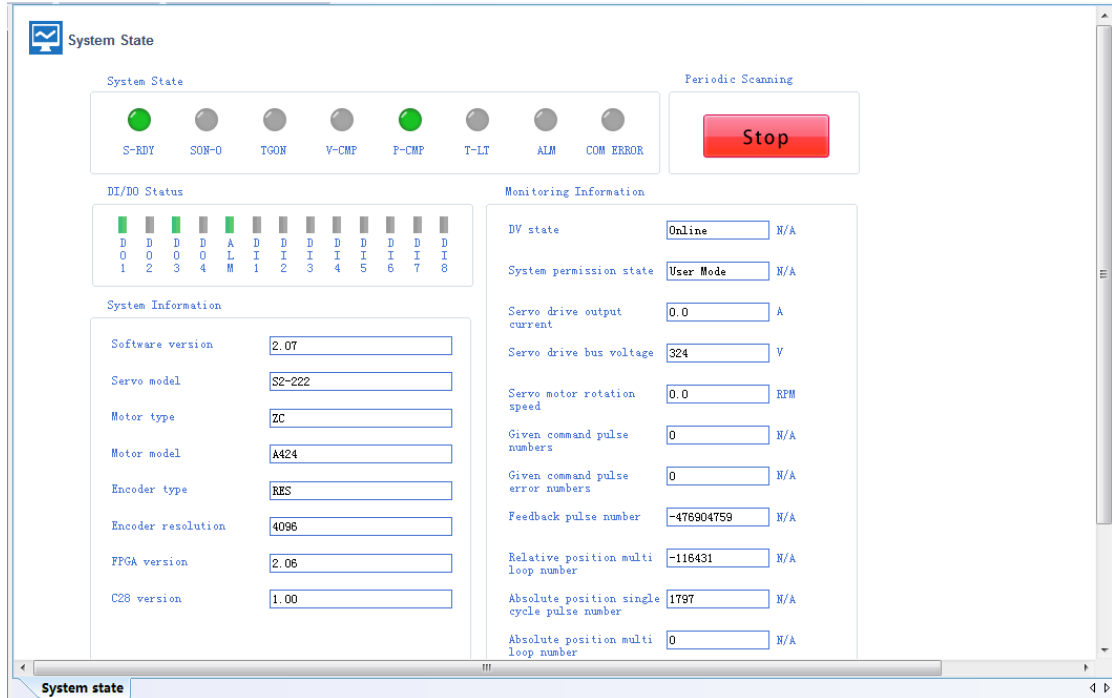



Fig 3-1-15 System State Interface

Click  to read and update current servo drive information.

Click  to scan and update current servo drive status.



### 3. Mode Configuration

The function is composed of position-mode configuration, speed- mode configuration, torque- mode configuration, Fault&Protection.

Parameter Quick Search Catalogue

<b>Position Mode Configuration</b>	<b>Input Set</b>	Command source mode selection
		Command source setting
	<b>Electronic gear</b>	Electronic gear ratio selection (Po339)
		First group electronic gear numerator (Po304)
		First group electronic gear denominator (Po305)
		Second group electronic gear numerator (Po344)
		Second group electronic gear denominator (Po346)
	<b>Position gain</b>	First position loop gain (Po301)
		Second position loop gain (Po302)
		Position loop feedforward gain (Po303)
		Position loop filter time constant (Po306)
		Filter time constant of position feedforward (Po326)
		FIR filter (Po340)
		Acceleration/deceleration time in position mode (Po343)
	<b>Pulse command</b>	Command pulse form (Po300)
		High-speed pulse control (PL120)
	<b>Positioning complete</b>	Position pulse clear (Po308)
		Position reach pulses range (Po307)
		Position error alarm pulses (Po309)
	<b>Speed Mode Configuration</b>	<b>Accel/decel time</b>
Acceleration time (only valid in speed mode) (Po109)		
Deceleration time (only valid in speed mode) (Po110)		
S curve accele/decel time (Po111)		
<b>Zero speed clamp</b>		Zero clamp enabled (Po127)
		Speed value in the zero clamp (Po126)
<b>Analog command</b>		AI1 command zero drift compensation (Po402)
		AI2 command zero drift compensation (Po403)
		AI automatic zero set (Po406)
		AI1 channel dead zone (Po416)
		AI2 channel dead zone (Po417)
		Analog speed overrun setting (Po418.X)
		AI zero drift alarm (Po426)
		Max speed corresponding to analog voltage (Po400)
		Analog speed command filter time constant (Po404)
		Analog terminal control (Po427)
		Analog speed command source (Po428)
		Corresponding speed of lower limit voltage (Po430)

		Lower limit voltage in speed analog mode (Po431)
		Corresponding speed of upper limit voltage (Po432)
		Upper limit voltage in speed analog mode (Po433)
	Speed reached	Range of target speed (Po117)
		Rotation detection value (Po118)
	Speed Gain	First speed loop proportional gain (Po101)
		First speed loop integral time (Po102)
		First speed loop filter time constant (Po105)
		Second speed loop filter time constant (Po106)
		Torque feedforward gain (Po107)
Torque feedforward gain filter (Po108)		
Speed given low-pass filter second-order (Po153)		
Torque Mode Configuration	Command filter	Torque increasing time (Po212)
		Torque decreasing time (Po213)
	Command limit	Torque limiting by analog (Po203)
		Internal max torque limit value (Po202)
		Forward max torque limit (Po208)
		Reverse max torque limit (Po209)
	Speed limit	Speed limit during torque control (Po210)
		Internal speed limit (Po211)
	Status output	Target torque range (Po237)
		Torque filter frequency (Po238)
	Torque gain	First current loop bandwidth (Po200)
		First torque filter time constant (Po214)
	Analog command	AI1 command zero drift compensation (Po402)
		AI2 command zero drift compensation (Po403)
		AI automatic zero set (Po406)
		AI1 channel dead zone (Po416)
		AI2 channel dead zone (Po417)
		Analog torque overrun setting (Po418.Y)
		AI zero drift alarm (Po426)
		Max torque corresponding to analog torque (Po401)
		Analog torque command filter time constant (Po405)
		Analog torque command source (Po429)
		Torque corresponding to lower limit voltage in torque analog mode (Po434)
		Lower limit voltage in torque analog mode (Po435)
		Torque corresponding to upper limit voltage in torque analog mode (Po436)
		Upper limit voltage in torque analog mode (Po437)
Fault & Protection	Overload configuration	Overload pre-alarm current (So-35)
		Overload pre-alarm filter time (So-36)
		Motor overload coefficient setting (So-37)

	<b>Stop Mode</b>	Servo OFF stop mode (So-07)
		Delay time of dynamic braking (So-08)
		Servo motor stop mode (So-64)
		Deceleration stop time (So-65)
	<b>Overtravel configuration</b>	Forward run prohibited (So-17)
		Reverse run prohibited (So-18)
		Forward/reverse run prohibited torque setting (Po216)
		Forward/reverse run prohibited and emergency stop torque (Po207)
		Overtravel limit function (So-39)
		Forward running range pulse when overtravel protection (Po140)
		Forward running range multi-loop numbers when overtravel protection (Po142)
		Reverse running range pulse when overtravel protection (Po143)
		Reverse running range multi-loop numbers when overtravel protection (Po145)
	<b>Fault protection</b>	Input power phase-loss protection (So-06)
		Encoder disconnection protection (So-15)
		Under voltage protection of LI battery (So-38)
		Delay time of lock-rotor protection (So-40)
		Alarm output duty ratio (So-42)
		Motor overheat protection (So-50)
		Motor disconnected protection of temperature detection (So-51)
		Torque unreached protection setting (So-54)
		Torque unreached time (So-55)
	<b>Regenerative brake</b>	Braking resistor value (So-04)
		Discharge duty ratio (So-05)
	<b>Brake output</b>	Delay time for servo OFF (So-02)
		Delay time for electro- magnetic braking OFF (So-03)
		Speed threshold of electromagnetic brake (So-16)
		Power-off brake (So-28)
		Power-off brake time (So-29)



Upload

Upload parameters displayed in current page from servo drive.



Download

Download parameters displayed in current interface to servo drive.

See details for the description of parameters in Servo drive user manual.

## 4. IO Terminal

### IO Terminal Configuration



Fig 3-1-16 IO Terminal Configuration Interface

Click  to start real-time data refreshing. (Fig 3-1-17)



Fig 3-1-17 IOterminal interface

Click **Forced Output** to upper or lower parameter bit, click **Valid** or **Invalid** to switch high-low bit. (Fig 3-1-18)



Fig 3-1-18 IO Configuration Forced Output Interface

**Terminal force description:**

Terminal force can be in the invalid function of the terminal force for the effective state, if the terminal function has been in effective state mandatory function will not produce effect.

## 5. Motion Control

### ➤ Multistage Speed



The screenshot displays the 'Multistage speed' configuration window. It is divided into three main sections:

- Internal set speed:** A table of seven input fields for internal speed values (Po113 to Po163).

Internal speed given 1 (Po113)	1000	Internal speed given 5 (Po161)	0
Internal speed given 2 (Po114)	2000	Internal speed given 6 (Po162)	0
Internal speed given 3 (Po115)	3000	Internal speed given 7 (Po163)	0
Internal speed given 4 (Po160)	0		
- Curve smoothing:** Includes a radio button for 'S curve start (Po112)' (set to 'Not activate') and a text input for 'S curve accele/decel time (Po111)' (set to 100).
- Speed reached setting:** Includes a text input for 'Range of target speed (Po117)' (set to 300) and a graph. The graph plots 'Motor rotation speed' against time, showing a ramp up to a target speed. A horizontal dotted line indicates the 'Speed arrival signal' threshold. The vertical distance between the target speed and this signal is labeled as Po117.

At the bottom left, there is a 'Multistage speed' label, and at the bottom right, there are navigation arrows.

Fig 3-1-19 Multistage Speed Interface

Click  to upload parameters in current page, after modifying, click  to download parameters in current interface. If current parameters are known, they can be download directly without uploading.

**Note:** See details for the description of parameters in Servo drive user manual.

## ➤ Multistage Position

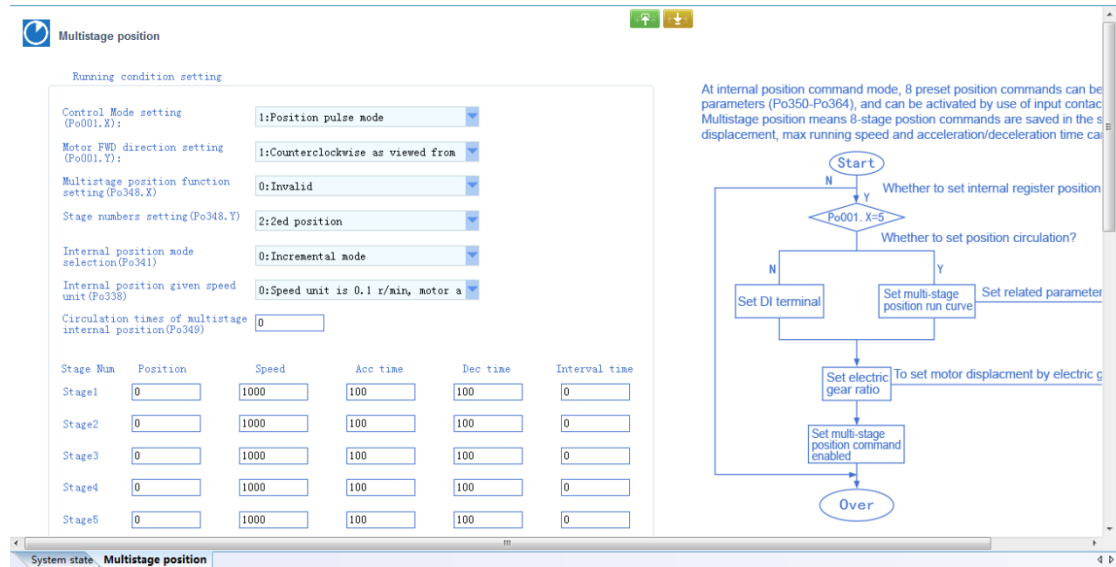


Fig 3-1-20 Multistage position interface-1

When [Multistage position function setting Po348.X] selects [0: Invalid], only 1<sup>st</sup> stage position is valid and can be set; when selecting [1: Valid], valid stage number can be selected by [Stage number setting Po348.Y], the parameter of the corresponding stage can be set (Fig 3-1-20 Multistage position interface-1)

Note: When Po349=0, cycle time is unlimited.

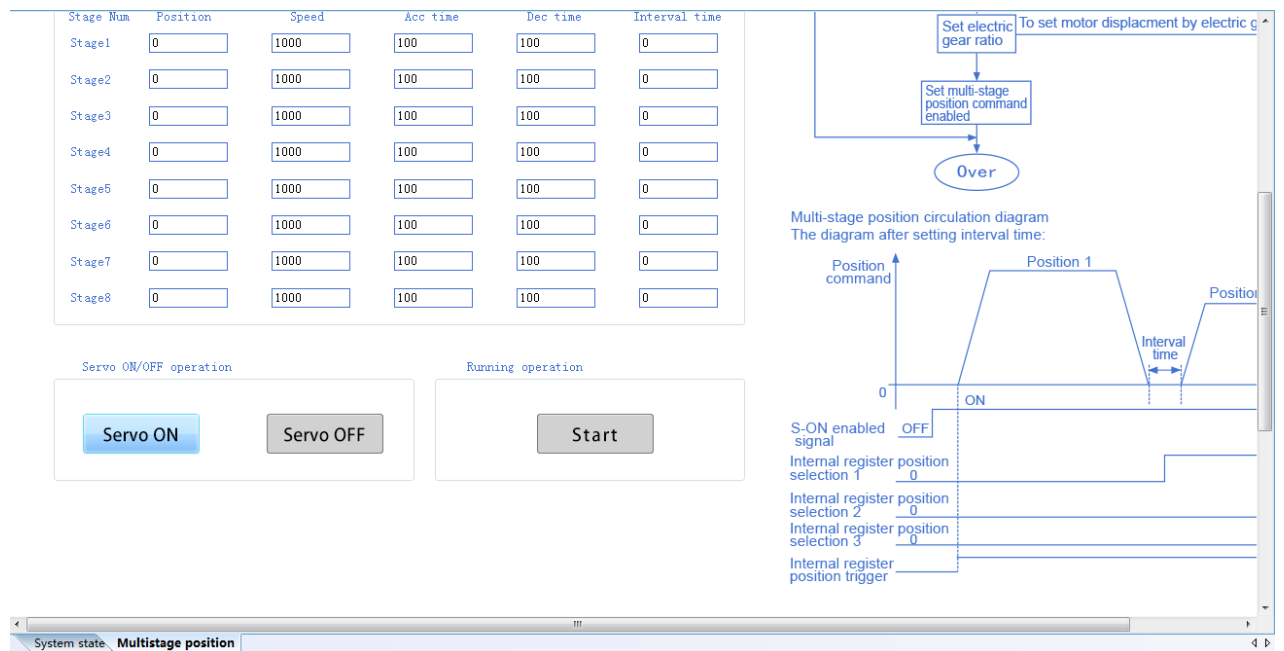



Fig 3-1-20 multistage position interface-2

After setting parameters, click  to download the parameter modification.

 Then click  to make servo motor power-up, click, servo motor

starts to run as set.(Fig 3-1-20 multistage position interface-2)

## ➤ Home Return

Home return

↑ ↓

Home position searching setting		Servo ON/OFF operation	
Home search setting A(Po119.A)	0:Reverse searching home	<input type="button" value="Servo ON"/>	<input type="button" value="Servo OFF"/>
Home search setting B(Po119.B)	0:Searching HOME by left/right	<input type="text" value="Servo OFF"/>	
Home search setting C(Po119.C)	0:After finding HOME position	Mechanical origin setting	
Home search setting D(Po119.D)	0:After finding Z phase pulse	<input type="button" value="Mech. origin set"/>	
Home search selection(Po125)	0:Not searching home	Home search operation	
Home searching first speed(Po120)	<input type="text" value="500"/>	<input type="button" value="Searching home"/>	
Home searching second speed(Po121)	<input type="text" value="200"/>	<input type="text" value="Not starting searching home!"/>	
Home searching acceleration/deceleration time(Po122)	<input type="text" value="0"/>		
Home searching offset (No. of revolutions) (Po123)	<input type="text" value="0"/>		
Duration time of home found signal(Po128)	<input type="text" value="100"/>		
Delay time of home searching(Po129)	<input type="text" value="10000"/>		

**Fig 3-1-21 Home return interface**

Set the parameter of [Home position searching setting] firstly, then click [Servo ON], the status bar in [Servo ON/OFF operation] will display [Servo ON].

Click [Mechanical home setting], servo drive will set current rotary position of servo motor as mechanical home. Click [Home searching] to return the record position.

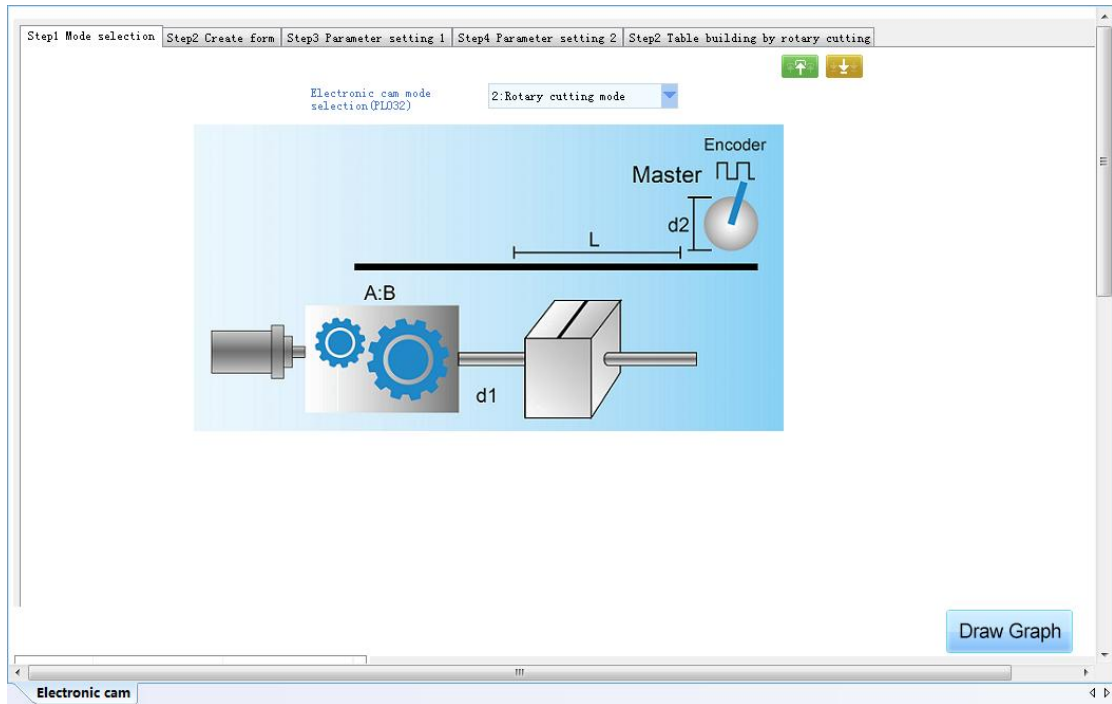
**Note:** [Searching home] function is to force the search for the origin, click the button will perform Po125 "Searching home by software trigger" option, and the Po125 value is set to 3.



➤ **Electric Cam**

The electronic cam module can support "general electronic cam", "rotary cutting mode" and "chasing cutting mode", the steps are as follows:

1) First, select "electronic cam mode" in the main interface. (Fig 3-1-22)



**Fig 3-1-22 Electric cam main interface**

2) The second step is to open the paging window and configure the relevant parameters of the selected mode. After configuring the parameters of "Rotary cutting mode" and "Chase shear mode", you can click the "Draw Graph" button in the lower right corner of the figure above to generate a satisfactory curve by adjusting the parameters, and then download the parameters; after configuring the parameters of "Universal electronic cam", click download, drag the scroll bar, and then click download Carry out the operation of general electronic cam (see the introduction of universal electronic cam for details);

Introduction to the use of universal electronic cam:

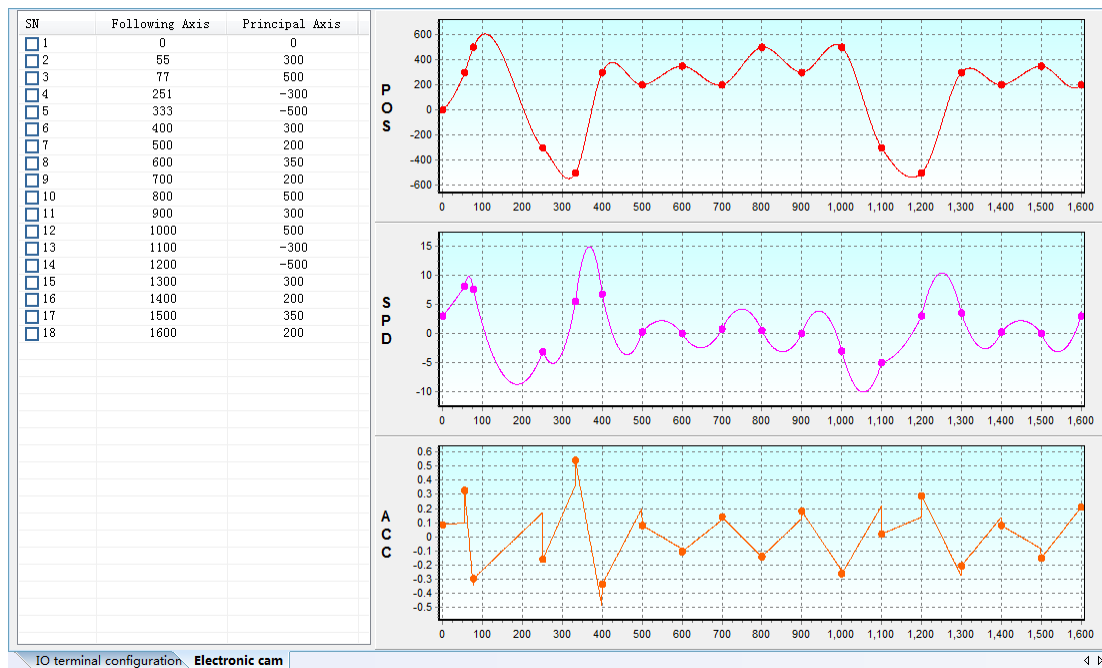


Fig 3-1-23 Electric cam interface

(1) Edit Row

Right-click to show menu bar (Fig 3-1-24)

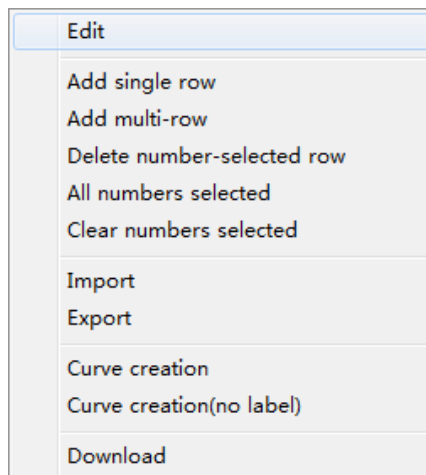


Fig 3-1-24 Menu bar interface

Edit: Edit for the selected row in blue box (Fig 3-1-25), click [OK] to finish.

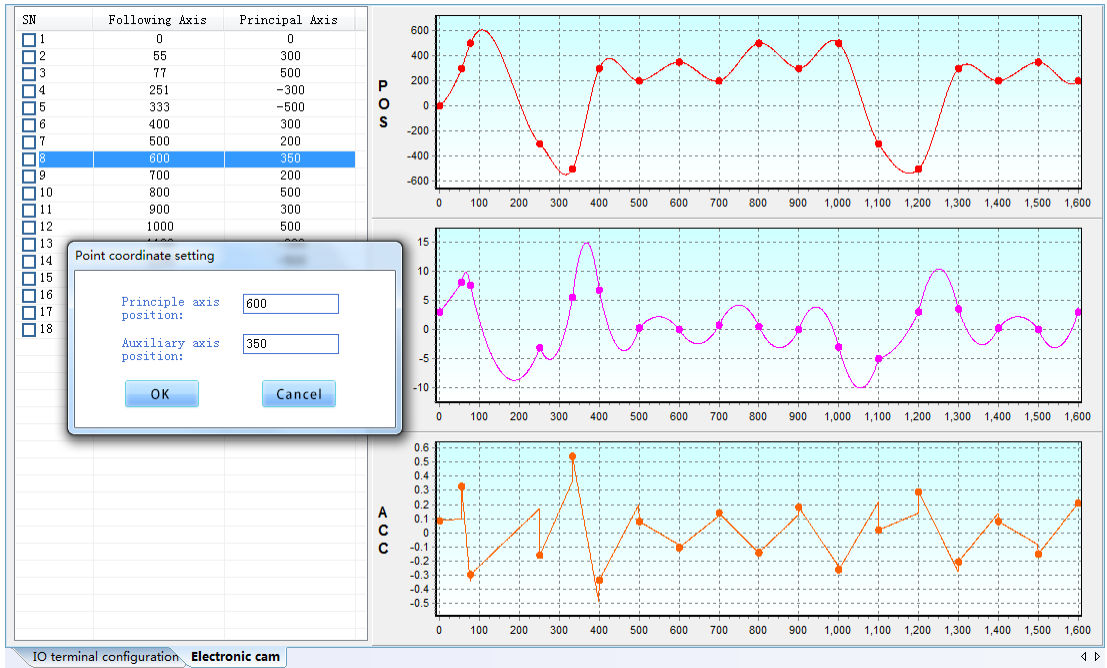


Fig 3-1-25 Electric cam editing interface

**Add single row:** Add one row in original list.

**Add multi-row:** Add some rows in original list, click [OK]. (Fig3-1-26)

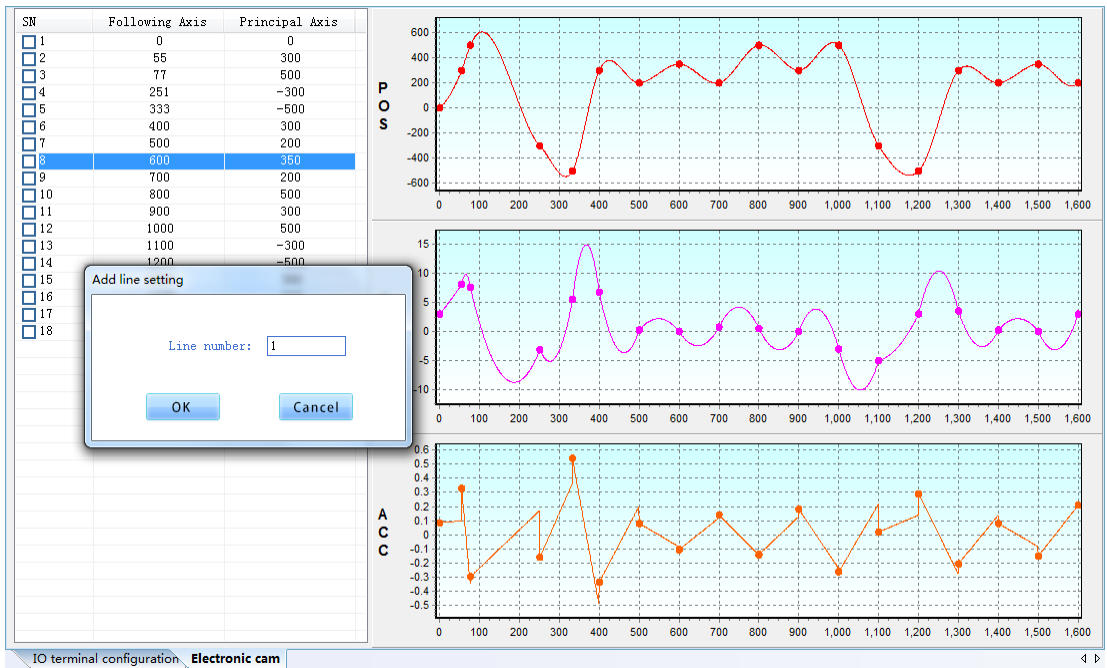


Fig 3-1-26 Electric cam add multi-row

(2) Delete selected row: click serial number box to select row, right click to select [Delete number-selected row], click [YES]. (Fig 3-1-27)

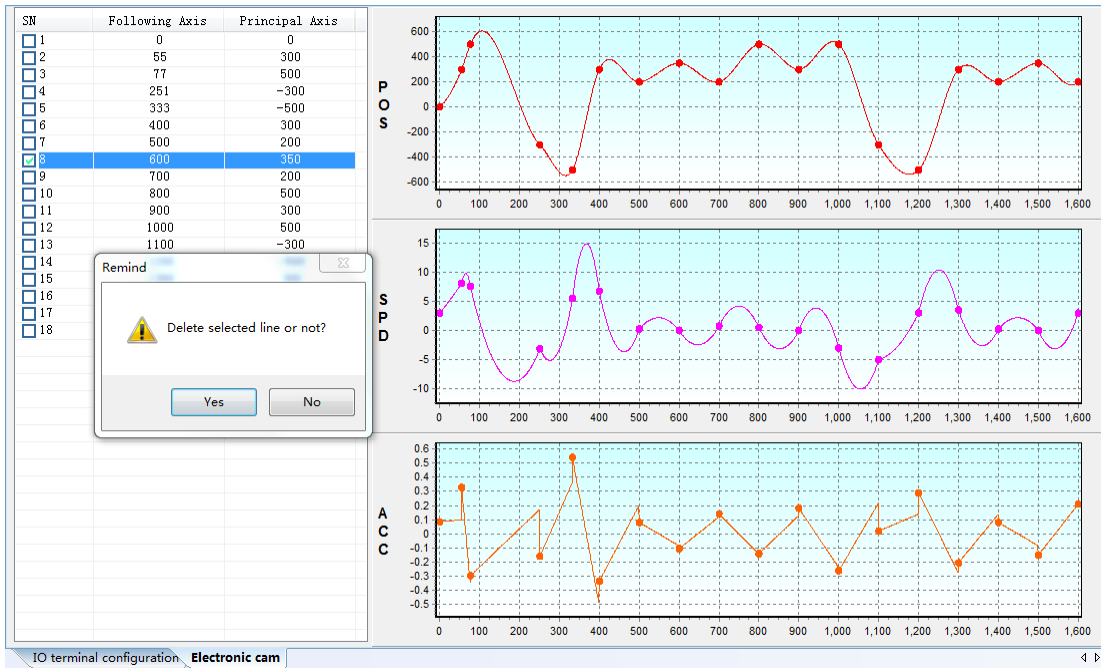


Fig 3-1-27 Delete multi-row

### (3) Curve Creation

After editing the list, right click to select [Curve creation], curve will be created in the coordinate system on the right of list (Fig 3-1-28)

Select [Curve creation(no label)], points in the list will not display on curve.

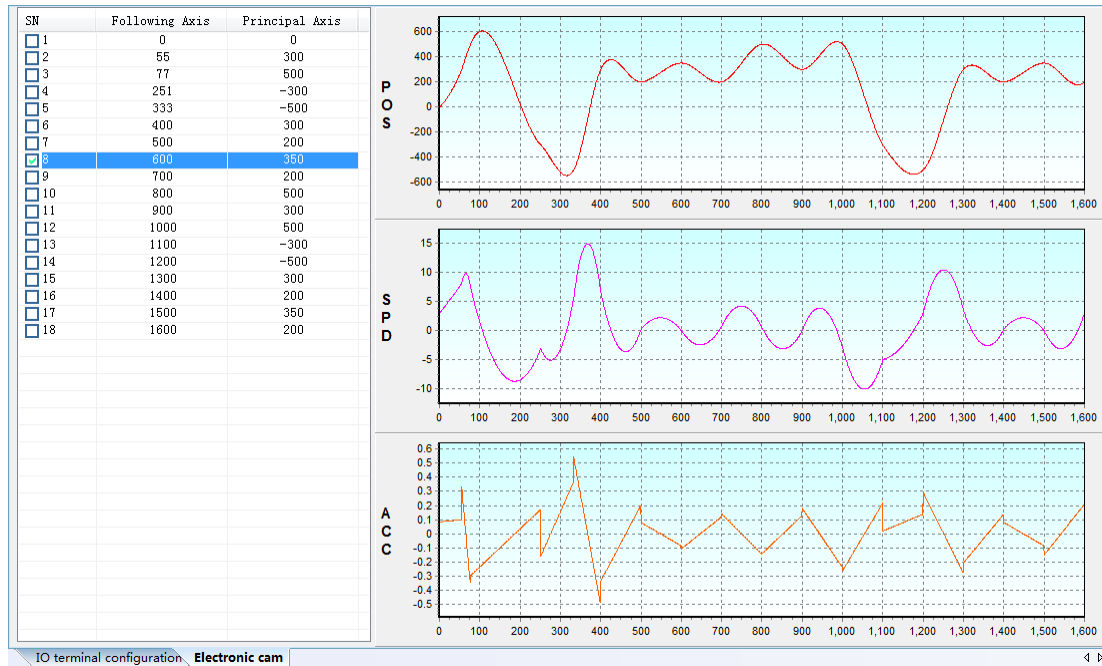


Fig 3-1-28 Electric cam curve creation

#### (4) Download

After confirming the points and curves in the list, right click to select [Download], click [start] to download the data in the list to servo drive (Fig 3-1-29).

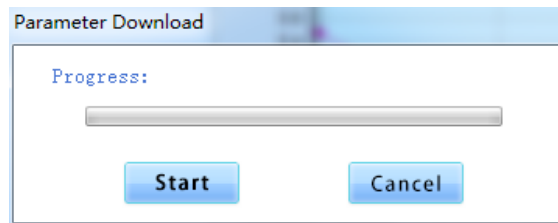


Fig 3-1-29 Electric cam download

#### (5) Import/export

Import: right click to select [Import], search the location of ECAM file and select to open. (Fig 3-1-30)

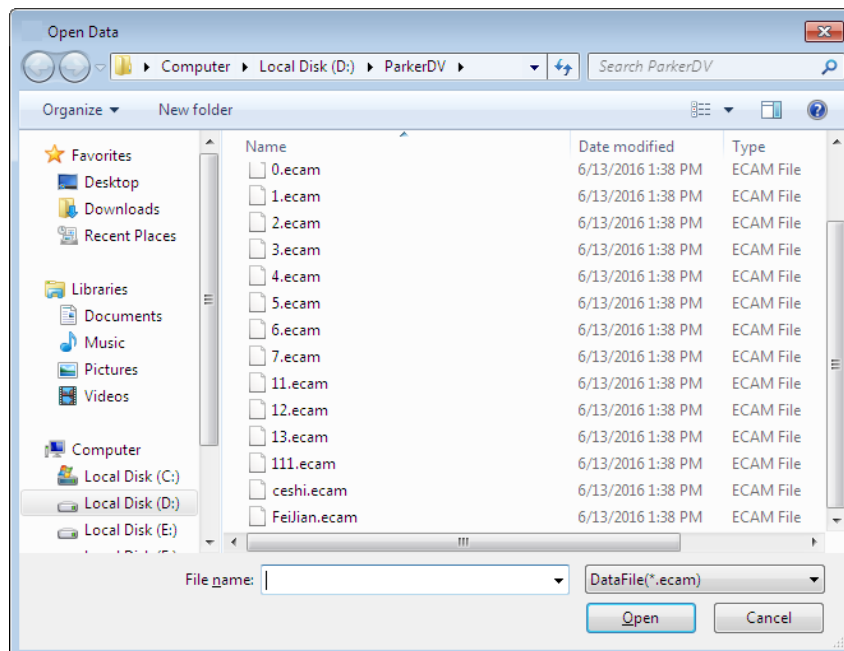
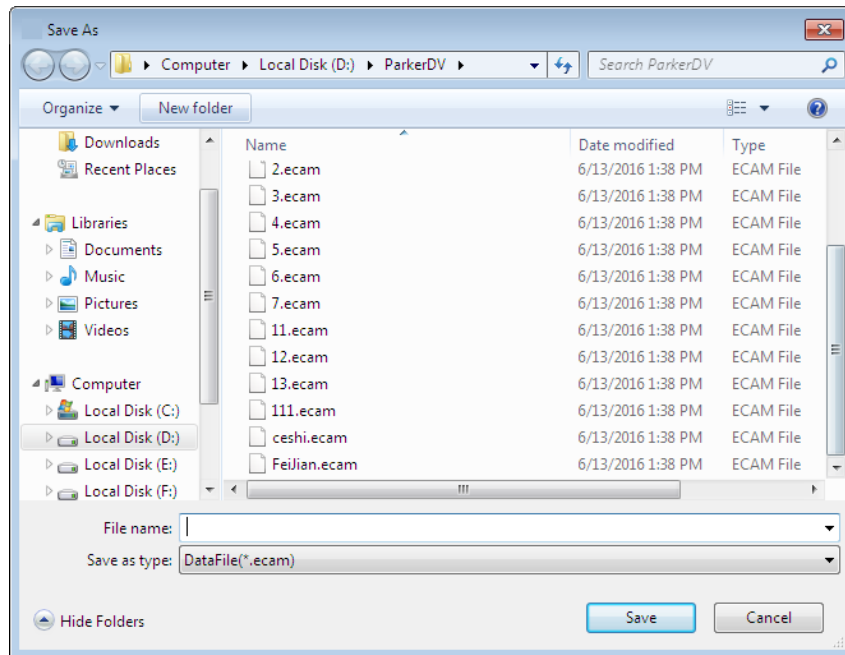


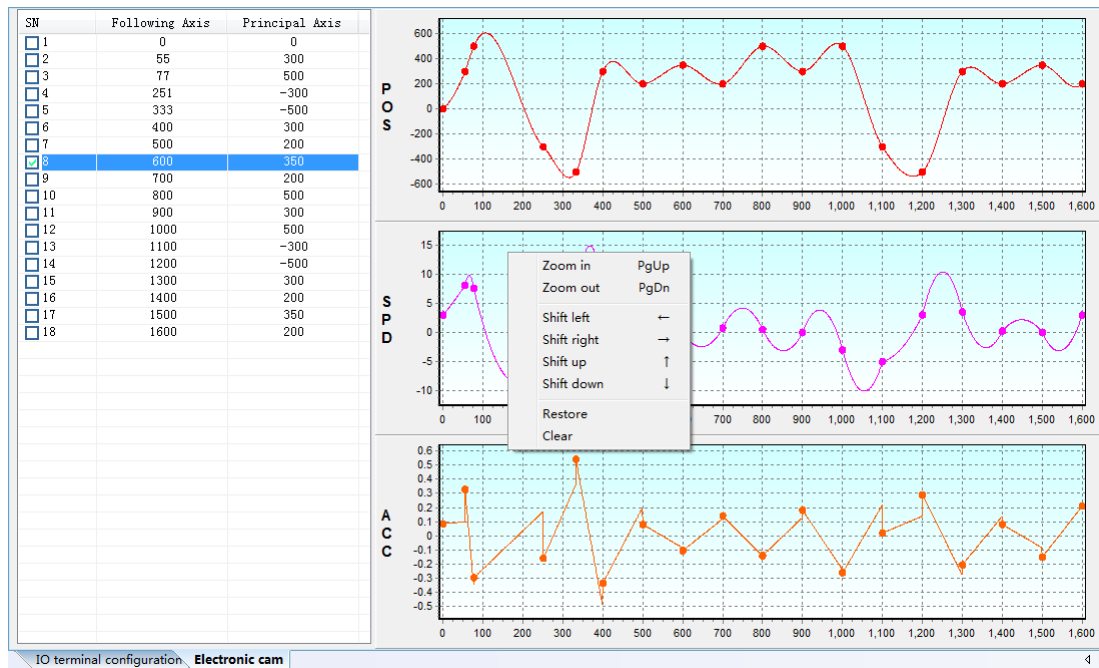
Fig 3-1-30 Electric cam import data

**Export:** right click to select [export], then select exported path, and edit project name, click [Save] to complete export. (Fig 3-1-31)



**Fig 3-1-31 Electric cam data export**

**(6)Graph editing command instruction:**



**Fig 3-1-32 Graph editing command window**

**① Curve Zoom in & Zoom out**

Execute [Project]→[Graph]→[Zoom in]/[Zoom out] or the corresponding commands in context menu, program will synchronous process zoom-in and zoom-out to three curves of “position”, “velocity” and “acceleration”. Meanwhile, [Zoom in] and [Zoom out] is bond to the shortcut key “PageUp” and “PageDown” respectively.

② Curve shift

Execute [Project]→[Graph]→[Shift left]/[Shift right]/[Shift up]/[Shift down] or the corresponding commands in context menu, program will synchronous process shift to “position”, “velocity” and “acceleration”. Meanwhile, [Shift left], [Shift right], [Shift up] and [Shift down] is bond to the shortcut key of “→”、“←”、“↑” and “↓”.

③ Curve restore

Execute [Project]→[Graph]→[Restore] or corresponding commands in context menu, program will synchronous process restoring command to the three curves of “position”, “velocity” and “Acceleration”, restoring to the original state.

④ Curve clear

Execute [Project]→[Graph]→[Clear] or corresponding commands in context menu, program will delete the three curves of “Position”, “Velocity” and “Acceleration”.

➤ Full closed-loop

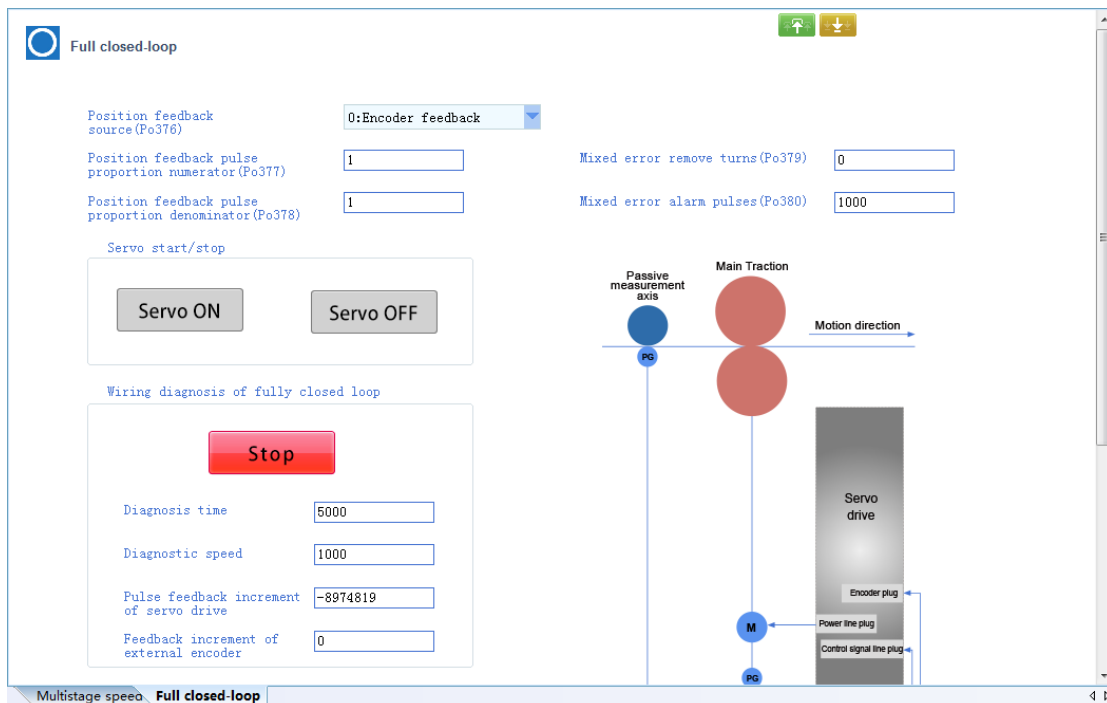





Fig 3-1-33 Full closed-loop interface

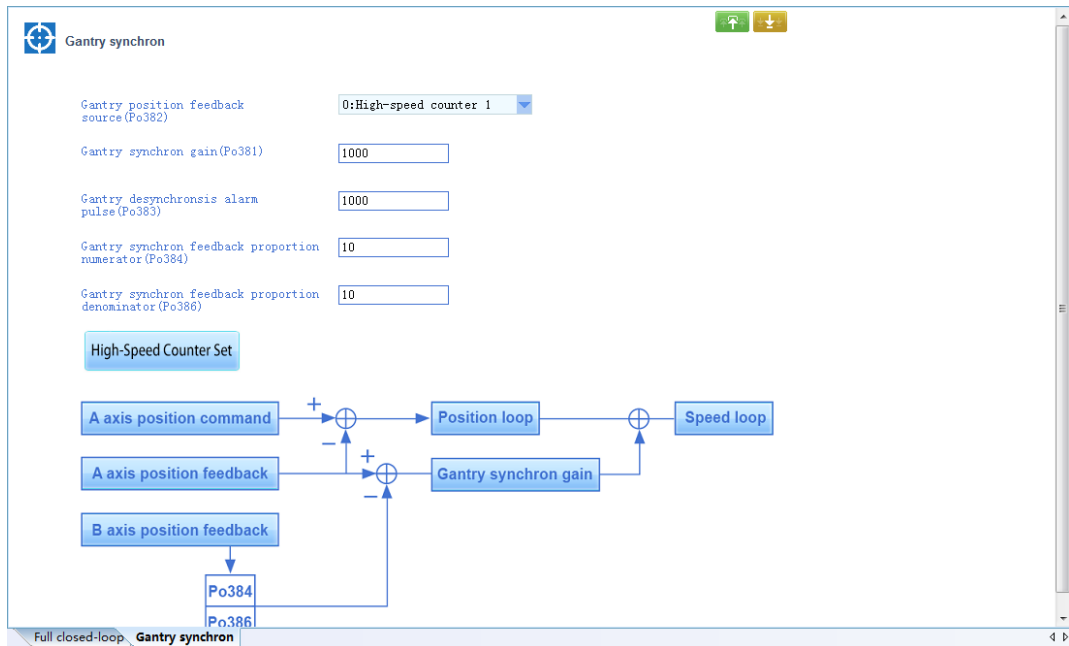
Please refer to the setting mode of [<multistage speed>](#).

The module supports full closed loop wiring diagnosis function

First, set the diagnosis time and speed. After downloading, click  to power up the servo motor. Click  the program to diagnose whether the current wiring is correct, and calculate the values of po377 and po378.

Note: This module can be related to the high speed counter function module by clicking the button .

➤ **Gantry Synchron**



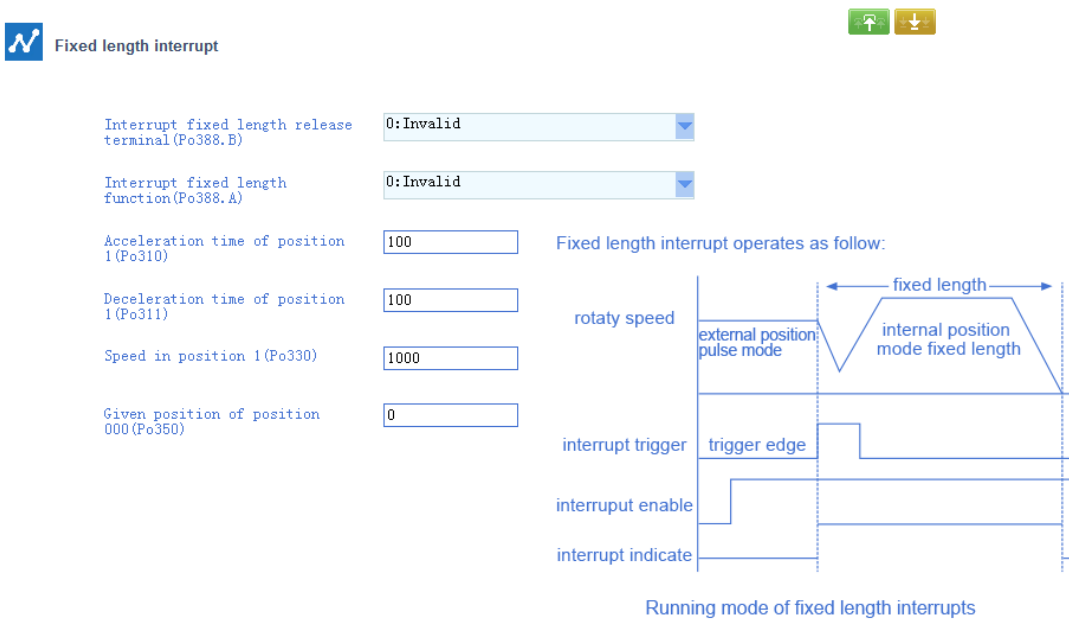
**Fig 3-1-34 Gantry synchron interface**

Please refer to the setting mode of <[multistage speed](#)>.

**Note:** This module can be related to the high speed counter function module by clicking

the button .

➤ **Fixed length interrupt**

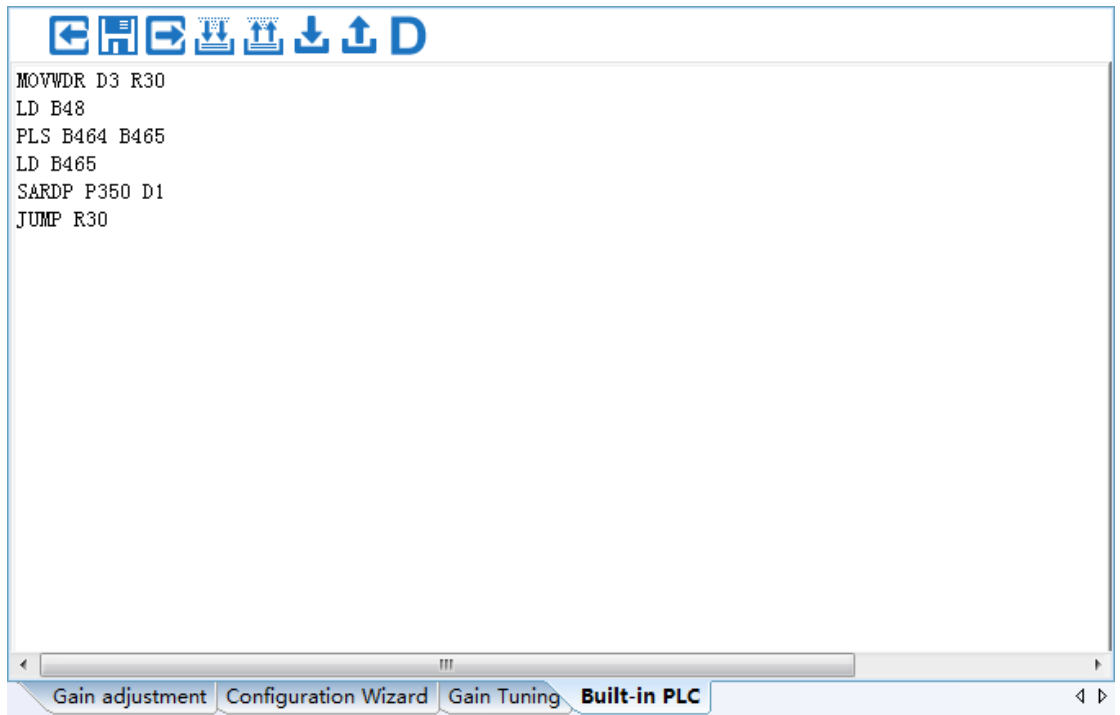


**Fig 3-1-35 Fixed length interrupt interface**

Please refer to the setting mode of <[multistage speed](#)>



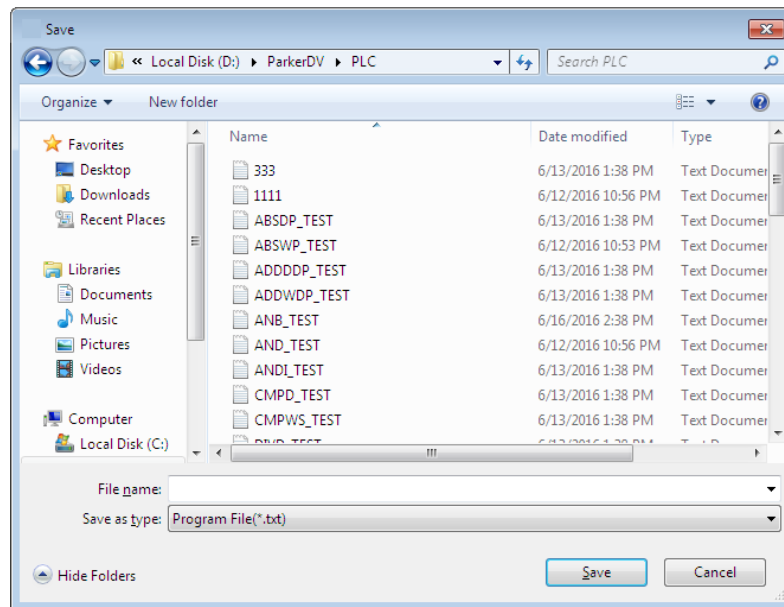
➤ **Built-in PLC**



**Fig 3-1-36 Built-in PLC interface**

**(1) Save Project**

After completing edit, click  to save dialog box (Fig 3-1-37)



**Fig 3-1-37 New Project interface**

User selects project file saving path, and input project name, click [save] to complete project.

## (2) Import Project

Click  to import, popup the window of “open program”(Fig 3-1-38)

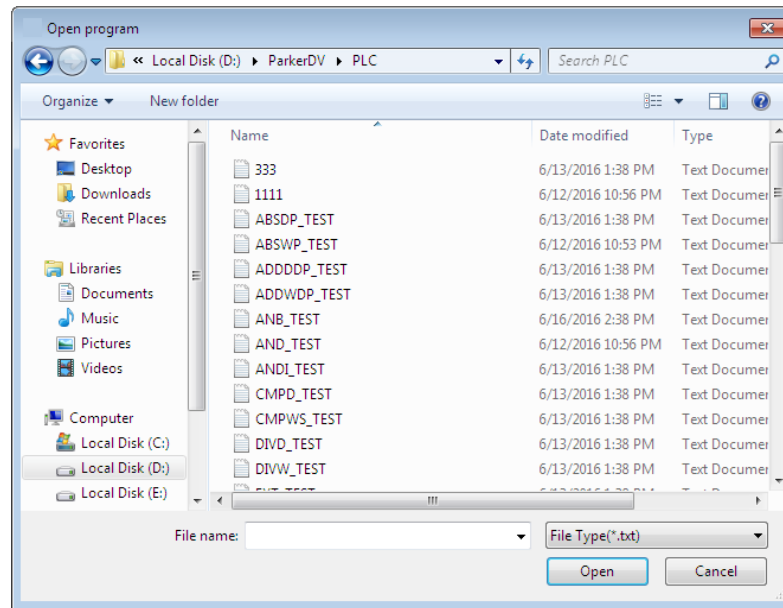



Fig 3-1-38 Open program interface

User selects project, click [open] to open this project.

## (3) Export Project

Export saved project, click  to export firstly, popup dialog box, select storage path and file name, click [Save] to complete operation. (Fig 3-1-39)

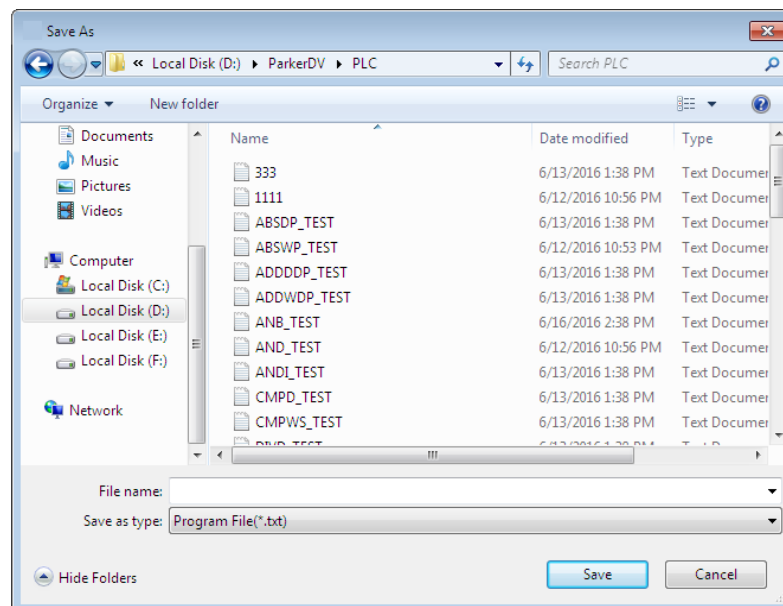

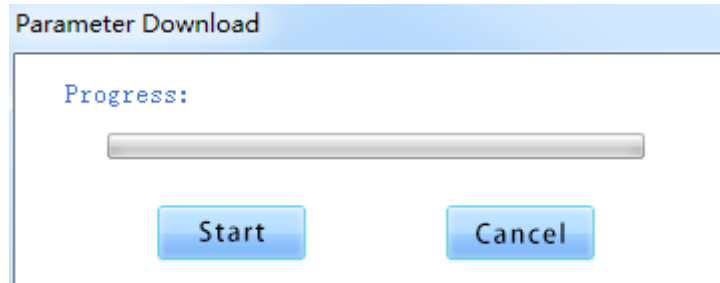


Fig 3-1-39 Export project interface


**(4) Download**

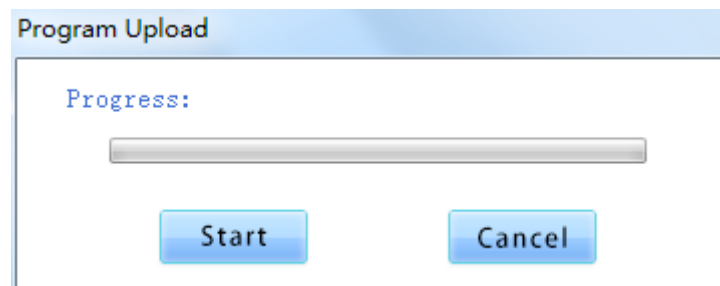
Click  to download, popups window. User clicks [Start] to download the project data to servo drive. (Note: Servo drive should be in stop status when downloading) (Fig 3-1-40)



**Fig 3-1-40 Download window**

**(5) Upload**

Click  to upload, popups window. User clicks [Start] to upload the project data from servo drive. (Note: Servo drive should be in stop status when uploading) (Fig 3-1-41)



**Fig 3-1-41 Download window**

**(6) Program Edit**

PLC editor has similar function as Notepad, user can program based on PLC instructions.

**(7) Program compiling**

Click  to compile, the interface of compiling shows as below if no error. (Fig 3-1-42)

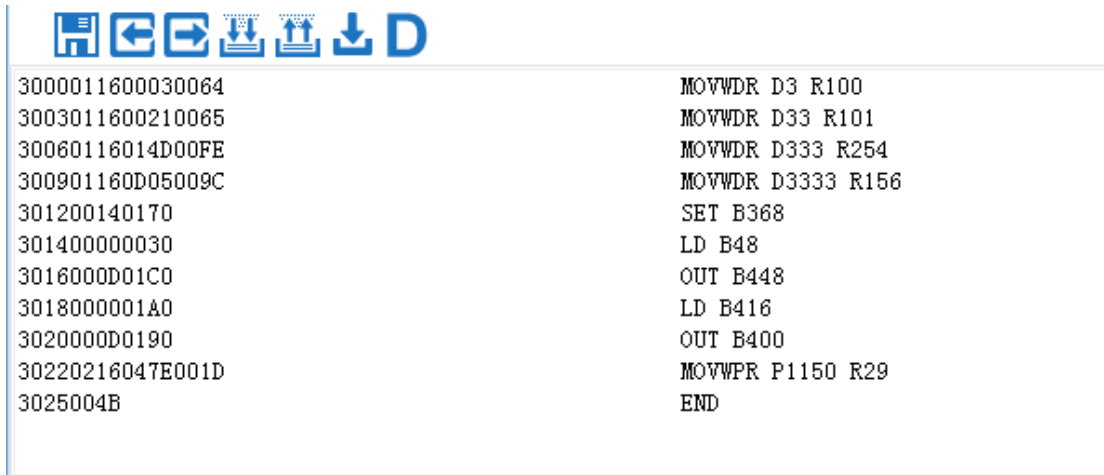


Fig 3-1-42 Program compiling interface

If compiling error, the remind box of error popups. (Fig 3-1-43)

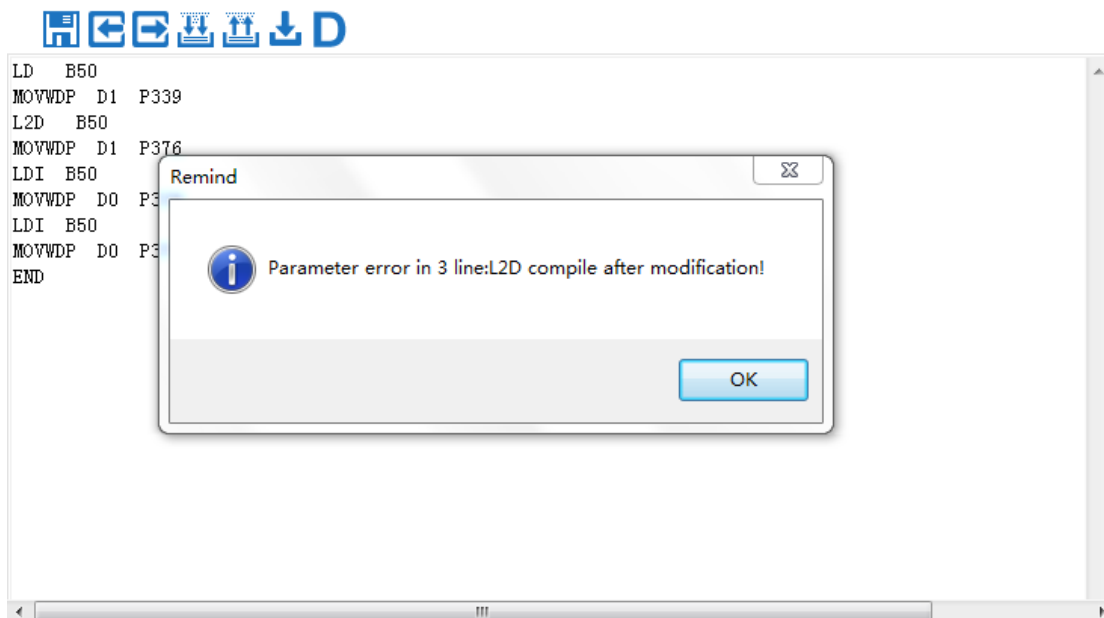


Fig 3-1-43 Remid dialog box interface

Click [OK], user can modify the error line according to the remind dialog box, then compile again until it succeed. (Fig 3-1-44)



```
1LD B50
2MOVWDP D1 P339
3L2D B50
4MOVWDP D1 P376
5LDI B50
6MOVWDP D0 P339
7LDI B50
8MOVWDP D0 P376
9END
```

Fig 3-1-44 Program with row number

### (8) Program decompiling

Click  to re-read the per-compile program, the decompiling interface pops up. (Fig 3-1-45)



```
LD B50
MOVWDP D1 P339
LD B50
MOVWDP D1 P376
LDI B50
MOVWDP D0 P339
LDI B50
MOVWDP D0 P376
END
```

Fig 3-1-45 Decompiling interface

## (9) Project debug

Click **D** button, To enter Debug mode, you can click the button above to perform the corresponding Debug operation. (Fig 3-1-46)



Fig 3-1-46 Debug mode interface

### Quit debug mode

The function is to exit debugging mode and hide relevant buttons of debugging mode.

### Set breakpoints

This function will set a breakpoint for the current mouse line, only one breakpoint can be set.

### Cancel breakpoints

This function will cancel the breakpoint setting of the program.

### Execution to breakpoint

This function will send instructions to the lower computer to make it run to the line where the breakpoint is located.

### Step into

This function will send instructions to the lower computer to run to the next

line of program.

**Start** PLC start

This function will send instructions to the lower computer and start the PLC.

**Exit** PLC exit

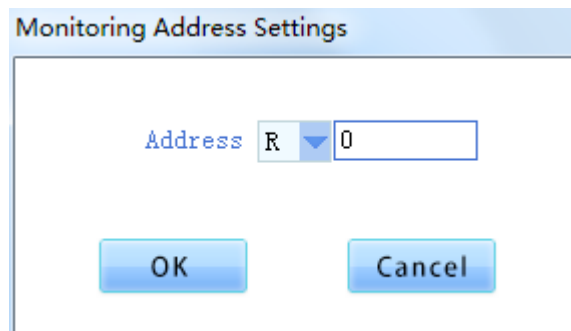
This function will send instructions to the lower computer and exit the PLC.

**Scan** Monitoring scanning

This function will send instructions to the lower computer to refresh the values in the monitoring list.

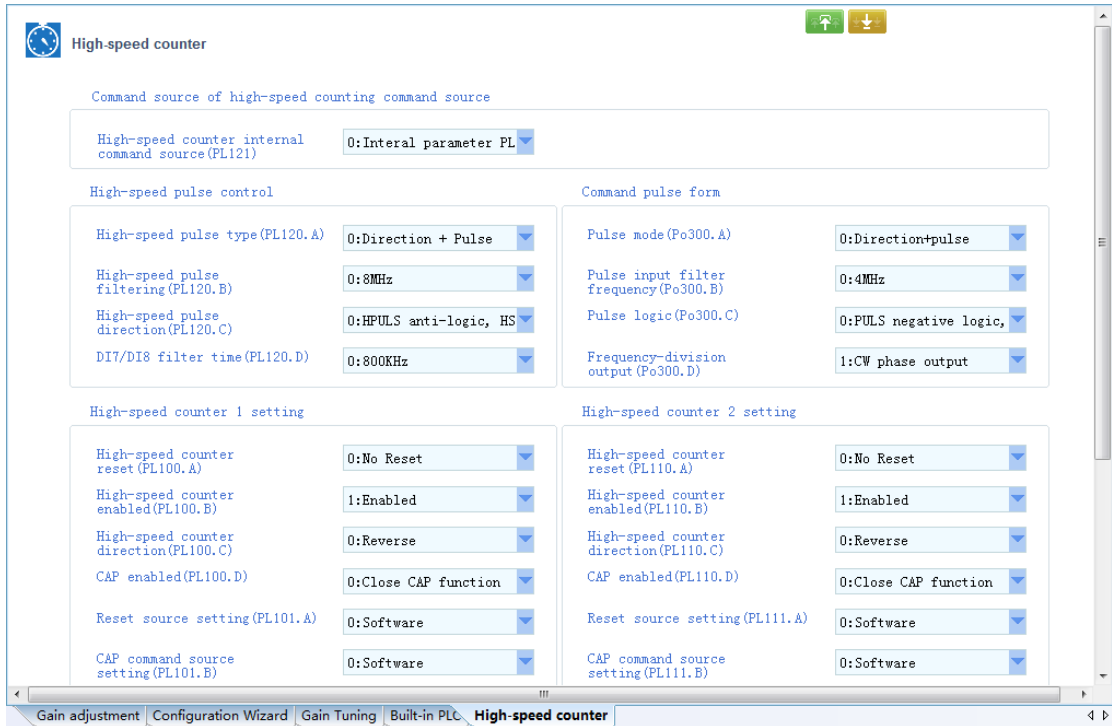
Monitoring list editing function:

Users can click the right mouse button on the list and pop up the menu to achieve the corresponding functions. The "Add Monitoring Address" function is shown in Figure 3-1-47.

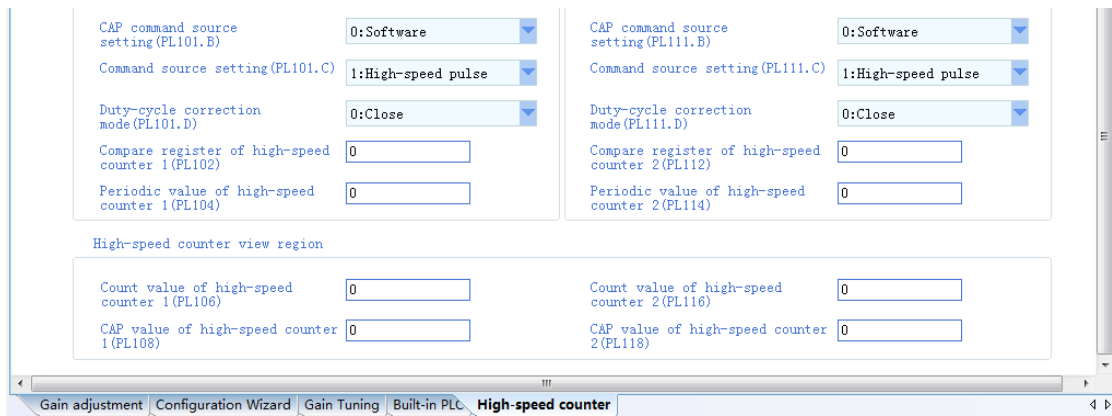


**Fig 3-1-47 Debug mode interface**

➤ **High-speed counter**



**Fig 3-1-48 High-speed counter interface 1**



**Fig 3-1-49 High-speed counter interface 2**

Please refer to the setting mode of [<multistage speed>](#)



## 6. Auxiliary Function

### ➤ JOG

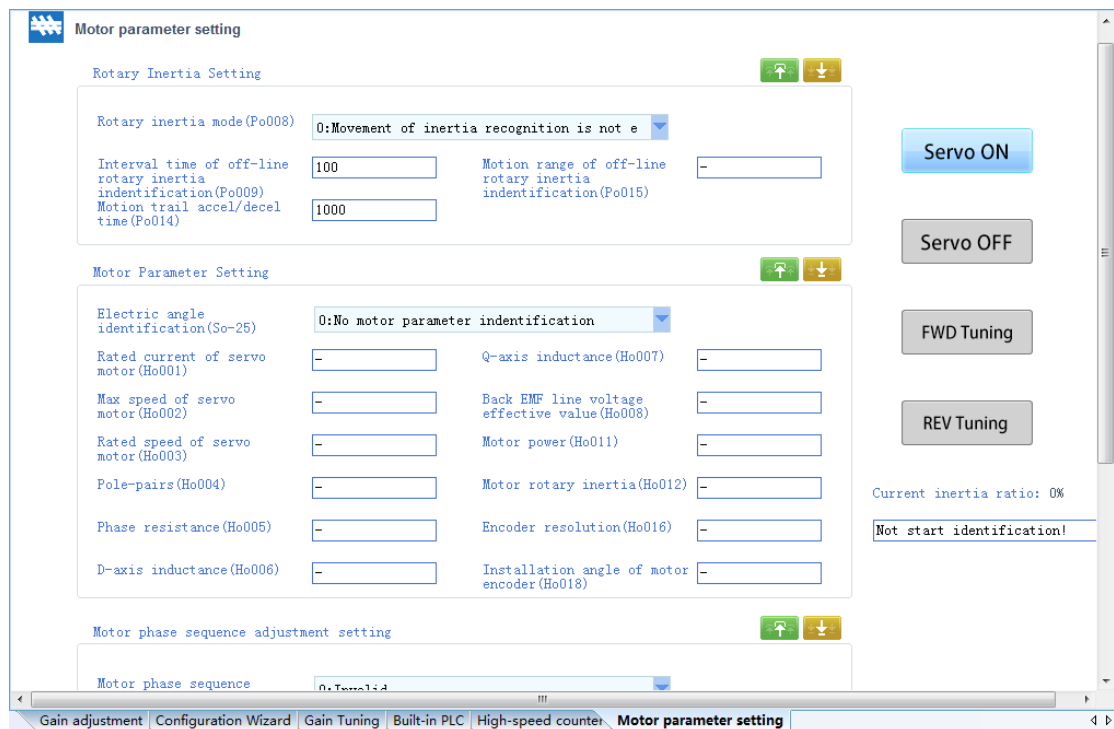


Fig 3-1-50 Jogging interface



Set [Jogging speed setting] firstly, then click **Servo ON** to power up the servo motor. Click **FWD JOG**, servo motor rotates forward, click **REV JOG**, servo motor rotates reversely.



In the right "motor status" column, the motor parameters can be monitored in real time under the inching state.

➤ **Motor parameter setting**



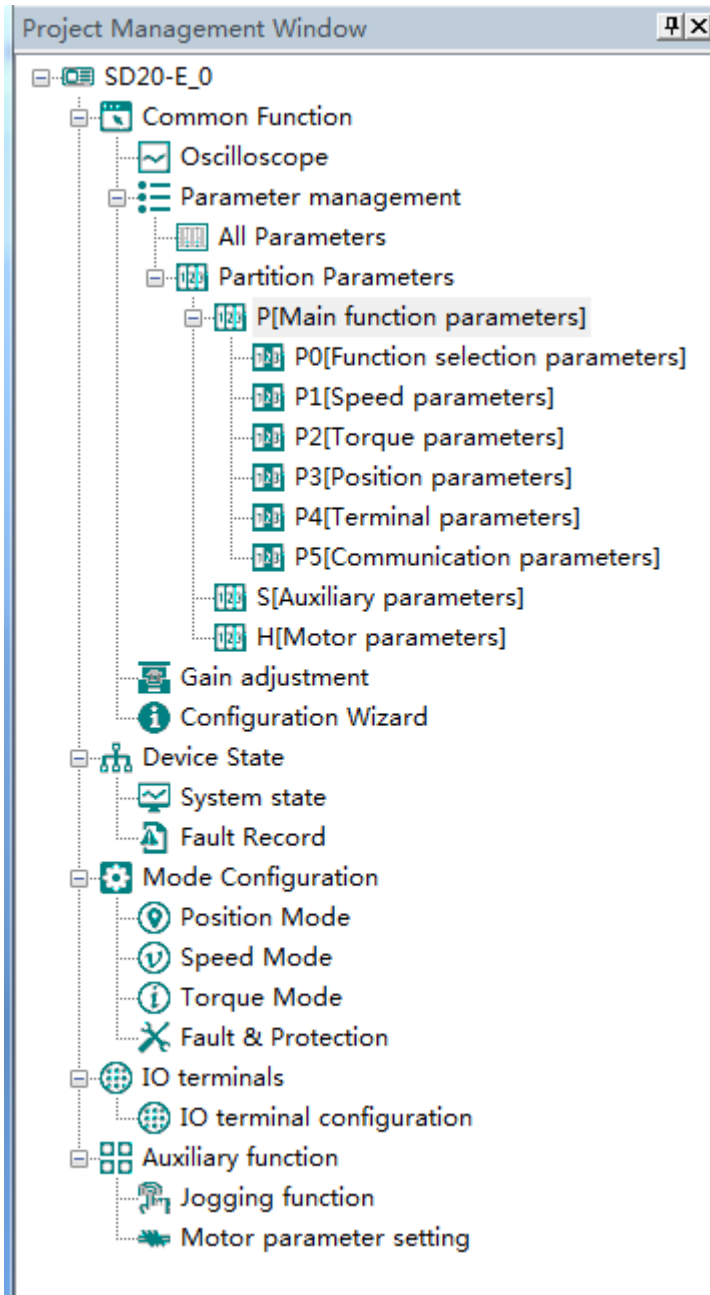
**Fig 3-1-51 Motor parameter setting interface**

Click  to upload the original parameters of [motor parameter setting], or modify directly without [upload]; then click  to download the set parameters.

After downloading the parameters, click  to complete forward identification function, click  to complete reverse identification function.

**Note:** when Po008=1, forward identification will run forward firstly then reverse, reverse identification will run reverse firstly then forward. When Po008=2, forward identification will run forward, reverse identification will run reverse.











◆ SD20-E



The main program interface left for engineering management window, the user can in the toolbar of the "view" select the "show" and "hidden", the double tree above the module name you can open the corresponding function module window.

## 1. Common Function

### ➤ Oscilloscope

-  **Save:** Save the current oscilloscope graphics as a custom file.
-  **Import:** Import saved oscilloscope image from local storage.
-  **Screen Shot:** Save the current oscilloscope graphics as an BMP file.
-  **Cursor:** Cursor can be displayed for measuring time and amplitude.
- **CH** **Channel Select Switch:** Switch the selected on the left side of the channel.
- **+** **Increase amplitude range:** Increasing the channel amplitude range.
- **-** **Reduce amplitude range:** Reduce the channel amplitude range.
-  **Move Up:** Move up the curve.
-  **Move Down:** Move down the curve;
-  **Left Shift:** Move the curve left;
-  **Right Shift:** Move the curve right;
-  **Zoom In:** Zoom In can enlarge the operation of the curve.
-  **Zoom Out:** Zoom Out can be reduced to the curve operation.

### Zoom percentage setting

If the "zoom" setting in the current system setting "display" is not 100%, the user needs to match the current zoom setting by setting the "zoom percentage". After the setting, the upper computer software needs to be restarted to take effect.

### Oscilloscope type selection

Click on the lower left corner of the selection button  Oscilloscope

Real-time oscilloscope, complete oscilloscope type switch.

1) when the user selects an oscilloscope, the user can perform the following operation:

First, click



to popup trigger setting window (Fig 3-2-1)

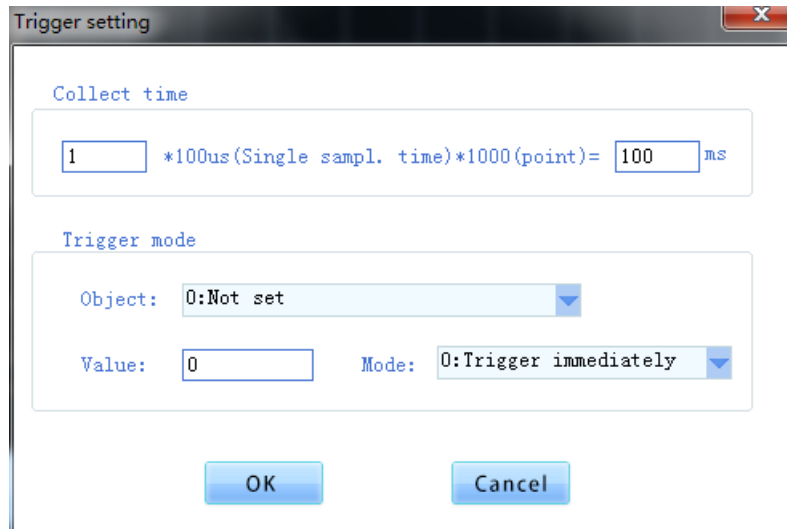


Fig 3-2-1 window of trigger setting

After setting complete, click , Click  or  to start sampling (Fig 3-2-2)



Fig 3-2-2 Oscilloscope Interface

When the driver is servo, the mode also supports the functions of "32-bit data mode data acquisition", "FFT Analysis", "Dual axis debugging" and "Function generator"(Fig 3-2-3).

1) Data acquisition function in 32-bit data mode

When the function is turned on, the servo waveform data collected by the upper computer can support 32 bits, and the data range can support - 2147483648 ~ 2147483647. The user can set it by modifying the "32-bit data mode start stop" drop-down box.

2) FFT analysis function

This function is to carry out FFT analysis on the collected waveform data. First collect the waveform or import the waveform data, and then click the "FFT Analysis" button.

### 3) Dual axis debugging function

This function can collect the waveform data of two servos at the same time, cooperate with the debugging of rigid tapping and other functions.

### 4) Function generator function

Function generator can provide instructions to each control loop during debugging without using external control source. First configure the parameters and click the "apply" button to download, then press the "start" button to turn on the function, and press the "stop" button to stop the function generator.

(1) Command source setting: which mode the command is applied to: torque, speed, position;

(2) Waveform setting: set the command type supported by each control mode

The command types supported by position mode are square wave and sine wave;

The speed mode supports the following command types: square wave, sine, forward jog, forward and reverse jog;

The command types supported by torque mode are: square wave, sine, forward jog, forward and reverse jog, pulse;

(3) Amplitude: the magnitude of the instruction, the setting range and unit will change according to the selected instruction source;

(4) Operating frequency: the frequency of command (sine wave and square wave are effective);

Running time: the action time of the instruction (positive and negative inching are effective).

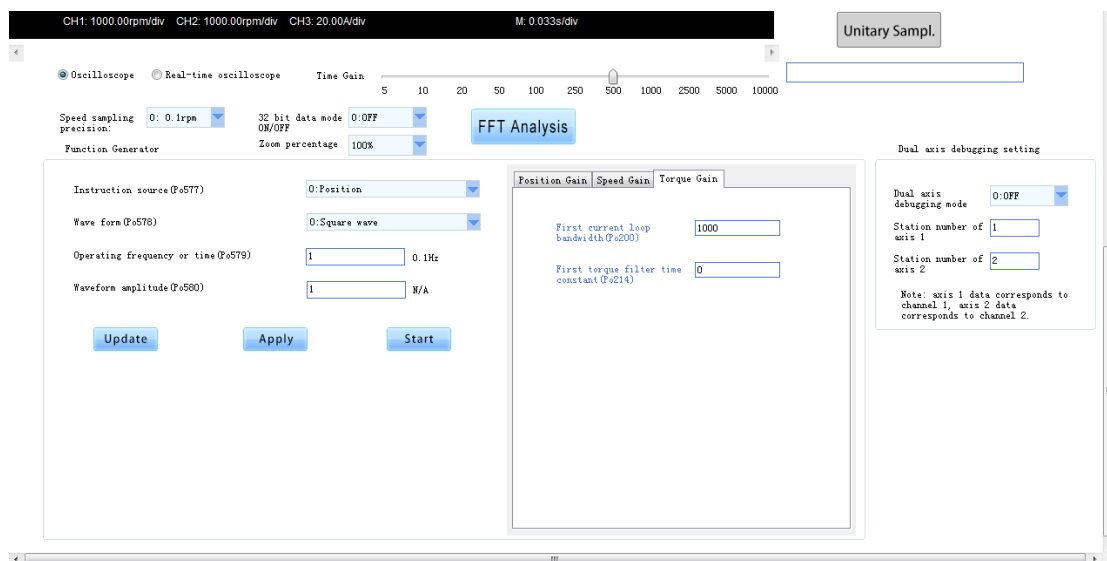


Fig 3-2-3 Oscilloscope Interface 2 (Servo)

2) when the user selects a real-time oscilloscope, the user can perform the following operation:

After setting the sampling time, click [Start], real-time oscilloscope starts to present waveform (Fig 3-2-4)



**Fig 3-2-4 Real-time Oscilloscope Interface**

3)After sampling, the operation can be carried out as follows:



**Channel waveform amplitude adjustment:**

Select waveform number, scroll up or down to adjust waveform amplitude.

**Time shaft adjustment:**

Drag[Time gain] to adjust, horizontal axis presents the time for each box.

**Waveform curve zoom operation:**

Select the picture on the left waveform corresponding to the number, click  or  button to zoom in and out of the waveform curve.

**Note:** 1.To ensure the display of oscilloscope being real-time, set communication mode as RTU and baud rate as 57600, are recommended.

2. The machine without electricity or by PC after reset, the machine will need about 6 seconds, initialization time, please don't collect during initialization waveform, so as to avoid mistakes

## ➤ Parameter Management

**Note:** The software of servo drive needs to update the latest version, so that it can support the parameter setting function of motor.

Click “parameter management” or shortcut icon in the function tree of left side to open parameter management interface (Fig 3-2-5).

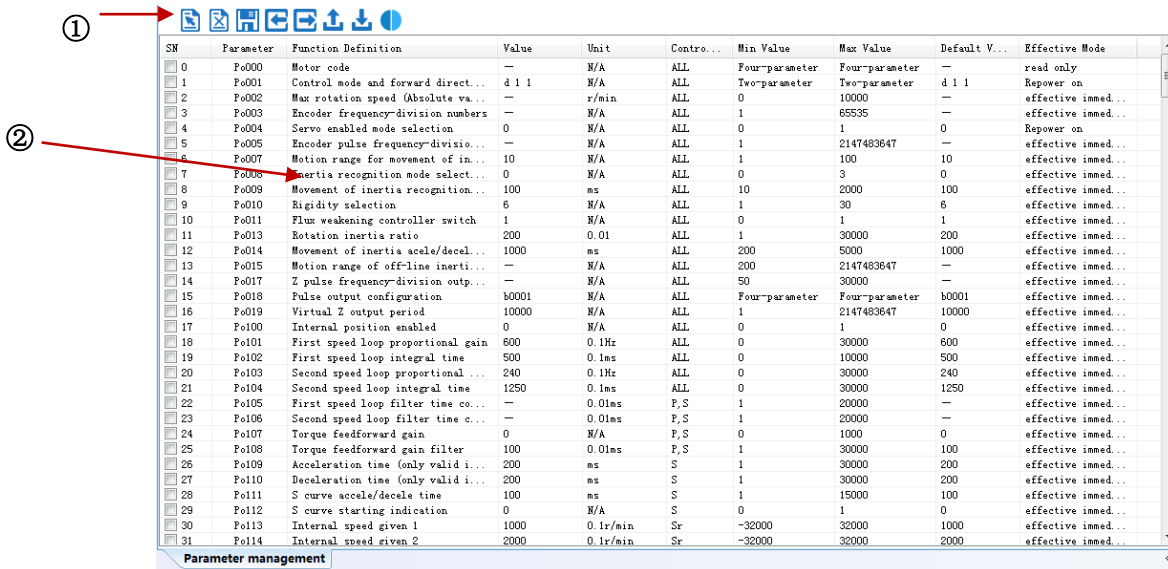


Fig 3-2-5 Parameter management interface

① Function shortcut icon ②Parameter information display area

Select All

Select current all parameters for the subsequent operation;

Unselect

Unselect current parameters;

Save

Save the current set value of all parameters to project file;

Import

Import parameters from local storage. EXCEL file or .Par file;

Export

This function can support all function code information exported to EXCEL or Par file to save, also can support the export modified or checked function code information to the EXECL file to save;





Upload

The function is to upload the current selected function code parameter values from the device to the program. After uploading successfully, the function code is changed to green;



Download

Download current selected parameters from PC/PLC to servo drive;



Comparison

This function can support the comparison with the current value in the driver or with the factory value, and the corresponding comparison result window will pop up;

### ➤ Gain Adjustment

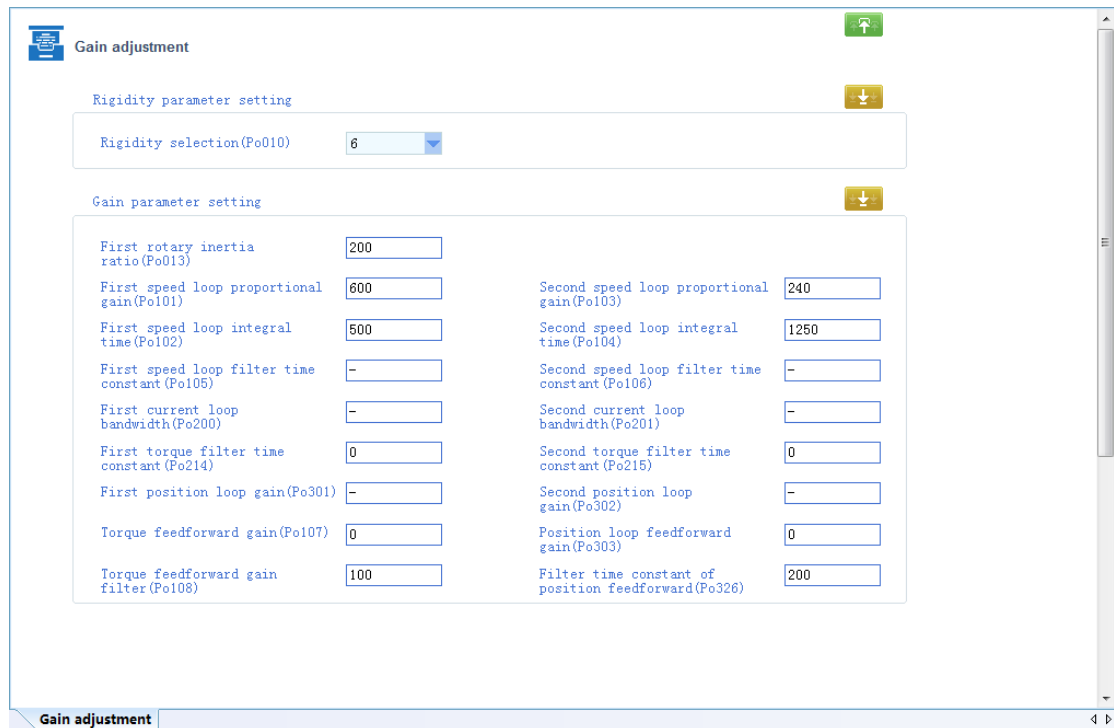


Fig 3-2-6 Gain Adjustment Interface



Upload

Upload parameters displayed in current page from servo drive.



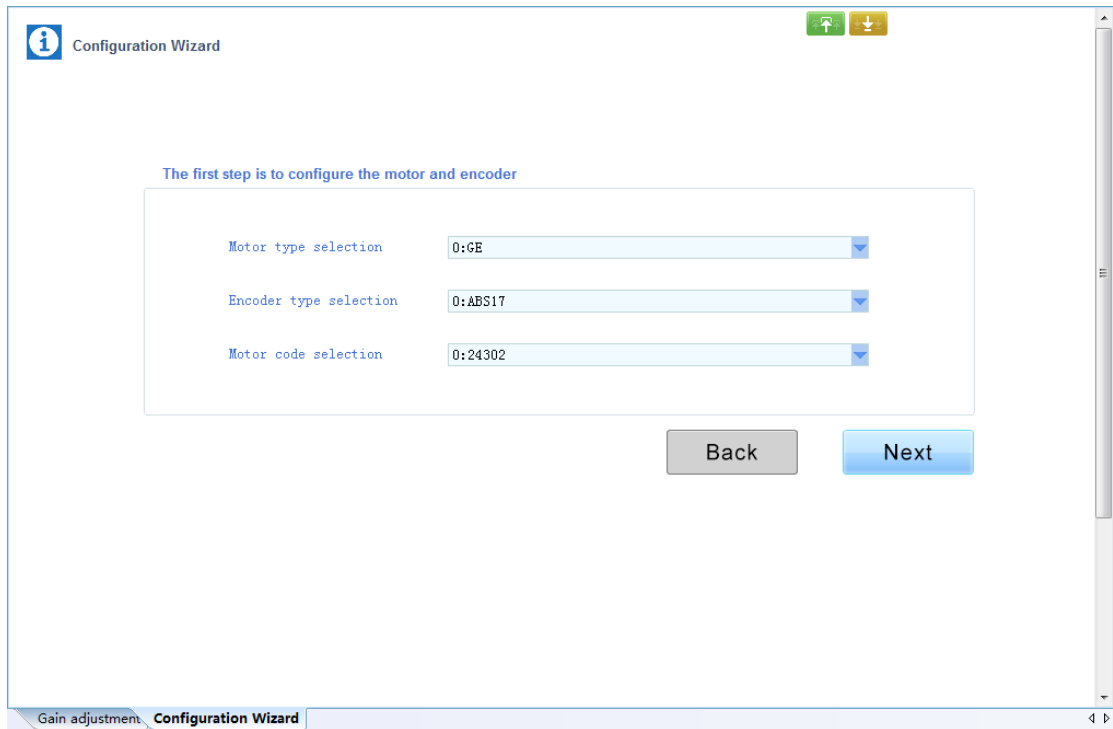
Download

Download parameters in the box

Note: 1. Click  on the [Rigidity parameter setting] to refresh the rigidity table.

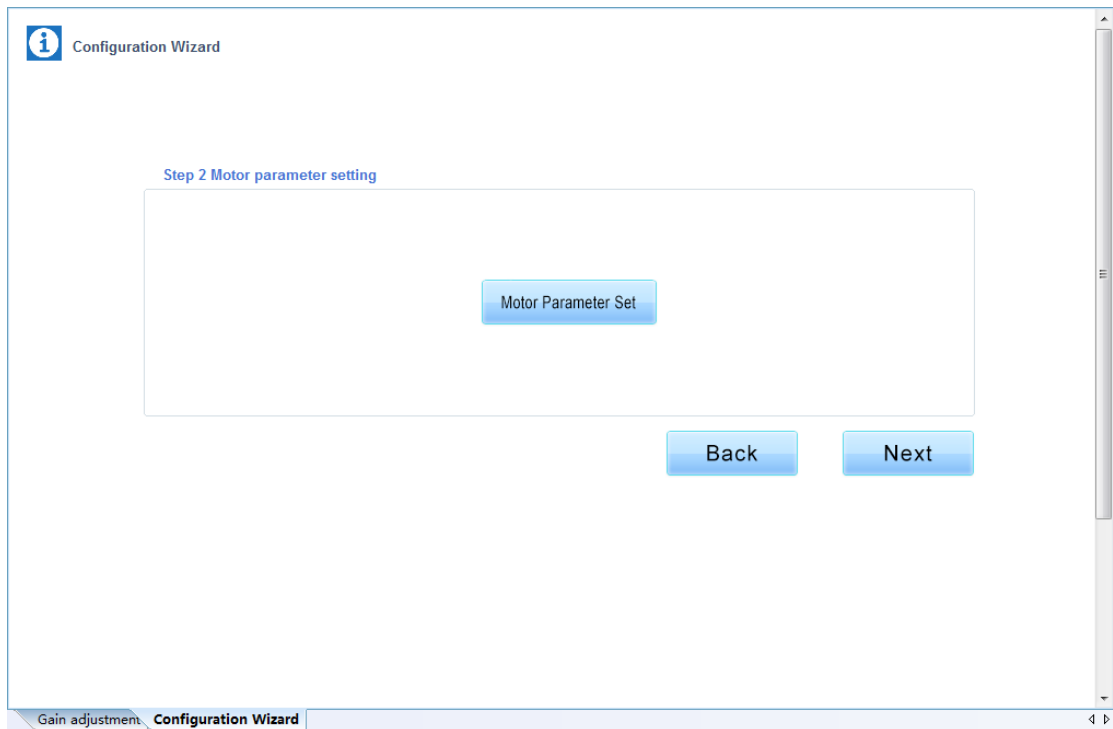
2. The function table module to modify the servo rigidity does not refresh gain table.

## ➤ Configuration Wizard



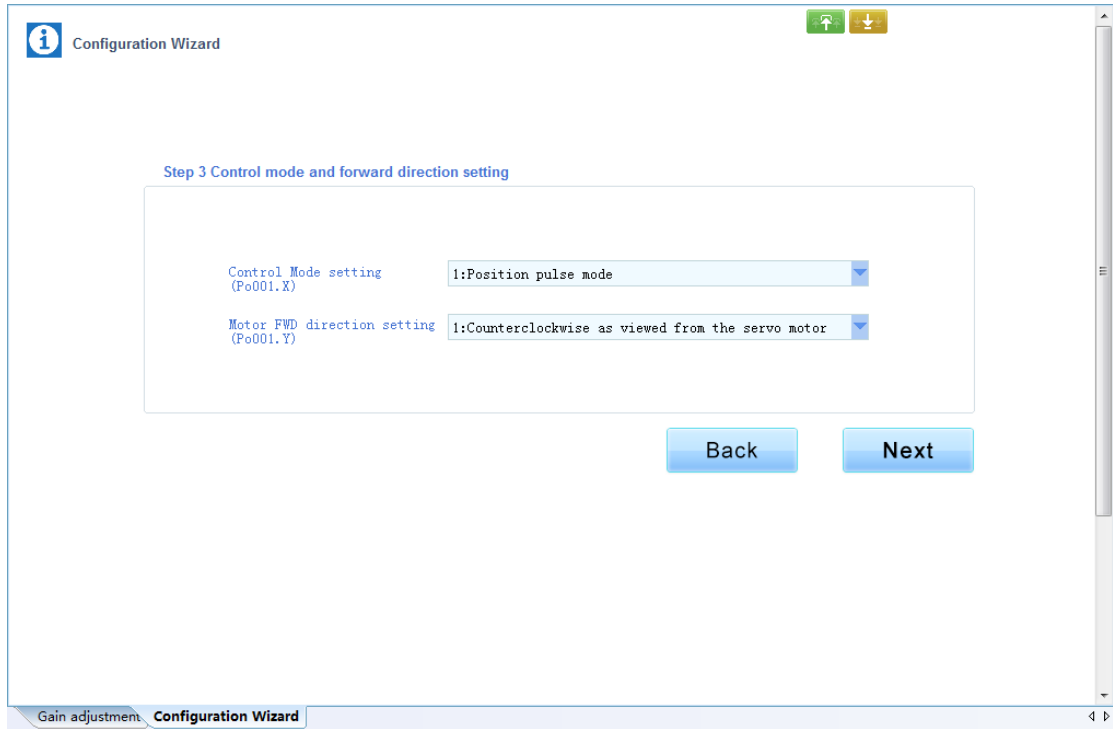
The screenshot shows the 'Configuration Wizard' window. At the top left is an information icon and the title 'Configuration Wizard'. At the top right are two small icons: a green one with an upward arrow and a yellow one with a downward arrow. Below the title bar, the text 'The first step is to configure the motor and encoder' is displayed. A central white box contains three dropdown menus: 'Motor type selection' with the value '0:GE', 'Encoder type selection' with the value '0:ABS17', and 'Motor code selection' with the value '0:24302'. Below these menus are two buttons: a grey 'Back' button and a blue 'Next' button. At the bottom of the window, a tab bar shows 'Gain adjustment' and 'Configuration Wizard' (which is selected). The bottom right corner has a small navigation icon.

**Fig 3-1-7 Configuration Wizard interface 1**

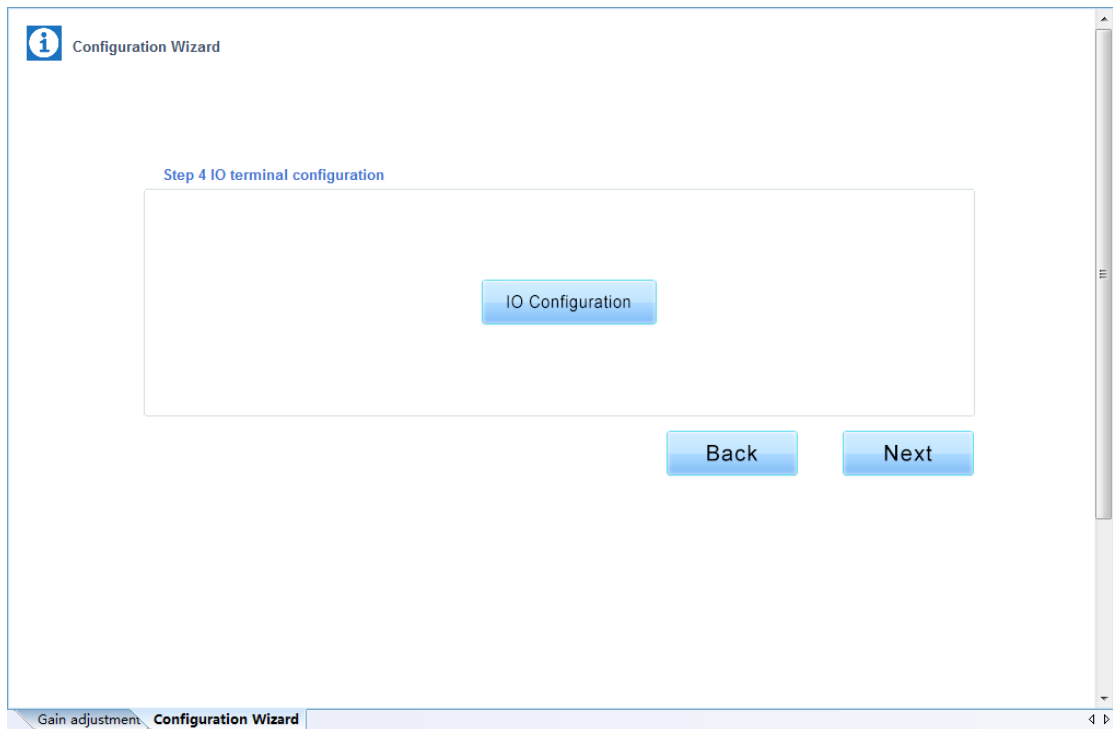


The screenshot shows the 'Configuration Wizard' window at a later stage. The title bar and top icons are the same. The text 'Step 2 Motor parameter setting' is displayed. A central white box contains a single blue button labeled 'Motor Parameter Set'. Below this box are two blue buttons: 'Back' and 'Next'. At the bottom, the tab bar shows 'Gain adjustment' and 'Configuration Wizard' (selected). The bottom right corner has the same navigation icon.

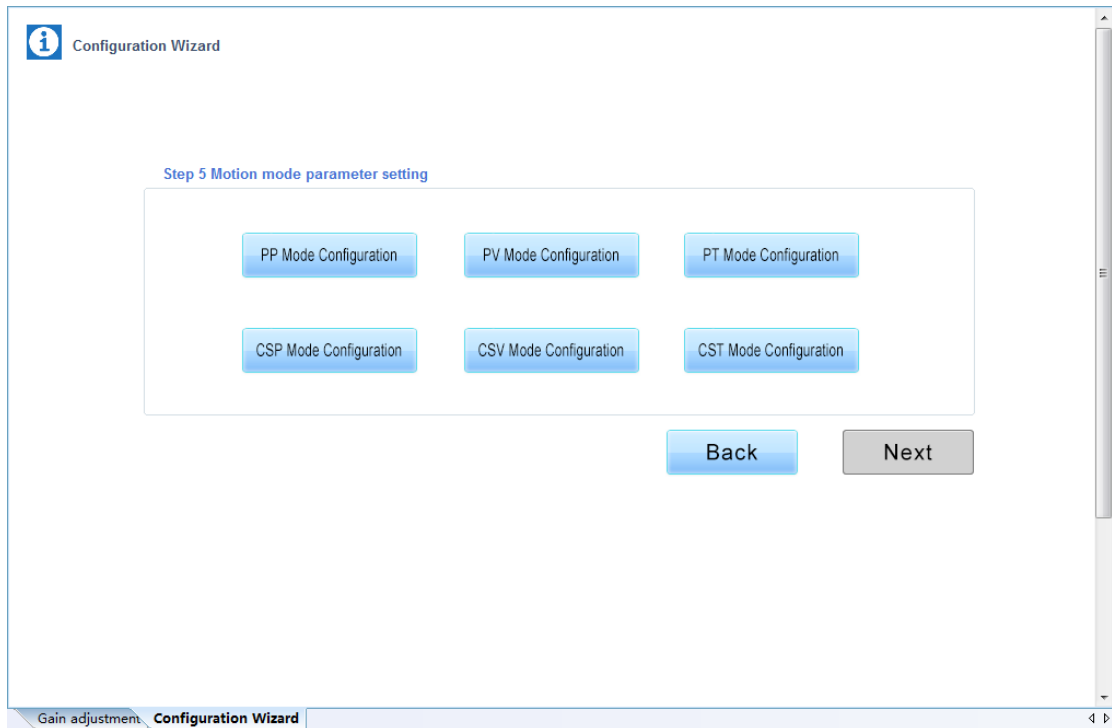
**Fig 3-1-8 Configuration Wizard interface 2**



**Fig 3-1-9 Configuration Wizard interface 3**



**Fig 3-1-10 Configuration Wizard interface 4**



**Fig 3-1-11 Configuration Wizard interface 5**



**Upload parameters displayed in current page from servo drive.**



**Download parameters in the box.**



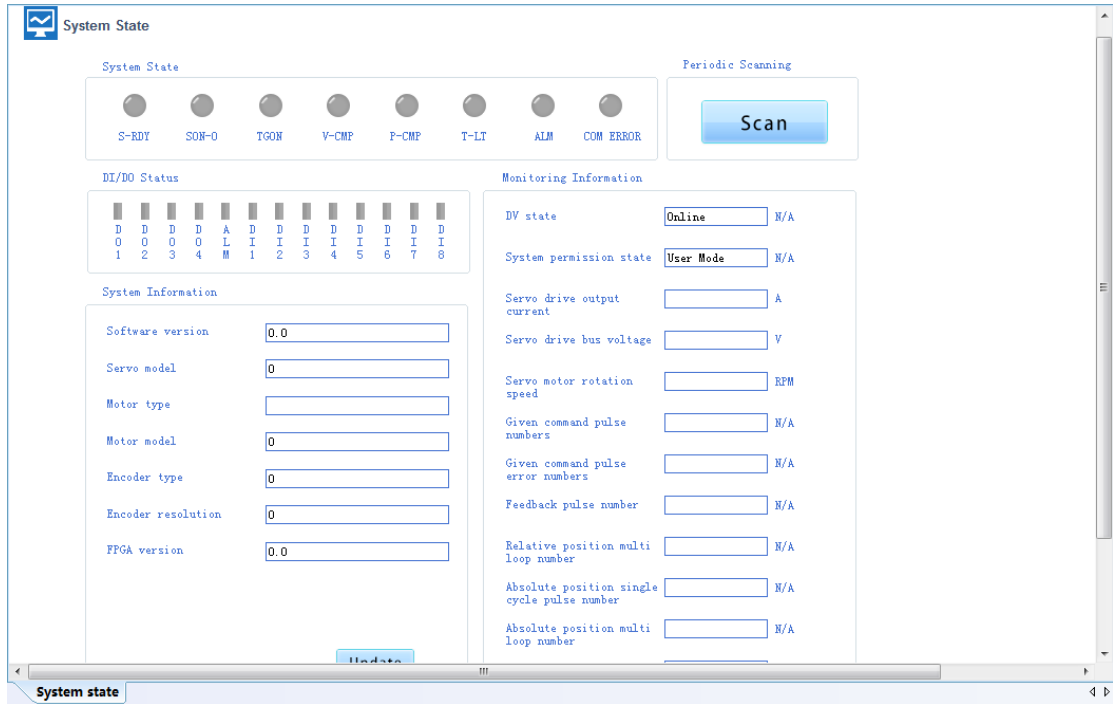
Enter the next configuration interface.



Return to the previous configuration interface.

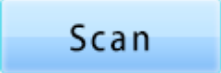
## 2. Device State

### System State



**Fig 3-2-12 System State Interface**

Click  to read and update current servo drive information.

Click  to scan and update current servo drive status.

### 3. Mode Configuration

The function is composed of position-mode configuration, speed-mode configuration, torque-mode configuration, Fault&Protection.

Parameter Quick Search Catalogue

Position Mode Configuration	Electronic gear	Electronic gear ratio selection (Po339)
		First group electronic gear numerator (Po304)
		First group electronic gear denominator (Po305)
		Second group electronic gear numerator (Po344)
		Second group electronic gear denominator (Po346)
	Position gain	First position loop gain (Po301)
		Second position loop gain (Po302)
		Position loop feedforward gain (Po303)
		Position loop filter time constant (Po306)
		Filter time constant of position feedforward (Po326)
		FIR filter (Po340)
		Acceleration/deceleration time in position mode (Po343)
	Positioning complete	Position pulse clear (Po308)
Position reach pulses range (Po307)		
Position error alarm pulses (Po309)		
Speed Mode Configuration	Accel/decel time	S curve start (Po112)
		Acceleration time (only valid in speed mode) (Po109)
		Deceleration time (only valid in speed mode) (Po110)
		S curve accele/decel time (Po111)
	Zero speed clamp	Zero clamp enabled (Po127)
		Speed value in the zero clamp (Po126)
	Speed reached	Range of target speed (Po117)
		Rotation detection value (Po118)
	Speed Gain	First speed loop proportional gain (Po101)
		First speed loop integral time (Po102)
		First speed loop filter time constant (Po105)
		Second speed loop filter time constant (Po106)
		Torque feedforward gain (Po107)
		Torque feedforward gain filter (Po108)
		Speed given low-pass filter econd-order (Po153)
Torque Mode Configuration	Command limit	Internal max torque limit value (Po202)
		Forward max torque limit (Po208)
		Reverse max torque limit(Po209)
	Torque gain	First current loop bandwidth (Po200)
		First torque filter time constant (Po214)
Fault & Protection	Overload configuration	Overload pre-alarm current (So-35)
		Overload pre-alarm filter time (So-36)

		Motor overload coefficient setting (So-37)
	Stop Mode	Servo OFF stop mode (So-07)
		Delay time of dynamic braking (So-08)
		Servo motor stop mode (So-64)
		Deceleration stop time (So-65)
	Overtravel configuration	Forward run prohibited (So-17)
		Reverse run prohibited (So-18)
		Forward/reverse run prohibited torque setting (Po216)
		Forward/reverse run prohibited and emergency stop torque (Po207)
		Overtravel limit function (So-39)
		Forward running range pulse when overtravel protection (Po140)
		Forward running range multi-loop numbers when overtravel protection (Po142)
		Reverse running range pulse when overtravel protection (Po143)
		Reverse running range multi-loop numbers when overtravel protection (Po145)
	Fault protection	Input power phase-loss protection (So-06)
		Encoder disconnection protection (So-15)
		Under voltage protection of LI battery (So-38)
		Delay time of lock-rotor protection (So-40)
		Alarm output duty ratio (So-42)
		Motor overheat protection (So-50)
		Motor disconnected protection of temperature detection (So-51)
		Torque unreached protection setting (So-54)
		Torque unreached time (So-55)
	Regenerative brake	Braking resistor value (So-04)
		Discharge duty ratio (So-05)
	Brake output	Delay time for servo OFF (So-02)
		Delay time for electro- magnetic braking OFF (So-03)
		Speed threshold of electromagnetic brake (So-16)
		Power-off brake (So-28)
Power-off brake time (So-29)		

 Upload

Upload parameters displayed in current page from servo drive.

 Download

Download parameters displayed in current interface to servo drive.

See details for the description of parameters in Servo drive user manual.

## 4. IO Terminal

### IO Terminal Configuration



Fig 3-2-13 IO Terminal Configuration Interface

Click **Monitor. Mode** to start real-time data refreshing.

Click **Forced Output** to upper or lower parameter bit, click **Valid** or **Invalid** to switch high-low bit.

#### Terminal force description:

Terminal force can be in the invalid function of the terminal force for the effective state, if the terminal function has been in effective state mandatory function will not produce effect.



## 5. Auxiliary Function

### ➤ JOG

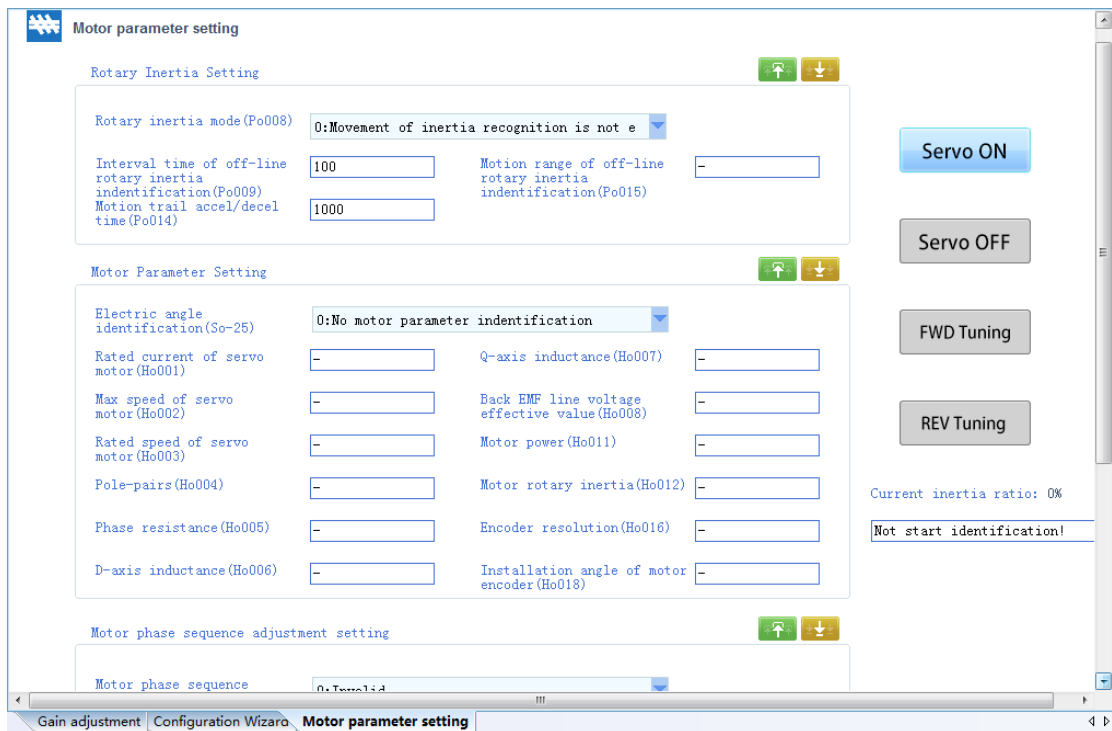


Fig 3-2-14 Jogging interface



Set [Jogging speed setting] firstly, then click **Servo ON** to power up the servo motor. Click **FWD JOG**, servo motor rotates forward, click **REV JOG**, servo motor rotates reversely.



In the right "motor status" column, the motor parameters can be monitored in real time under the inching state.

➤ **Motor parameter setting**



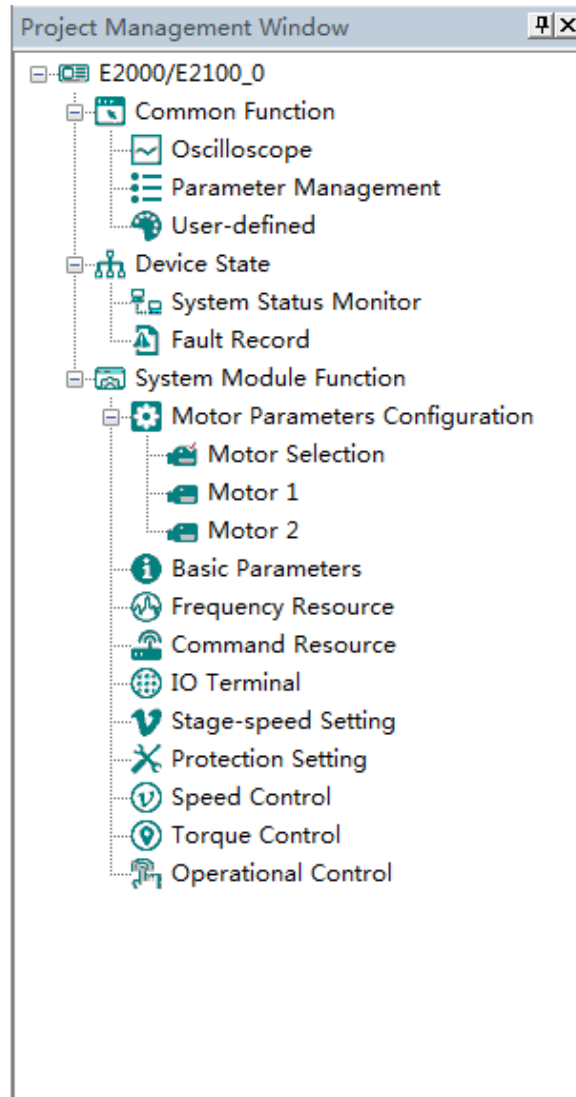
**Fig 3-2-15 Motor parameter setting interface**

Click  to upload the original parameters of [motor parameter setting], or modify directly without [upload]; then click  to download the set parameters.

After downloading the parameters, click  to complete forward identification function, click  to complete reverse identification function.

**Note:** when Po008=1, forward identification will run forward firstly then reverse, reverse identification will run reverse firstly then forward. When Po008=2, forward identification will run forward, reverse identification will run reverse.

◆ E2000/E2100



The main program interface left for engineering management window, the user can in the toolbar of the "view" select the "show" and "hidden", the double tree above the module name you can open the corresponding function module window.

## 1. Common Function

### ➤ Oscilloscope



**Save:** Save the current oscilloscope graphics as a custom file.



**Import:** Import saved oscilloscope image from local storage.



**Screen Shot:** Save the current oscilloscope graphics as an BMP file.



**Cursor:** Cursor can be displayed for measuring time and amplitude.



**Channel Select Switch:** Switch the selected on the left side of the channel.



**Increase amplitude range:** Increasing the channel amplitude range.



**Reduce amplitude range:** Reduce the channel amplitude range.



**Move Up:** Move up the curve.



**Move Down:** Move down the curve;



**Left Shift:** Move the curve left;



**Right Shift:** Move the curve right;



**Zoom In:** Zoom In can enlarge the operation of the curve.



**Zoom Out:** Zoom Out can be reduced to the curve operation.

### Oscilloscope type selection

Click on the lower left corner of the selection button  Oscilloscope

Real-time oscilloscope, complete oscilloscope type switch.

1) when the user selects an oscilloscope, the user can perform the following operation:

First, click

Trigger Setting

to popup trigger setting window (Fig 3-3-1)

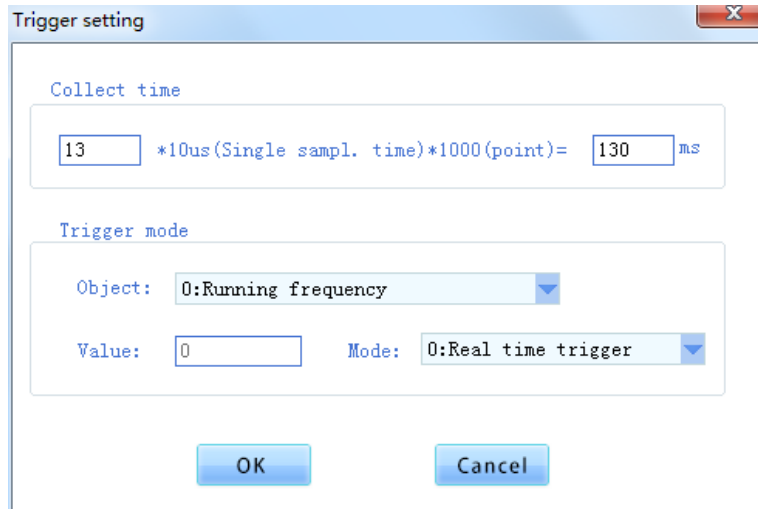


Fig 3-3-1 window of trigger setting

After setting complete, Click , Click  or  to start sampling (Fig 3-3-2)

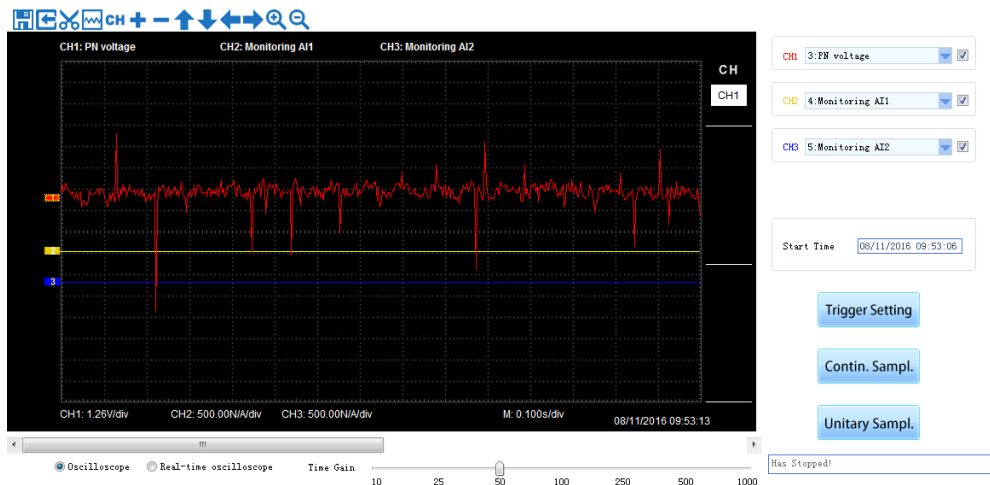


Fig 3-3-2 Oscilloscope Interface

2) when the user selects a real-time oscilloscope, the user can perform the following operation:

After setting the sampling time, click [Start], real-time oscilloscope starts to present waveform (Fig 3-3-3)



Fig 3-3-3 Real-time Oscilloscope Interface

3)After sampling, the operation can be carried out as follows:



**Channel waveform amplitude adjustment:**

Select waveform number, scroll up or down to adjust waveform amplitude.

**Time shaft adjustment:**

Drag [Time gain] to adjust, horizontal axis presents the time for each box.

**Waveform curve zoom operation:**

Select the picture on the left waveform corresponding to the number, click  or  button to zoom in and out of the waveform curve.

**Note:** To ensure the display of oscilloscope being real-time, set communication mode as RTU and baud rate as 57600, are recommended.

➤ **Parameter Management**

Click “Parameter Management” in the function tree of left side to open parameter management interface (Fig 3-3-4).

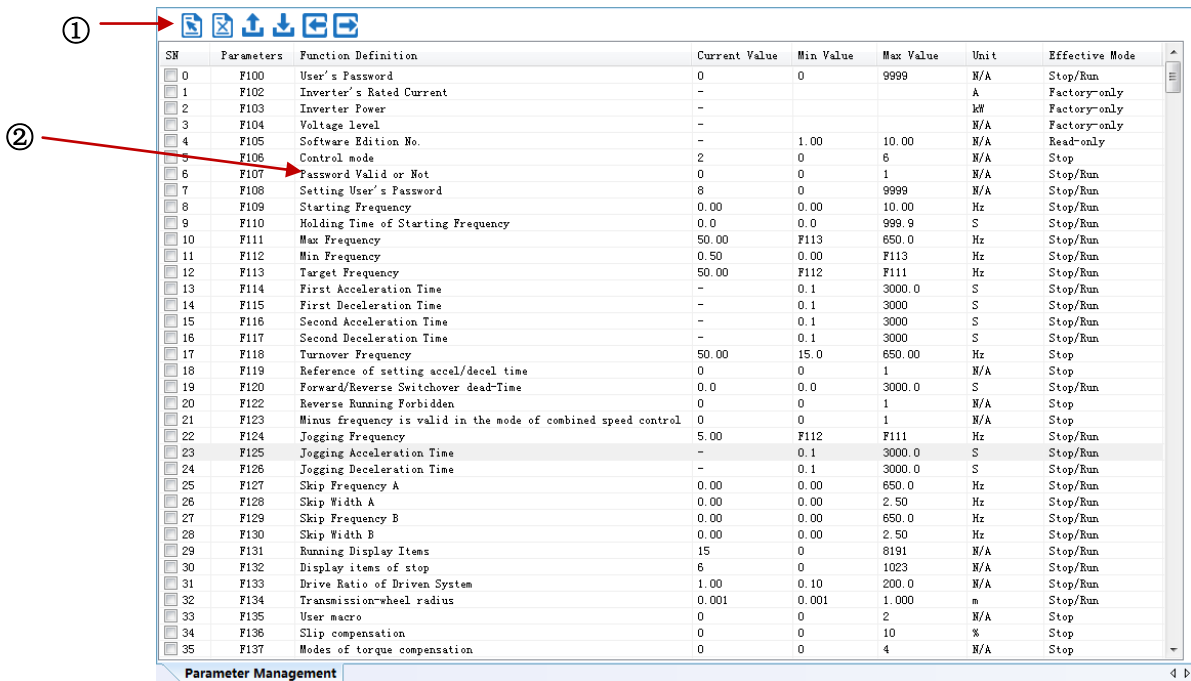


Fig 3-3-4 Parameter management interface

①Function shortcut icon    ② Parameter information display area



Select current all parameters for the subsequent operation;



Unselect current parameters;



Import parameters from local storage .EXCEL file or .Par file;



This function can support all function code information exported to EXCEL or Par file to save, also can support the export modified or checked function code information to the EXECL file to save;



The function is to upload the current selected function code parameter values from the

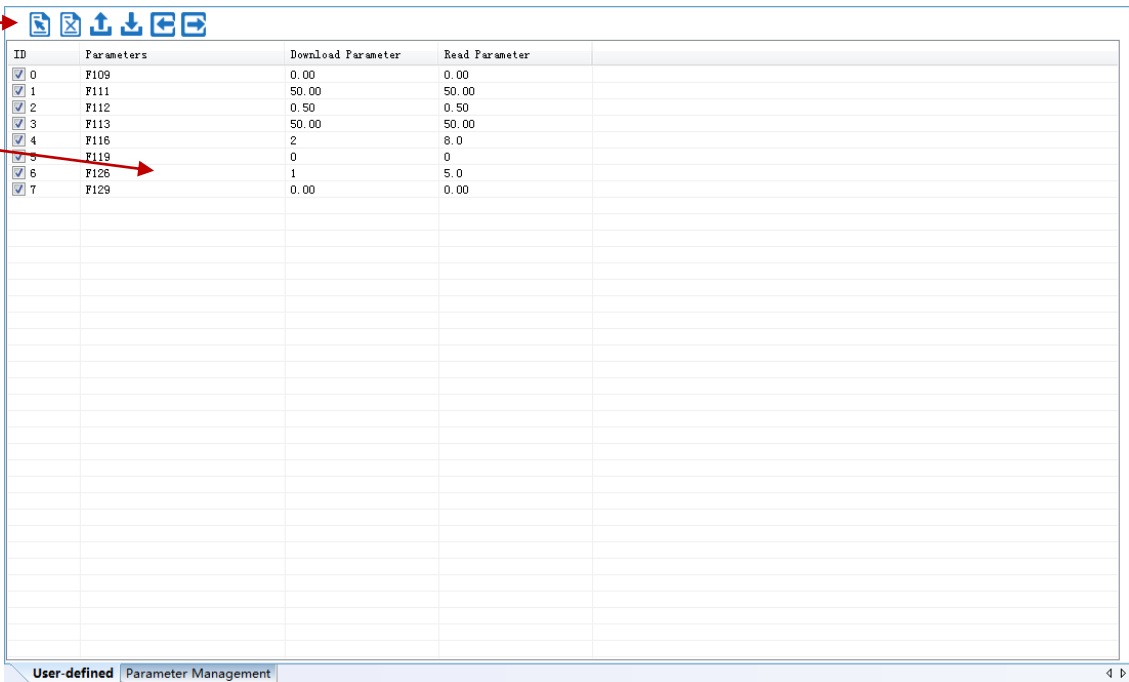
device to the program. After uploading successfully, the function code is changed to green;

 **Download**

Download current selected parameters from PC/PLC to inverterdrive;

➤ **User-defined**

Click “User-defined” in the function tree of left side to open user-defined parameter management interface (Fig 3-3-5).



ID	Parameters	Download Parameter	Read Parameter
<input checked="" type="checkbox"/> 0	F109	0.00	0.00
<input checked="" type="checkbox"/> 1	F111	50.00	50.00
<input checked="" type="checkbox"/> 2	F112	0.50	0.50
<input checked="" type="checkbox"/> 3	F113	50.00	50.00
<input checked="" type="checkbox"/> 4	F116	2	8.0
<input checked="" type="checkbox"/> 5	F119	0	0
<input checked="" type="checkbox"/> 6	F126	1	5.0
<input checked="" type="checkbox"/> 7	F129	0.00	0.00

Fig 3-3-5 User-defined interface

① Function shortcut icon ②Parameter information edit area

 **Select All**

Select current all parameters for the subsequent operation;

 **Unselect**

Unselect current parameters;

 **Import**

Import parameters from local storage .EXCEL file or .Par file;

 **Export**

Export current all parameters information, and save to .EXCEL file or .Par file;





Upload current selected parameter from inverterdrive to program, refresh to display;



Download current selected parameters from PC/PLC to inverterdrive;

Click the right mouse button on the custom function code table, and the edit menu will pop up (Fig 3-3-6).

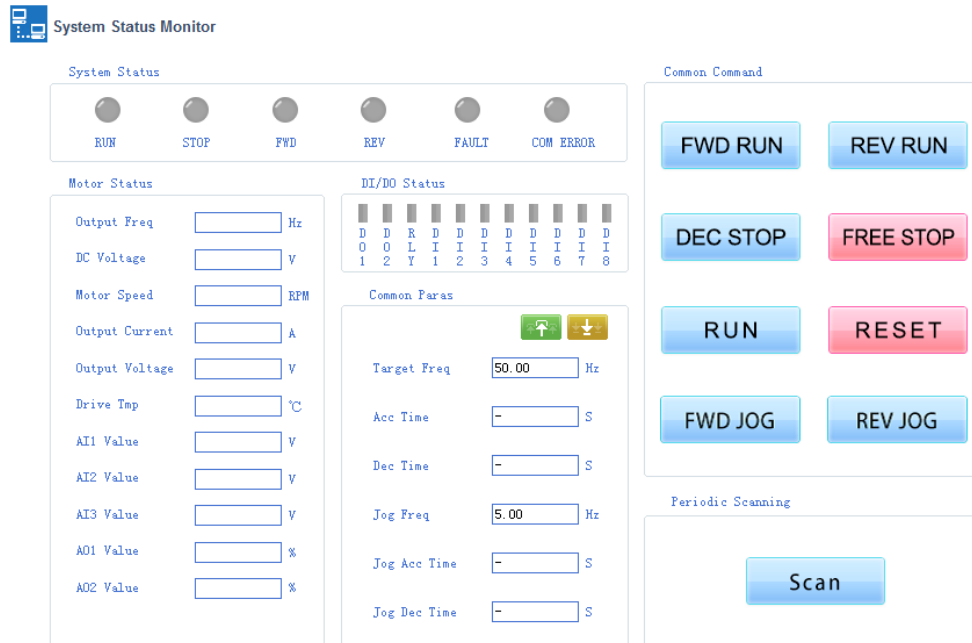
ID	Parameters	Download Parameter	Read Parameter
<input checked="" type="checkbox"/>	F109	0.00	0.00
<input checked="" type="checkbox"/>	F111	50.00	50.00
<input checked="" type="checkbox"/>	F112	0.50	0.50
<input checked="" type="checkbox"/>	F113	50.00	50.00
<input checked="" type="checkbox"/>	F116	2	8.0
<input checked="" type="checkbox"/>	F119		
<input checked="" type="checkbox"/>	F126		
<input checked="" type="checkbox"/>	F129		

- Add single row
- Add current row
- Delete current row
- Delete number-selected row

Fig 3-3-6 User-defined parameter editor

## 2. Device State

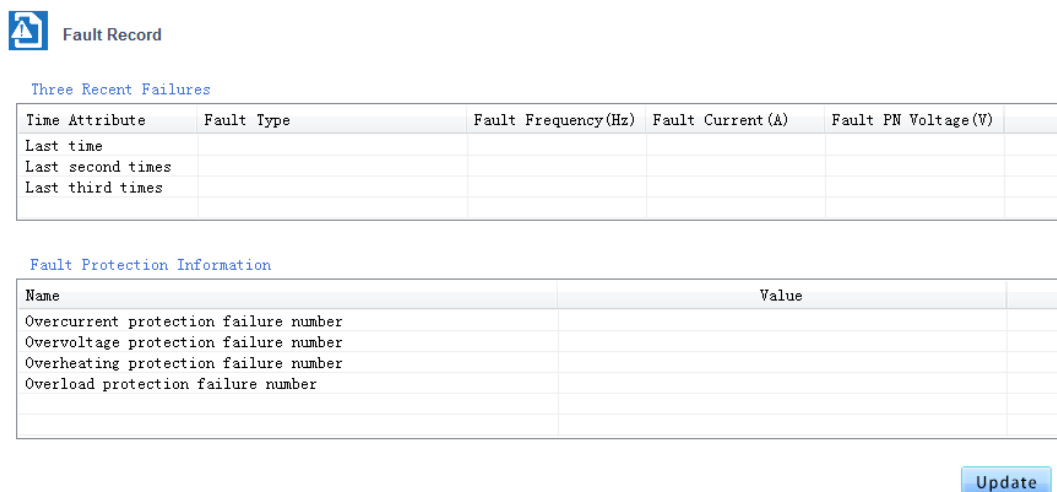
### ➤ System Status Monitor



**Fig 3-3-7 System Status Monitor Interface**

Click **【Scan】** to refresh the parameters in the “System Status Monitor”, “Motor Status” and “DI/DO Status” bars . Control the inverter driver by buttons in the “Common Command” bar.

### ➤ Fault Record



**Fig 3-3-8 Fault Record Interface**

Click **【Update】** to refresh the parameters in the “Three Recent Failures” and “Fault Protection Information” bars .

### 3. System Module Function

The function is composed of Speed Control ,Torque Control , Pressure Control .

Parameter Quick Search Catalogue

<b>Motor Parameters Configuration</b>	<b>Motor Selection</b>	<b>Motor Selection(FE00)</b>
	<b>Motor 1 parameters setting</b>	Control mode(F106)
		Rated power(F801)
		Rated voltage(F802)
		Rated current(F803)
		Motor rated frequency(F810)
		Rated rotary speed(F805)
		Motor's parameters selection(F800)
		Stator resistance(F806)
		Rotor resistance(F807)
		Leakage inductance(F808)
		Mutual inductance(F809)
		Motor current without load(F844)
		PMSM stator resistance(F873)
		PMSM D-axis inductance(F871)
		PMSM Q-axis inductance(F872)
	PMSM back electromotive force(F870)	
	<b>Encoder 1 parameters setting</b>	Encoder resolution(F851)
		Encoder phase sequence(F854)
	<b>Motor 2 parameters setting</b>	Motor switchover(FE00)
		Rated power of motor 2(FE01)
		Rated voltage of motor 2(FE02)
		Rated current of motor 2(FE03)
		Motor 2 rated frequency(FE10)
		Rated speed of motor 2(FE05)
		Motor's parameters selection(F800)
		Motor 2 stator resistor(FE06)
		Motor 2 rotor resistor(FE07)
		Motor 2 leakage inductance(FE08)
		Motor 2 mutual inductance(FE09)
		Motor 2 no-load current(FE11)
		Motor 2 PMSM stator resistance(FE73)
Motor 2 PMSM D-axis inductance(FE71)		
Motor 2 PMSM Q-axis inductance(FE72)		
Motor 2 PMSM back electromotive force(FE70)		
<b>Encoder 2 parameters setting</b>	Encoder resolution(FE51)	
	Encoder phase sequence(FE54)	
<b>Basic</b>	<b>ACC/DEC time</b>	<b>First acceleration Time(F114)</b>

<b>Parameters</b>	<b>selection</b>	<b>Second acceleration time(F116)</b>
		<b>First deceleration time(F115)</b>
		<b>Second deceleration time(F117)</b>
		<b>Accel/decel mode(F306)</b>
		<b>Reference of setting accel/decel time(F119)</b>
		<b>S curve beginning stage proportion(F304)</b>
		<b>S curve ending stage proportion(F305)</b>
	<b>Activate parameters setting</b>	<b>Max Frequency(F111)</b>
		<b>Min Frequency(F112)</b>
		<b>Target Frequency(F113)</b>
		<b>Turnover Frequency(F118)</b>
		<b>Starting Frequency(F109)</b>
		<b>Holding Time of Starting Frequency(F110)</b>
		<b>Speed track(F613)</b>
		<b>Speed track mode(F614)</b>
		<b>Speed track rate(F615)</b>
		<b>Inhibition of current oscillation at low frequency(F641)</b>
		<b>DC Braking Function Selection(F600)</b>
		<b>Initial Frequency for DC Braking(F601)</b>
		<b>DC Braking efficiency before Starting(F602)</b>
		<b>Braking Lasting Time Before Starting(F604)</b>
		<b>Modes of torque compensation(F137)</b>
		<b>Linear compensation(F138)</b>
		<b>Square compensation(F139)</b>
		<b>Voltage compensation point frequency(F140)</b>
		<b>Voltage compensation point 1(F141)</b>
		<b>User-defined frequency point 2(F142)</b>
		<b>User-defined voltage point 2(F143)</b>
		<b>User-defined frequency point 3(F144)</b>
		<b>User-defined voltage point 3(F145)</b>
		<b>User-defined frequency point 4(F146)</b>
		<b>User-defined voltage point 4(F147)</b>
		<b>User-defined frequency point 5(F148)</b>
		<b>User-defined voltage point 5(F149)</b>
		<b>User-defined frequency point 6(F150)</b>
<b>User-defined voltage point 6(F151)</b>		
<b>STOP parameters setting</b>	<b>Selecting the mode of stopping the motor(F209)</b>	
	<b>DC Braking Function Selection(F600)</b>	
	<b>Initial Frequency for DC Braking(F601)</b>	
	<b>DC Braking efficiency During Stop(F603)</b>	
	<b>Braking Lasting Time During Stopping(F605)</b>	
	<b>DC brake waiting time(F656)</b>	

<b>Speed setpoint source</b>		<b>Frequency source selecting(F207)</b>
		<b>Main frequency source X(F203)</b>
		<b>Accessorial frequency source Y(F204)</b>
		<b>Reference for selecting accessorial frequency source Y range(F205)</b>
		<b>Accessorial frequency Y range(F206)</b>
<b>Command source</b>		<b>Source of start command(F200)</b>
		<b>Source of stop command(F201)</b>
		<b>Mode of direction setting(F202)</b>
		<b>Jogging Frequency(F124)</b>
		<b>Jogging Acceleration Time(F125)</b>
		<b>Jogging Deceleration Time(F126)</b>
		<b>Terminaltwo-line/three-line operation control(F208)</b>
<b>IO Terminal</b>	<b>AI terminals</b>	<b>Monitoring AI1(F331)</b>
		<b>Monitoring AI2(F332)</b>
		<b>Monitoring AI3(F333)</b>
		<b>Lower limit of AI1 channel input(F400)</b>
		<b>Upper limit of AI1 channel input(F402)</b>
		<b>AI1 channel proportional gain K1(F404)</b>
		<b>Corresponding setting for lower limit of AI1 input(F401)</b>
		<b>Corresponding setting for upper limit of AI1 input(F403)</b>
		<b>AI1 filtering time constant(F405)</b>
		<b>Lower limit of AI2 channel input(F406)</b>
		<b>Upper limit of AI2 channel input(F408)</b>
		<b>AI2 channel proportional gain K2(F410)</b>
		<b>Corresponding setting for lower limit of AI2 input (F407)</b>
		<b>Corresponding setting for upper limit of AI2 input(F409)</b>
		<b>AI2 filtering time constant(F411)</b>
		<b>Lower limit of AI3 channel input(F412)</b>
		<b>Upper limit of AI3 channel input(F414)</b>
		<b>AI3 channel proportional gain K1(F416)</b>
		<b>Corresponding setting for lower limit of AI3 input(F413)</b>
	<b>Corresponding setting for upper limit of AI3 input(F415)</b>	
	<b>AI3 filtering time constant(F417)</b>	
	<b>AO terminals</b>	<b>AO1 analog output signal selecting(F431)</b>
		<b>AO1 output range(F423)</b>
		<b>AO1 output compensation(F426)</b>

		AO1 lowest corresponding frequency(F424)
		AO1 highest corresponding frequency(F425)
		AO2 analog output signal selecting(F432)
		AO2 output range(F427)
		AO2 output compensation(F430)
		AO2 lowest corresponding frequency(F428)
		AO2 highest corresponding frequency(F429)
	DI terminals	DI1 terminal functionsetting(F316)
		DI2 terminal function setting(F317)
		DI3 terminal functionsetting(F318)
		DI4 terminal functionsetting(F319)
		DI5 terminal function setting(F320)
		DI6 terminal function setting(F321)
		DI7 terminal function setting(F322)
		DI8 terminal function setting(F323)
		Expansion input DIA(FF05)
		Expansion input DIB(FF06)
		Expansion input DIC(FF07)
		Expansion input DID(FF08)
		Diagnostics of DIX terminal(F330)
		DO terminals
DO1 token output(F301)		
DO2 token output(F302)		
Expansion relay 1 output(FF00)		
Expansion relay 2 output(FF01)		
Fixed frequency setting	Main frequency source X(F203)	
	Stage speed type(F500)	
	Selection of Stage Speed Under Auto-circulation Speed Control(F501)	
	Selection of Times of Auto- Circulation Speed Control(F502)	
	Status after auto circulation running Finished(F503)	
	Frequency setting of stagespeed ( F504-F518)	
	Acceleration timesetting of stagespeed ( F519-F533)	
	Deceleration timesetting of stagespeed ( F534-F548)	
	Running directionsof stage speed 1-8 ( F549-F556)	
	Running directionsof stage speed 9-15 ( F573-F579)	
	Running time of stagespeed ( F557-F564)	
	Stop time after finishing stage ( F565-F572)	
Protection Setting	Overload protection	Inverter Overloading pre-alarm Coefficient(F704)
		Inverter Overloading coefficient(F706)
		Overloading adjusting gains(F705)
		Motor Overloading coefficient(F707)

	<b>Phase loss protection</b>	<b>Input phase loss(F724)</b>
		<b>Input phase loss filtering constant(F728)</b>
		<b>Output phase loss(F727)</b>
	<b>Overheat protection</b>	<b>Carrier frequency auto-adjusting(F747)</b>
		<b>Overheat(F726)</b>
		<b>Overheat protection filtering constant(F730)</b>
		<b>Threshold of pre-alarm overheat(F745)</b>
	<b>Stop Mode</b>	<b>Selection of terminal free stop mode(F700)</b>
		<b>Delay time for free stop and programmable terminal action(F701)</b>
	<b>Zero-current Detection</b>	<b>Zero-current threshold(F754)</b>
		<b>Duration time of zero-current(F755)</b>
	<b>Other Protection</b>	<b>Grounding protection(F760)</b>
		<b>Over-current 1 protection(F737)</b>
		<b>Over-current 1 protection coefficient(F738)</b>
		<b>Under-voltage filtering constant(F729)</b>
		<b>Under-voltage protection voltage threshold(F732)</b>
		<b>Analog disconnected protection(F741)</b>
<b>Threshold of analog disconnected protection(F742)</b>		
<b>Speed Control</b>	<b>Rotary speed loop KP1(F813)</b>	
	<b>Rotary speed loop KI1(F814)</b>	
	<b>Rotary speed loop KP2(F815)</b>	
	<b>Rotary speed loop KI2(F816)</b>	
	<b>PID switching frequency 1(F817)</b>	
	<b>PID switching frequency 2(F818)</b>	
<b>Torque Control</b>	<b>Torque Setpoint</b>	<b>Torque given channel(FC06)</b>
		<b>Torque given coefficient(FC07)</b>
		<b>Torque given command value(FC09)</b>
	<b>Torque boost</b>	<b>Offset torque given channel(FC14)</b>
		<b>Offset torque coefficient(FC15)</b>
		<b>Offset torque cut-off frequency(FC16)</b>
		<b>Offset torque command value(FC17)</b>
	<b>Motor torque limit</b>	<b>Electric torque limited channel(FC28)</b>
		<b>Electric torque limited coefficient(FC29)</b>
		<b>Electric torque limited(FC30)</b>
	<b>Regenerated torque limit</b>	<b>Braking torque limited channel(FC33)</b>
<b>Braking torque limited coefficient(FC34)</b>		
<b>Braking torque limited(FC35)</b>		

 Upload

Upload parameters displayed in current page from inverterdrive.

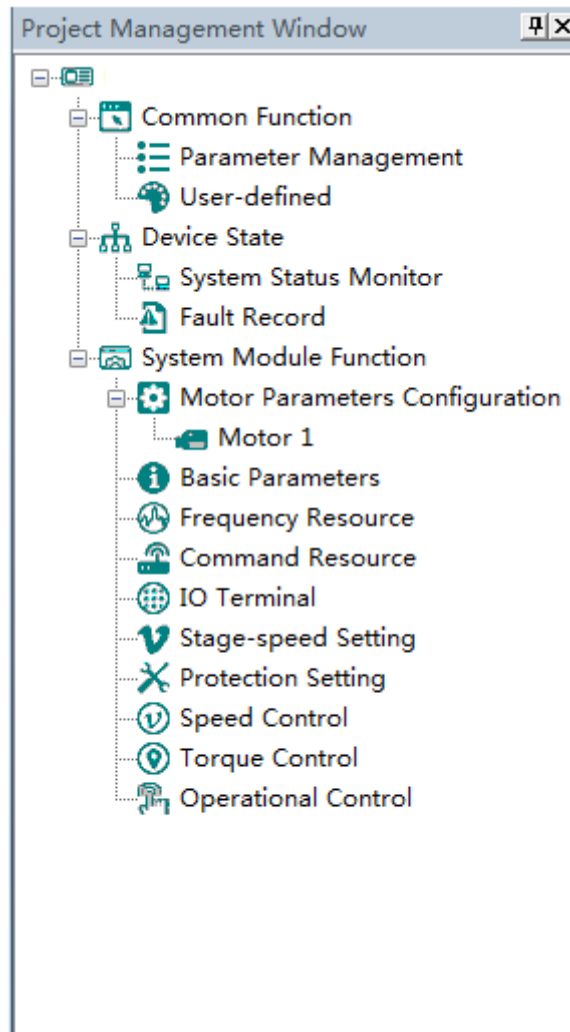
 Download

Download parameters displayed in current interface to inverterdrive.

See details for the description of parameters in inverterdrive user manual.



◆ E600/E800L/E810L/E800H/E810H/EP66/ EP66-P /EM30 /E2100-P/E2300



The main program interface left for engineering management window, the user can in the toolbar of the "view" select the "show" and "hidden", the double tree above the module name you can open the corresponding function module window.

# 1. Common Function

## ➤ Parameter Management

Click “Parameter Management” in the function tree of left side to open parameter management interface (Fig 3-4-1).

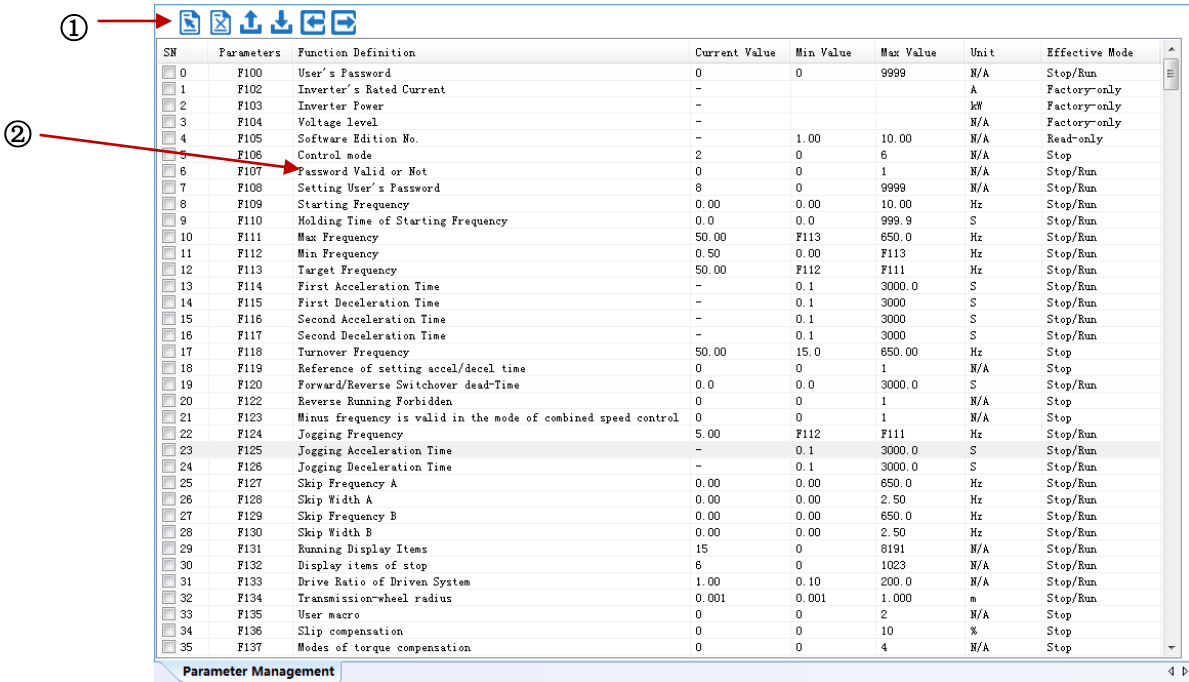


Fig 3-4-1 Parameter management interface

①Function shortcut icon    ② Parameter information display area



Select All

Select current all parameters for the subsequent operation;



Unselect

Unselect current items parameters;



Import

Import parameters from local storage .EXCEL file or .Par file;



Export

This function can support all function code information exported to EXCEL or Par file to save, also can support the export modified or checked function code information to the EXECL file to save;



Upload

The function is to upload the current selected function code parameter values from the device to the program. After uploading successfully, the function code is changed to green;

 Download

Download current selected parameters from PC/PLC to inverterdrive;

➤ User-defined

Click “User-defined” in the function tree of left side to open user-defined parameter management interface (Fig 3-4-2).

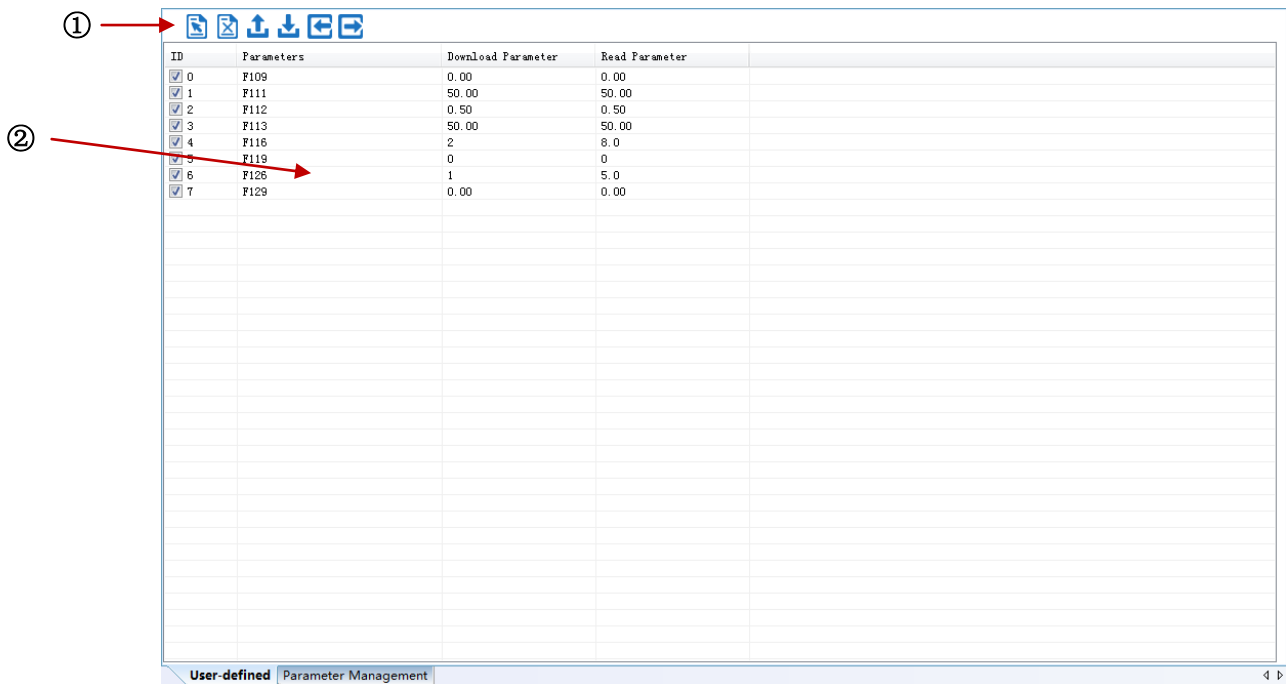


Fig 3-4-2 User-defined interface

① Function shortcut icon ②Parameter information edit area

 Select All

Select current all parameters for the subsequent operation;

 Unselect

Unselect current parameters;

 Import

Import parameters from local storage .EXCEL file or .Par file;

 Export

Export current all parameters information, and save to .EXCEL file or .Par file;



Upload current selected parameter from inverterdrive to program, refresh to display;



Download current selected parameters from PC/PLC to inverterdrive;

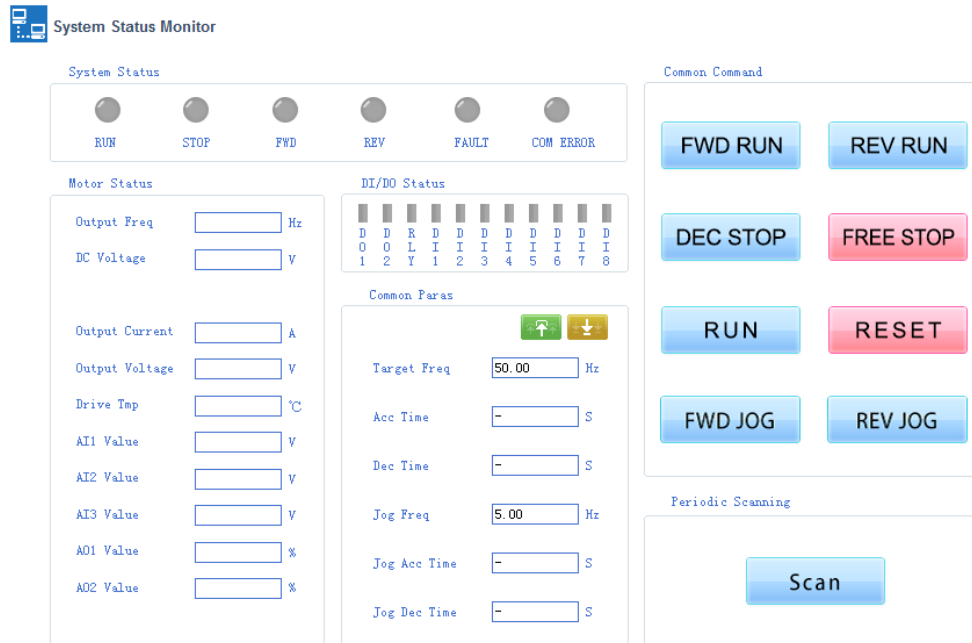
Click the right mouse button on the custom function code table, and the edit menu will pop up (Fig 3-4-3).

ID	Parameters	Download Parameter	Read Parameter	
<input checked="" type="checkbox"/>	0	F109	0.00	0.00
<input checked="" type="checkbox"/>	1	F111	50.00	50.00
<input checked="" type="checkbox"/>	2	F112	0.50	0.50
<input checked="" type="checkbox"/>	3	F113	50.00	50.00
<input checked="" type="checkbox"/>	4	F116	2	8.0
<input checked="" type="checkbox"/>	5	F119		
<input checked="" type="checkbox"/>	6	F126		
<input checked="" type="checkbox"/>	7	F129		

Fig 3-4-3 User-defined parameter editor

## 2. Device State

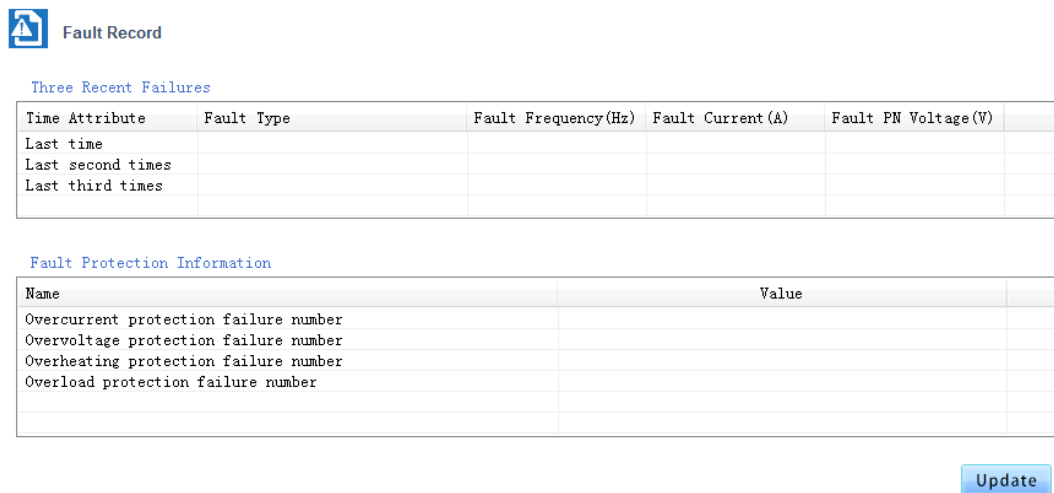
### ➤ System Status Monitor



**Fig 3-4-4 System Status Monitor Interface**

Click **【Scan】** to refresh the parameters in the “System Status Monitor”, “Motor Status” and “DI/DO Status” bars . Control the inverterdriver by buttons in the “Common Command” bar.

### ➤ Fault Record



**Fig 3-4-5 Fault Record Interface**

Click **【Update】** to refresh the parameters in the “Three Recent Failures” and “Fault Protection Information” bars .

### 3. System Module Function

The function is composed of Speed Control ,Torque Control , Pressure Control .

Parameter Quick Search Catalogue

	Motor Selection	Motor Selection(FE00)
<b>Motor Parameters Configuration</b>	<b>Motor 1 parameters setting</b>	Control mode(F106)
		Rated power(F801)
		Rated voltage(F802)
		Rated current(F803)
		Motor rated frequency(F810)
		Rated rotary speed(F805)
		Motor's parameters selection(F800)
		Stator resistance(F806)
		Rotor resistance(F807)
		Leakage inductance(F808)
		Mutual inductance(F809)
		Motor current without load(F844)
		PMSM stator resistance(F873)
		PMSM D-axis inductance(F871)
		PMSM Q-axis inductance(F872)
PMSM back electromotive force(F870)		
<b>Basic Parameters</b>	<b>ACC/DEC time selection</b>	First acceleration Time(F114)
		Second acceleration time(F116)
		First deceleration time(F115)
		Second deceleration time(F117)
		Accel/decel mode(F306)
		Reference of setting accel/decel time(F119)
		S curve beginning stage proportion(F304)
		S curve ending stage proportion(F305)
	<b>Activate parameters setting</b>	Max Frequency(F111)
		Min Frequency(F112)
		Target Frequency(F113)
		Turnover Frequency(F118)
		Starting Frequency(F109)
		Holding Time of Starting Frequency(F110)
		Speed track(F613)
		Speed track mode(F614)
		Speed track rate(F615)
		Inhibition of current oscillation at low frequency(F641)
		DC Braking Function Selection(F600)
		Initial Frequency for DC Braking(F601)

		DC Braking efficiency before Starting(F602)	
		Braking Lasting Time Before Starting(F604)	
		Modes of torque compensation(F137)	
		Linear compensation(F138)	
		Square compensation(F139)	
		Voltage compensation point frequency(F140)	
		Voltage compensation point 1(F141)	
		User-defined frequency point 2(F142)	
		User-defined voltage point 2(F143)	
		User-defined frequency point 3(F144)	
		User-defined voltage point 3(F145)	
		User-defined frequency point 4(F146)	
		User-defined voltage point 4(F147)	
		User-defined frequency point 5(F148)	
		User-defined voltage point 5(F149)	
		User-defined frequency point 6(F150)	
		User-defined voltage point 6(F151)	
		STOP parameters setting	Selecting the mode of stopping the motor(F209)
			DC Braking Function Selection(F600)
Initial Frequency for DC Braking(F601)			
DC Braking efficiency During Stop(F603)			
Braking Lasting Time During Stopping(F605)			
DC brake waiting time(F656)			
Speed setpoint source	Frequency source selecting(F207)		
	Main frequency source X(F203)		
	Accessorial frequency source Y(F204)		
	Reference for selecting accessorial frequency source Y range(F205)		
	Accessorial frequency Y range(F206)		
Command source	Source of start command(F200)		
	Source of stop command(F201)		
	Mode of direction setting(F202)		
	Jogging Frequency(F124)		
	Jogging Acceleration Time(F125)		
	Jogging Deceleration Time(F126)		
	Terminaltwo-line/three-line operation control(F208)		
IO Terminal	AI terminals	Monitoring AI1(F331)	
		Monitoring AI2(F332)	
		Monitoring AI3(F333)	
		Lower limit of AI1 channel input(F400)	
		Upper limit of AI1 channel input(F402)	
		AI1 channel proportional gain K1(F404)	
		Corresponding setting for lower limit of AI1	

		input(F401)
		Corresponding setting for upper limit of AI1 input(F403)
		AI1 filtering time constant(F405)
		Lower limit of AI2 channel input(F406)
		Upper limit of AI2 channel input(F408)
		AI2 channel proportional gain K2(F410)
		Corresponding setting for lower limit of AI2 input (F407)
		Corresponding setting for upper limit of AI2 input(F409)
		AI2 filtering time constant(F411)
		Lower limit of AI3 channel input(F412)
		Upper limit of AI3 channel input(F414)
		AI3 channel proportional gain K1(F416)
		Corresponding setting for lower limit of AI3 input(F413)
		Corresponding setting for upper limit of AI3 input(F415)
		AI3 filtering time constant(F417)
	AO terminals	AO1 analog output signal selecting(F431)
		AO1 output range(F423)
		AO1 output compensation(F426)
		AO1 lowest corresponding frequency(F424)
		AO1 highest corresponding frequency(F425)
		AO2 analog output signal selecting(F432)
		AO2 output range(F427)
		AO2 output compensation(F430)
		AO2 lowest corresponding frequency(F428)
	AO2 highest corresponding frequency(F429)	
	DI terminals	DI1 terminal functionsetting(F316)
		DI2 terminal function setting(F317)
		DI3 terminal functionsetting(F318)
		DI4 terminal functionsetting(F319)
		DI5 terminal function setting(F320)
		DI6 terminal function setting(F321)
		DI7 terminal function setting(F322)
		DI8 terminal function setting(F323)
Expansion input DIA(FF05)		
Expansion input DIB(FF06)		
Expansion input DIC(FF07)		
Expansion input DID(FF08)		
Diagnostics of DIX terminal(F330)		



	<b>DO terminals</b>	Relay token output(F300)
		DO1 token output(F301)
		DO2 token output(F302)
		Expansion relay 1 output(FF00)
		Expansion relay 2 output(FF01)
<b>Fixed frequency setting</b>		Main frequency source X(F203)
		Stage speed type(F500)
		Selection of Stage Speed Under Auto-circulation Speed Control(F501)
		Selection of Times of Auto- Circulation Speed Control(F502)
		Status after auto circulation running Finished(F503)
		Frequency setting of stagespeed (F504-F518)
		Acceleration timesetting of stagespeed (F519-F533)
		Deceleration timesetting of stagespeed (F534-F548)
		Running directions of stage speed 1-8 (F549-F556)
		Running directions of stage speed 9-15 (F573-F579)
		Running time of stagespeed (F557-F564)
		Stop time after finishing stage (F565-F572)
<b>Protection Setting</b>	<b>Overload protection</b>	Inverter Overloading pre-alarm Coefficient(F704)
		Inverter Overloading coefficient(F706)
		Overloading adjusting gains(F705)
		Motor Overloading coefficient(F707)
	<b>Phase loss protection</b>	Input phase loss(F724)
		Input phase loss filtering constant(F728)
		Output phase loss(F727)
	<b>Overheat protection</b>	Carrier frequency auto-adjusting(F747)
		Overheat(F726)
		Overheat protection filtering constant(F730)
		Threshold of pre-alarm overheat(F745)
	<b>Stop Mode</b>	Selection of terminal free stop mode(F700)
		Delay time for free stop and programmable terminal action(F701)
	<b>Zero-current Detection</b>	Zero-current threshold(F754)
		Duration time of zero-current(F755)
	<b>Other Protection</b>	Grounding protection(F760)
		Over-current 1 protection(F737)
		Over-current 1 protection coefficient(F738)
		Under-voltage filtering constant(F729)
		Under-voltage protection voltage threshold(F732)
Analog disconnected protection(F741)		
Threshold of analog disconnected protection(F742)		
<b>Speed Control</b>		Rotary speed loop KP1(F813)

		Rotary speed loop KI1(F814)
		Rotary speed loop KP2(F815)
		Rotary speed loop KI2(F816)
		PID switching frequency 1(F817)
		PID switching frequency 2(F818)
<b>Torque Control</b>	<b>Torque Setpoint</b>	Torque given channel(FC06)
		Torque given coefficient(FC07)
		Torque given command value(FC09)
	<b>Torque boost</b>	Offset torque given channel(FC14)
		Offset torque coefficient(FC15)
		Offset torque cut-off frequency(FC16)
		Offset torque command value(FC17)
	<b>Motor torque limit</b>	Electric torque limited channel(FC28)
		Electric torque limited coefficient(FC29)
		Electric torque limited(FC30)
	<b>Regenerated torque limit</b>	Braking torque limited channel(FC33)
		Braking torque limited coefficient(FC34)
		Braking torque limited(FC35)



**Upload**

Upload parameters displayed in current page from inverterdrive.

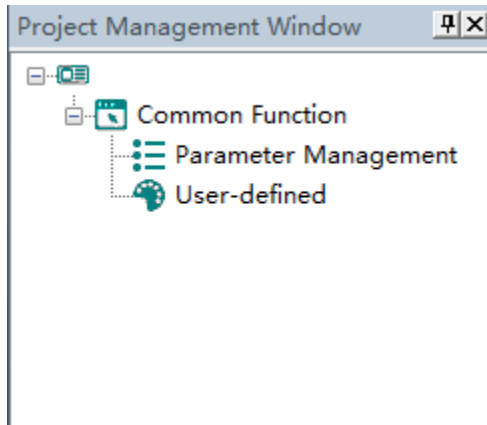


**Download**

Download parameters displayed in current interface to inverterdrive.

See details for the description of parameters in inverterdrive user manual.

◆ E2000-P



The main program interface left for engineering management window, the user can in the toolbar of the "view" select the "show" and "hidden", the double tree above the module name you can open the corresponding function module window.

1. Common Function

➤ Parameter Management

Click “Parameter Management” in the function tree of left side to open parameter management interface (Fig 3-5-1).

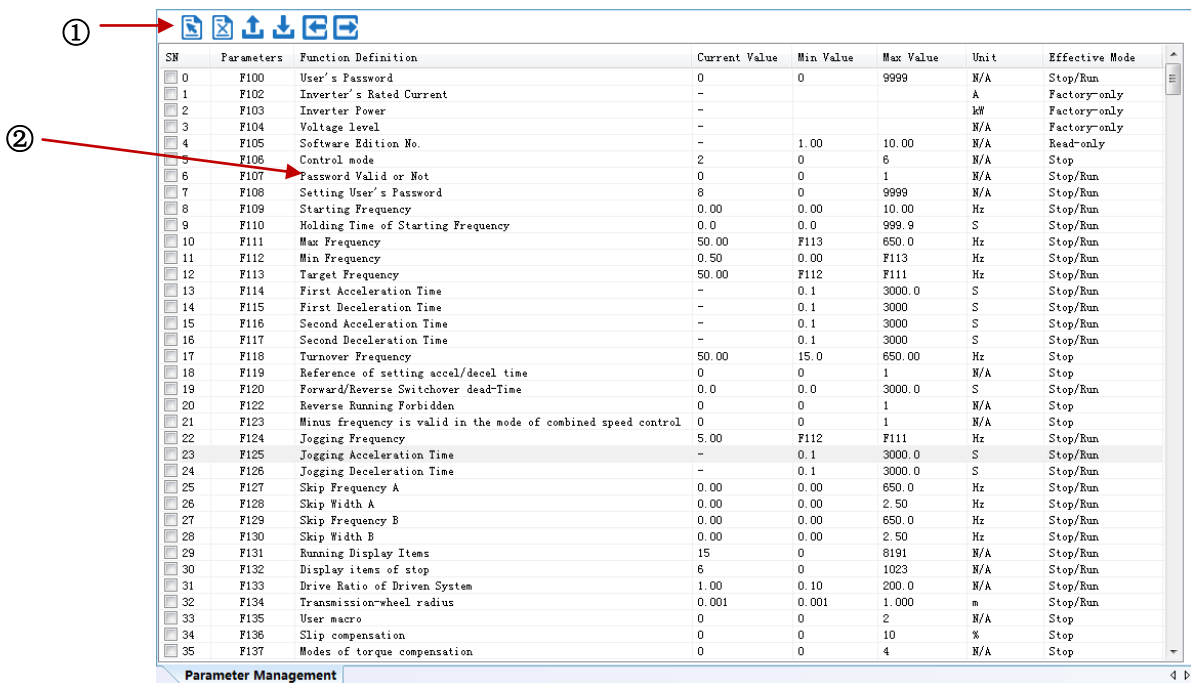


Fig 3-5-1 Parameter management interface

①Function shortcut icon    ② Parameter information display area



Select current all parameters for the subsequent operation;



Unselect current parameters;



Import parameters from local storage .EXCEL file or .Par file;



This function can support all function code information exported to EXCEL or Par file to save, also can support the export modified or checked function code information to the EXECL file to save;



The function is to upload the current selected function code parameter values from the device to the program. After uploading successfully, the function code is changed to green;



Download current selected parameters from PC/PLC to inverterdrive;

➤ **User-defined**

Click “User-defined” in the function tree of left side to open user-defined parameter management interface (Fig 3-5-2).

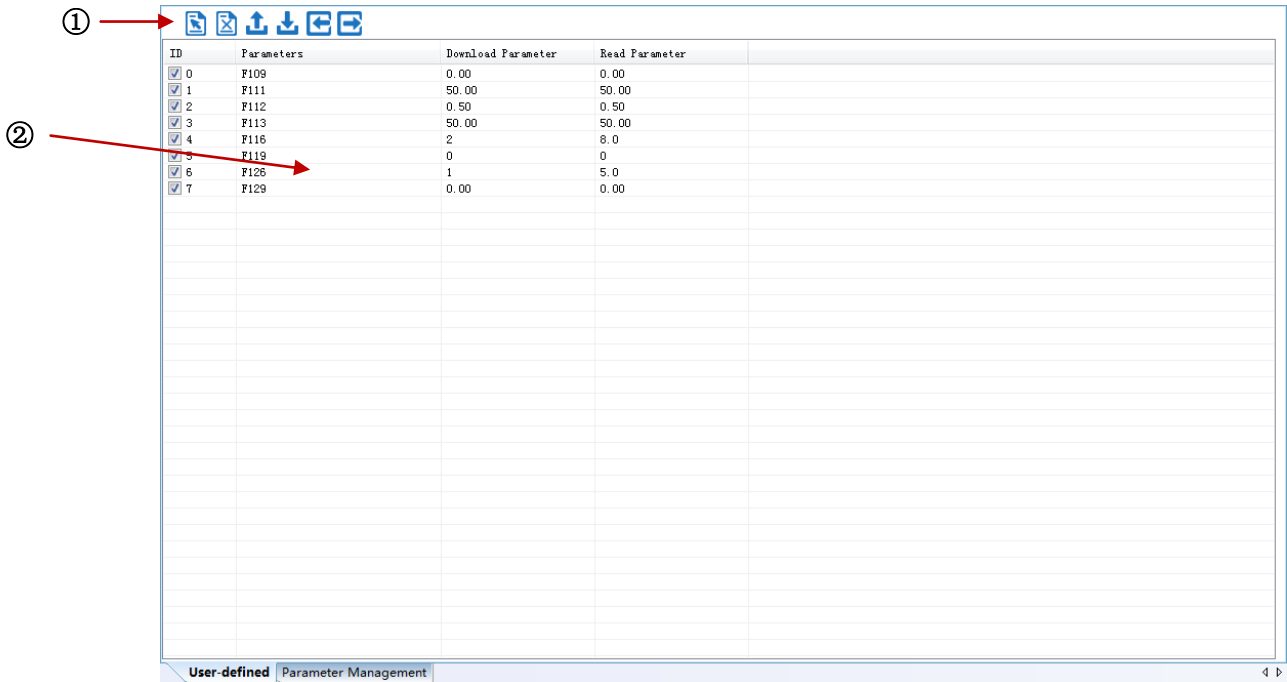


Fig 3-5-2 User-defined interface

① Function shortcut icon ②Parameter information edit area



Select All

Select current all parameters for the subsequent operation;



Unselect

Unselect current parameters;



Import

Import parameters from local storage .EXCEL file or .Par file;



Export

Export current all parameters information, and save to .EXCEL file or .Par file;



Upload

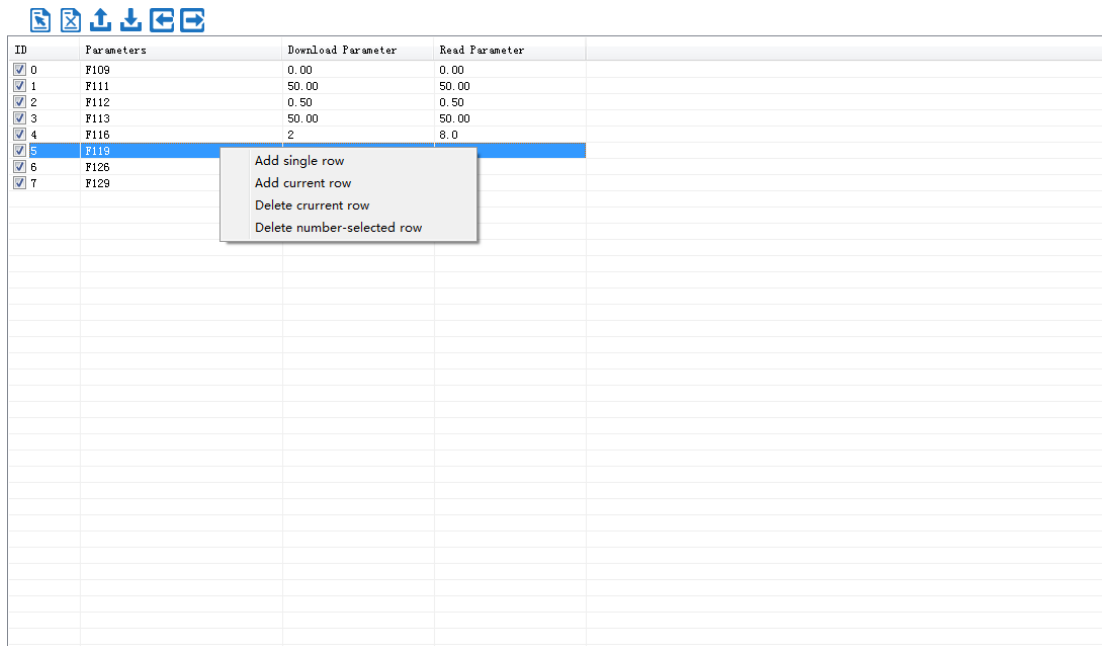
Upload current selected parameter from inverterdrive to program, refresh to display;



Download

Download current selected parameters from PC/PLC to inverterdrive;

Click the right mouse button on the custom function code table, and the edit menu will pop up (Fig 3-5-3).

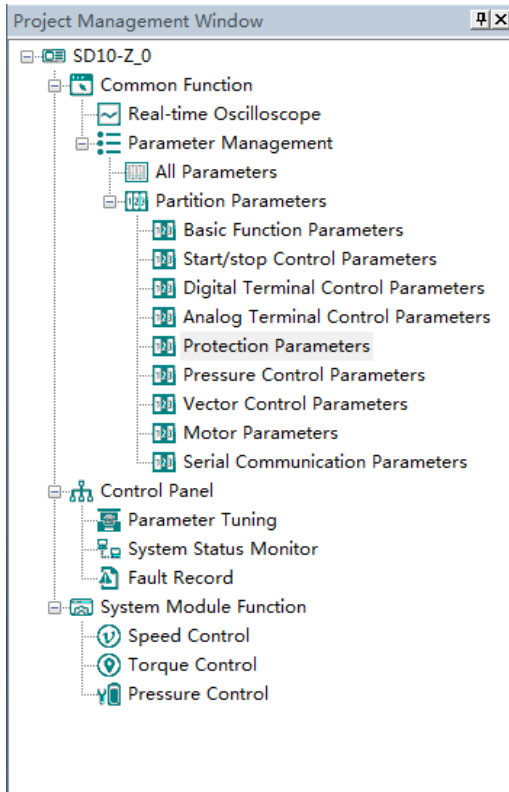


The screenshot shows a table with four columns: ID, Parameters, Download Parameter, and Read Parameter. The table contains several rows, with row 5 (ID: 5, Parameters: F119) selected. A context menu is open over row 5, displaying the following options: Add single row, Add current row, Delete current row, and Delete number-selected row. The table also includes a toolbar at the top with icons for file operations and a checkbox column on the left.

ID	Parameters	Download Parameter	Read Parameter	
<input checked="" type="checkbox"/>	0	F109	0.00	0.00
<input checked="" type="checkbox"/>	1	F111	50.00	50.00
<input checked="" type="checkbox"/>	2	F112	0.50	0.50
<input checked="" type="checkbox"/>	3	F113	50.00	50.00
<input checked="" type="checkbox"/>	4	F116	2	8.0
<input checked="" type="checkbox"/>	5	F119		
<input checked="" type="checkbox"/>	6	F126		
<input checked="" type="checkbox"/>	7	F129		

Fig 3-5-3 User-defined parameter editor

◆ SD10-Z



The main program interface left for engineering management window, the user can in the toolbar of the "view" select the "show" and "hidden", the double tree above the module name you can open the corresponding function module window.

1. Common Function

➤ Oscilloscope



**Save:** Save the current oscilloscope graphics as a custom file.



**Import:** Import saved oscilloscope image from local storage.



**Screen Shot:** Save the current oscilloscope graphics as an BMP file.



**Cursor:** Cursor can be displayed for measuring time and amplitude.



**Channel Select Switch:** Switch the selected on the left side of the channel.



**Increase amplitude range:** Increasing the channel amplitude range.



**Reduce amplitude range:** Reduce the channel amplitude range.


 Move Up: Move up the curve.

 Move Down: Move down the curve;

 Left Shift: Move the curve left;

 Right Shift: Move the curve right;

 Zoom In: Zoom In can enlarge the operation of the curve.

 Zoom Out: Zoom Out can be reduced to the curve operation.

(1) when the user selects a real-time oscilloscope, the user can perform the following operation:

After setting the sampling time, click [Start], real-time oscilloscope starts to present waveform (Fig 3-6-1)

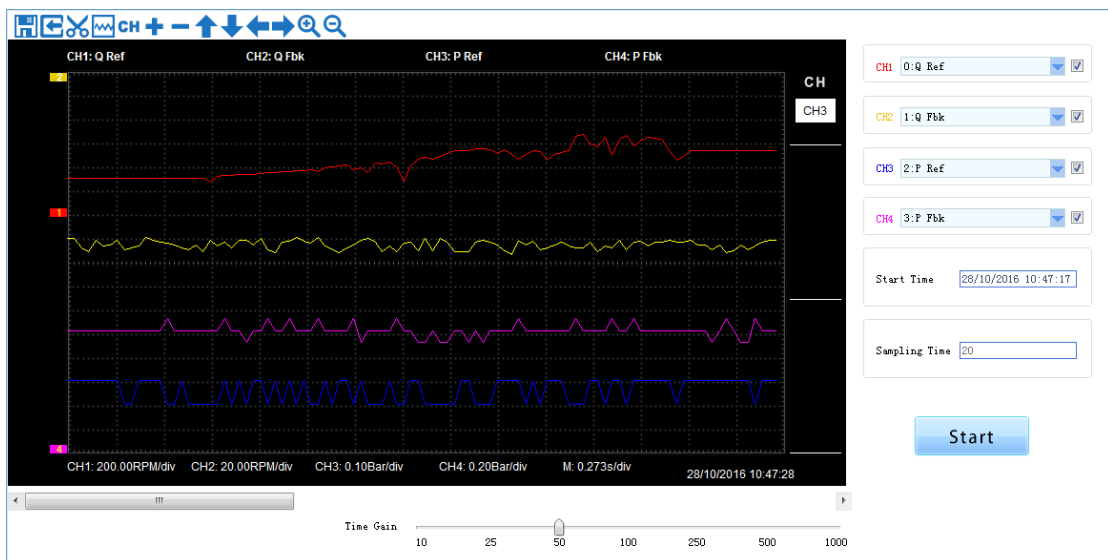


Fig 3-6-1 Real-time Oscilloscope Interface



3)After sampling, the operation can be carried out as follows:

**Channel waveform amplitude adjustment:**

Select waveform number, scroll up or down to adjust waveform amplitude.

**Time shaft adjustment:**

Drag [Time gain] to adjust, horizontal axis presents the time for each box.

Select the picture on the left waveform corresponding to the number, click  or  button to zoom in and out of the waveform curve.



Note: To ensure the display of oscilloscope being real-time, set communication mode as RTU and baud rate as 57600, are recommended.

### ➤ Parameter Management

Click “Parameter Management” and “All Parameters” or shortcut icon in the function tree of left side to open parameter management interface (Fig 3-6-2).Click “Partition Parameters” to show the Parameters by different type.

①

SN	Parame...	Function Definition	Current Value	Min Value	Max Value	Unit	Effective Mode
0	F102	Rated current of drive	-	2.0	6500.0	A	Factory-only
1	F103	Rated power of drive	-	0.00	650.00	kW	Factory-only
2	F105	Software version	-	1.00	10.00	N/A	Factory-only
3	F111	Max frequency	166.66	F113	650.00	Hz	Stop/Run
4	F112	Min frequency	0.00	0.00	F113	Hz	Stop/Run
5	F113	Target frequency in speed mode	1.00	F112	F111	Hz	Stop/Run
6	F114	Acceleration time	-	0.001	32.000	S	Stop/Run
7	F115	Deceleration time	-	0.001	32.000	S	Stop/Run
8	F131	Running display items	79	0	511	N/A	Stop/Run
9	F132	Display items of stop	46	0	511	N/A	Stop/Run
10	F153	Carrier frequency setting	-	2500	7000	Hz	Stop
11	F200	Source of start command	2	0	4	N/A	Stop
12	F201	Source of stop command	2	0	4	N/A	Stop
13	F202	Mode of direction setting	0	0	2	N/A	Stop
14	F203	Frequency source in speed mode	0	0	12	N/A	Stop
15	F208	Terminal two-line/three-line operation ...	0	0	5	N/A	Stop
16	F209	Selecting the mode of stopping the motor	0	0	1	N/A	Stop
17	F219	EEPROM lock	1	0	1	N/A	Stop/Run
18	F300	Relay token output	1	0	19	N/A	Stop/Run
19	F301	D01 token output	11	0	29	N/A	Stop/Run
20	F316	OP1 terminal function setting	9	0	46	N/A	Stop/Run
21	F317	OP2 terminal function setting	19	0	46	N/A	Stop/Run
22	F318	OP3 terminal function setting	1	0	46	N/A	Stop/Run
23	F319	OP4 terminal function setting	7	0	46	N/A	Stop/Run
24	F320	OP5 terminal function setting	8	0	46	N/A	Stop/Run
25	F321	OP6 terminal function setting	15	0	46	N/A	Stop/Run
26	F324	Free stop terminal logic	0	0	1	N/A	Stop
27	F325	Motor PTC protection terminal logic	1	0	1	N/A	Stop
28	F328	Terminal filtering times	5	0	100	N/A	Stop/Run
29	F400	Lower limit of AI1 channel input in FA3...	0.10	0.00	F402	V	Stop/Run
30	F402	Upper limit of AI1 channel input in FA3...	10.00	F400	10.00	V	Stop/Run
31	F406	Lower limit of AI2 channel input in FA3...	0.01	0.00	F408	V	Stop/Run
32	F408	Upper limit of AI2 channel input in FA3...	10.00	F406	10.00	V	Stop/Run
33	F412	Lower limit of AI3 channel input in FA3...	0.00	0.00	F414	V	Stop/Run

②

Fig 3-6-2 Parameter management interface

① Function shortcut icon    ② Parameter information display area



Select All

Select current all parameters for the subsequent operation;



Unselect

Unselect current parameters;



Import

Import parameters from local storage .EXCEL file or .Par file;



Export

This function can support all function code information exported to EXCEL or Par file to save, also can support the export modified or checked function code information to the

**EXECL file to save;**

 **Upload**

**The function is to upload the current selected function code parameter values from the device to the program. After uploading successfully, the function code is changed to green;**

 **Download**

**Download current selected parameters from PC/PLC to servo drive;**

**Control Panel**

 **Upload**

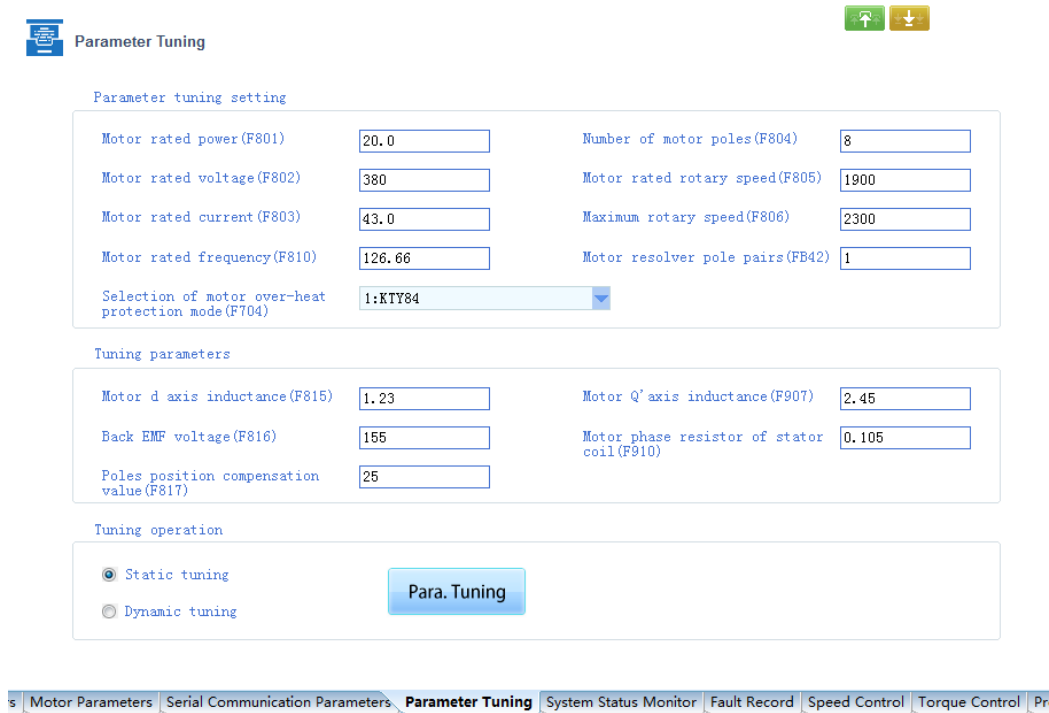
**Upload parameters displayed in current page from servo drive.**

 **Download**

**Download parameters in the box**

 **Note: Click** on the [Rigidity parameter setting] to refresh the rigidity table.

## ➤ Parameter Tuning



The screenshot displays the 'Parameter Tuning' interface. At the top right, there are two green buttons with up and down arrows. The main content is divided into three sections: 'Parameter tuning setting', 'Tuning parameters', and 'Tuning operation'. The 'Parameter tuning setting' section contains a table of motor parameters with input fields and a dropdown menu. The 'Tuning parameters' section contains a table of tuning parameters with input fields. The 'Tuning operation' section contains two radio buttons and a 'Para. Tuning' button. At the bottom, there is a navigation bar with several tabs, including 'Parameter Tuning' which is currently selected.

Parameter tuning setting			
Motor rated power (F801)	<input type="text" value="20.0"/>	Number of motor poles (F804)	<input type="text" value="8"/>
Motor rated voltage (F802)	<input type="text" value="380"/>	Motor rated rotary speed (F805)	<input type="text" value="1900"/>
Motor rated current (F803)	<input type="text" value="43.0"/>	Maximum rotary speed (F806)	<input type="text" value="2300"/>
Motor rated frequency (F810)	<input type="text" value="126.66"/>	Motor resolver pole pairs (FB42)	<input type="text" value="1"/>
Selection of motor over-heat protection mode (F704)	<input type="text" value="1:KTY84"/>		

Tuning parameters			
Motor d axis inductance (F815)	<input type="text" value="1.23"/>	Motor Q' axis inductance (F907)	<input type="text" value="2.45"/>
Back EMF voltage (F816)	<input type="text" value="155"/>	Motor phase resistor of stator coil (F910)	<input type="text" value="0.105"/>
Poles position compensation value (F817)	<input type="text" value="25"/>		


  

Tuning operation

Static tuning       Dynamic tuning

Navigation bar: Motor Parameters | Serial Communication Parameters | **Parameter Tuning** | System Status Monitor | Fault Record | Speed Control | Torque Control | Pr

Fig 3-6-3 Parameter Tuning Interface

Modify the parameters in “Parameter tuning setting” column and click  to download parameters displayed in current interface to servo. Then click the selection button “Static turning” or “Dynamic turning”. Finally, click **【Para. Tuning】** to refresh the value of Parameters in the “Tuning Parameters” bar.

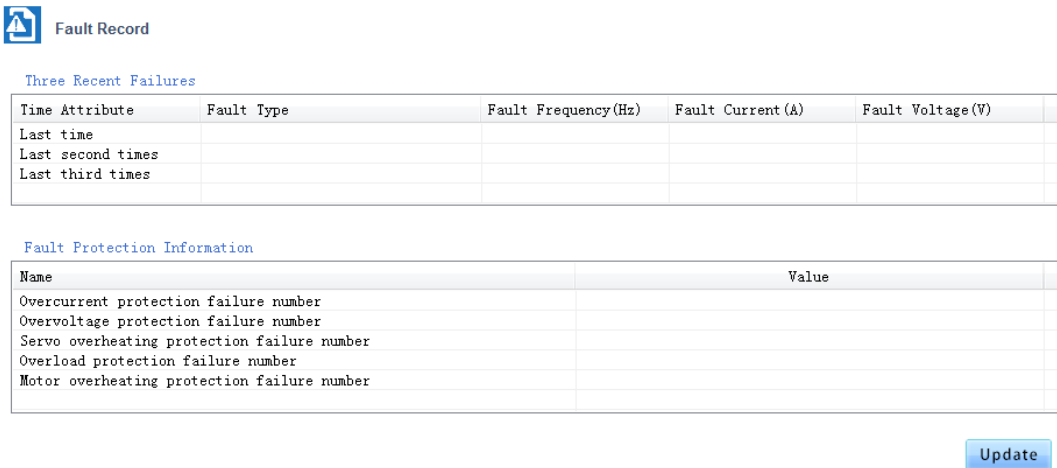
➤ **System Status Monitor**



**Fig 3-6-4 System Status Monitor Interface**

Click **【Scan】** to refresh the parameters in the “System Status Monitor”, “Motor Status” and “DI/DO Status” bars . Control the servo driver by buttons in the “Common Command” bar.

➤ **Fault Record**



**Fig 3-6-5 Fault Record Interface**

Click **【Update】** to refresh the parameters in the “Three Recent Failures” and “Fault Protection Information” bars .

## 2. System Module Function

The function is composed of Speed Control ,Torque Control , Pressure Control .

Parameter Quick Search Catalogue

<b>Speed Control</b>	<b>System inertia(F809)</b>
	<b>Speed loop bandwidth(F812)</b>
	<b>Rotary speed loop Kp(F813)</b>
	<b>Rotary speed loop Ki(F814)</b>
<b>Torque Control</b>	<b>Torque given mode(F212)</b>
	<b>Motor output torque limit (FA23)</b>
<b>Pressure Control</b>	<b>Pressure stable region(F760)</b>
	<b>Pressure ascent segment proportional Kp1(F735)</b>
	<b>Pressure ascent segment proportional Kp2(F741)</b>
	<b>Pressure ascent segment integration Ki1(F736)</b>
	<b>Pressure ascent segment integration Ki2(F742)</b>
	<b>Pressure ascent segment differential Kd1(F737)</b>
	<b>Pressure ascent segment differential Kd2(F743)</b>
	<b>Pressure descent segment proportional Kp1(F738)</b>
	<b>Pressure descent segment proportional Kp2(F744)</b>
	<b>Pressure descent segment integration Ki1(F739)</b>
	<b>Pressure descent segment integration Ki2(F745)</b>
	<b>Pressure descent segment differential Kd1(F740)</b>
<b>Pressure descent segment differential Kd2(F746)</b>	



**Upload**

Upload parameters displayed in current page from servo drive.



**Download**

Download parameters displayed in current interface to servo drive.

See details for the description of parameters in Servo drive user manual.