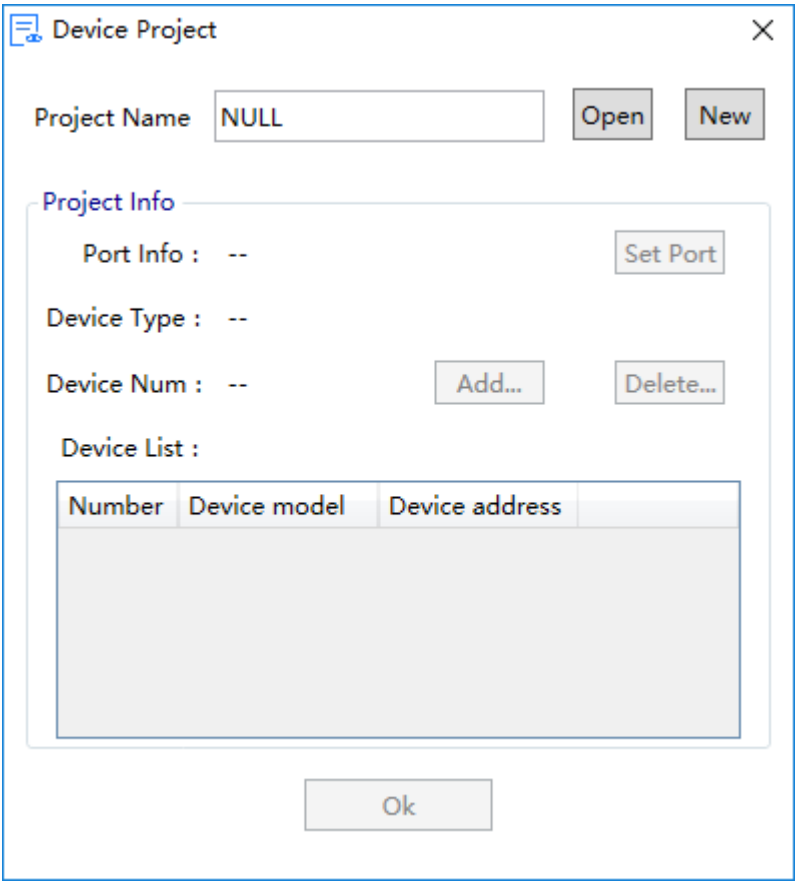


# ENC Monitor Software User Manual

## Part I: Program startup and serial port connection

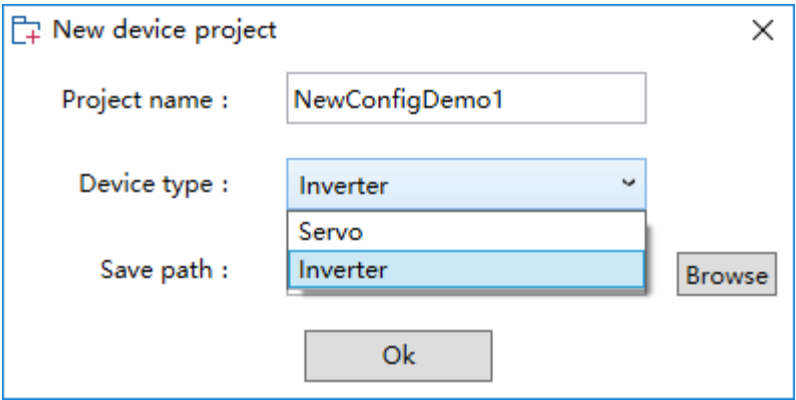
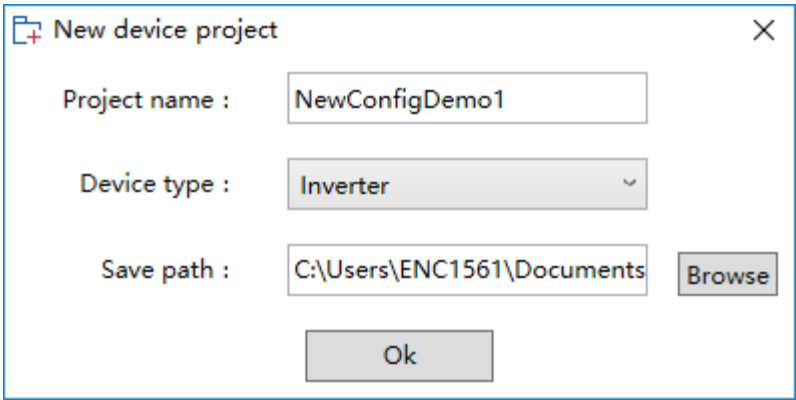
### (1) When the program is started for the first time or the project file does not exist:

User can choose to open or create a new project.



Open: Select to open an existing project from the file browser.

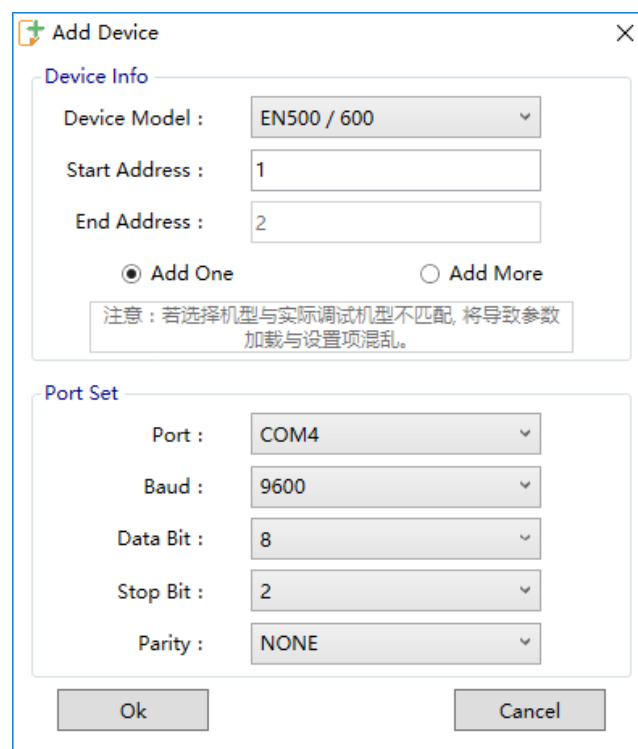
New:



User sets the project name, device type and project save path, and then enters the next step after OK.

Note: ENC Monitor support the debugging and networking of the two major categories of servo drives and inverters.

Add Device:



**Add Device**

**Device Info**

Device Model : EN500 / 600

Start Address : 1

End Address : 2

☒ Add One ☐ Add More

注意：若选择机型与实际调试机型不匹配, 将导致参数加载与设置项混乱。

**Port Set**

Port : COM4

Baud : 9600

Data Bit : 8

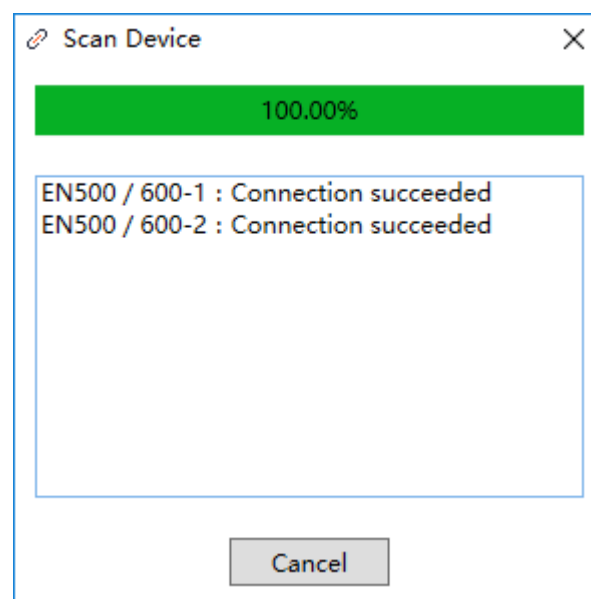
Stop Bit : 2

Parity : NONE

Ok Cancel

User can select the actual device model and the corresponding device address, support single and multiple add(multiple add devices with a continuous unique address), and the communication port configuration can also be performed on this page.

Scan Device:



**Scan Device**

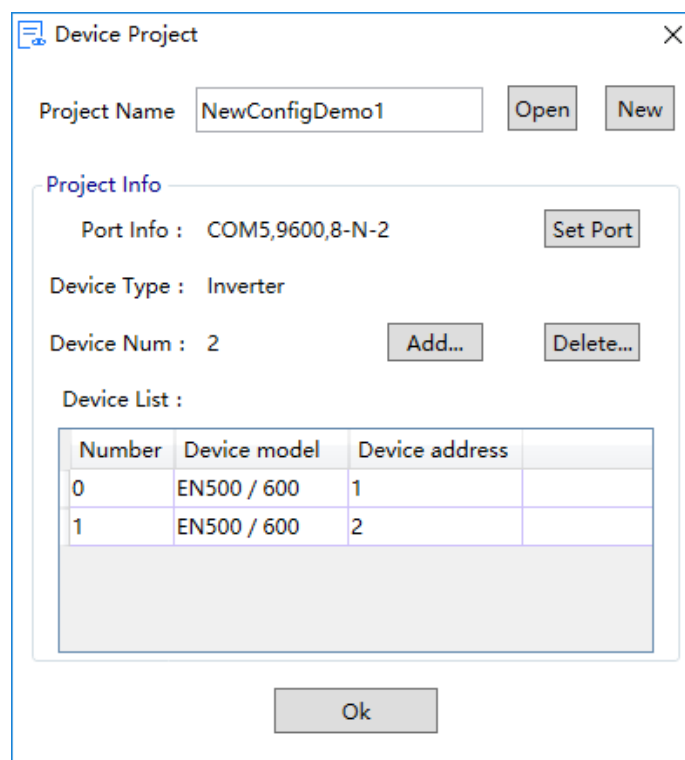
100.00%

EN500 / 600-1 : Connection succeeded  
EN500 / 600-2 : Connection succeeded

Cancel

After scanning the device, enter the main interface.

**(2)When the project file already exists:**



**Device Project**

Project Name : NewConfigDemo1

**Project Info**

Port Info : COM5,9600,8-N-2

Device Type : Inverter

Device Num : 2

**Device List :**

Number	Device model	Device address
0	EN500 / 600	1
1	EN500 / 600	2

Ok

The device project when the software was closed last time is displayed by default. The user can configure the project at the beginning of startup, such as port configuration, add device, delete device, and enter device scan after confirming.

port configuration:

Port Set

Port :

COM5

Baud :

9600

Data Bit :

8

Stop Bit :

2

Parity :

NONE

Ok

Delete Device:

Delete Device

Select	Number	Model	Address	
<input type="checkbox"/>	0	EN500 / 600	1	
<input type="checkbox"/>	1	EN500 / 600	2	

All Selec

All Canc

Delete

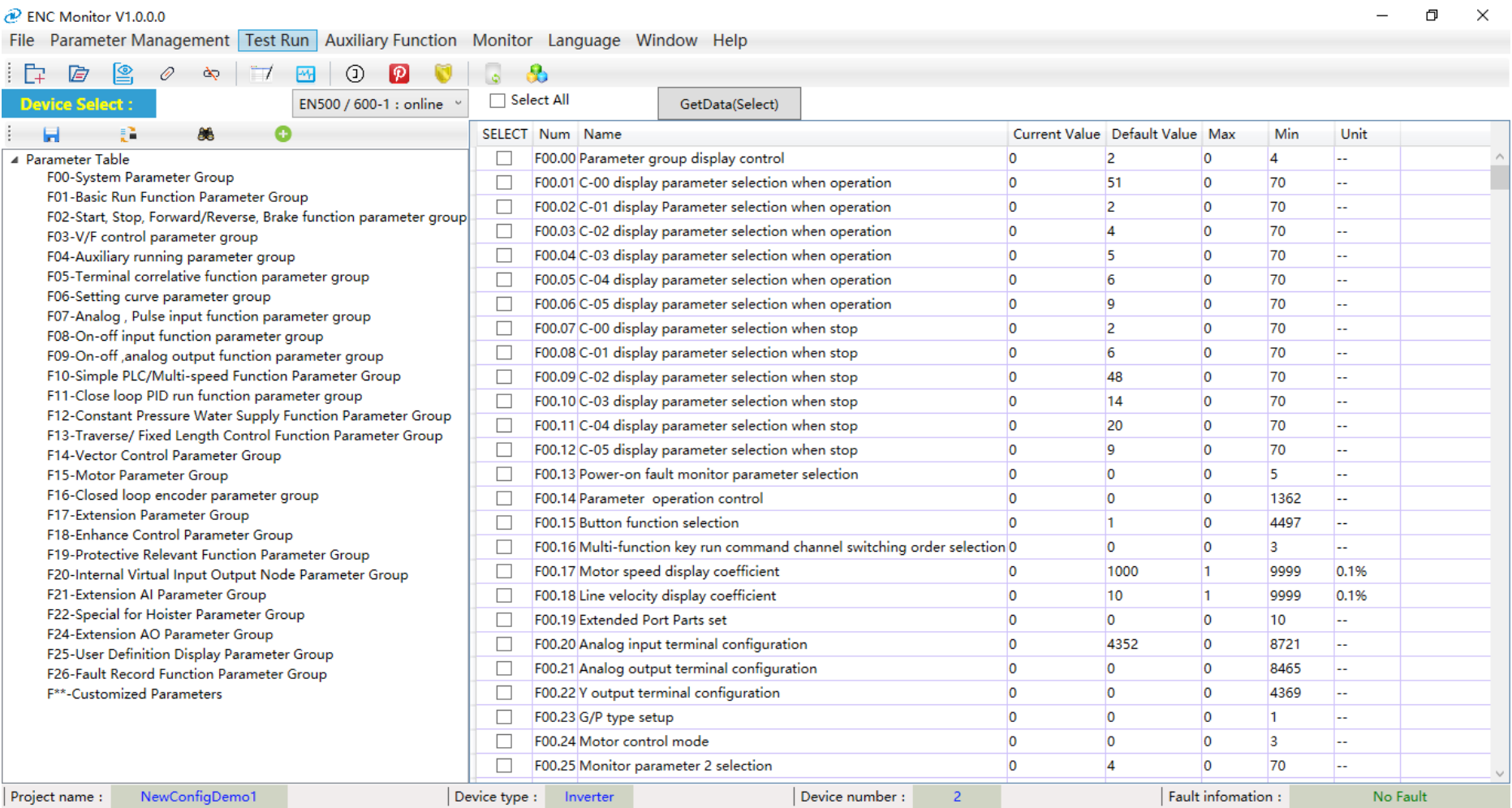
Cancel

Select the device to be deleted, delete it, support single and all deletion.

Part II: Main window of the program

(1) Main interface

After the program enters the main window, default loadingthe parameter editing page.



(2) The toolbar of main window

- Connect to inverter series machines:



The corresponding functions of the toolbar: new project, open project, review and modify project, connect all device, disconnect all device, parameter editing, virtual oscilloscope, |, JOG operation, DI/DO setting, warning message, |, factory reset, fault reset

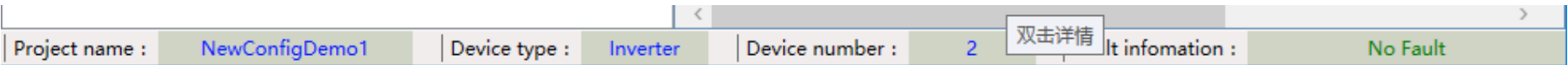
- Connect to a servo series machine:




The corresponding functions of the toolbar: new project, open project, review and modify project, connect all device, disconnect all device, parameter editing, virtual oscilloscope, |, inertia identification, JOG operation, DI/DO setting, warning message, |, emergency stop, factory reset, fault reset

(3) The Satus bar of main window

The status bar displays: project name, device type, device number, fault information.



Double-click the device number area to display the connection status of each device in the current project.

 Device status ×

Number	Device model	Device address	Connect status	
0	EN500 / 600	1	Online	
1	EN500 / 600	2	Online	

Refresh

Exit

Part III: Parameter editing

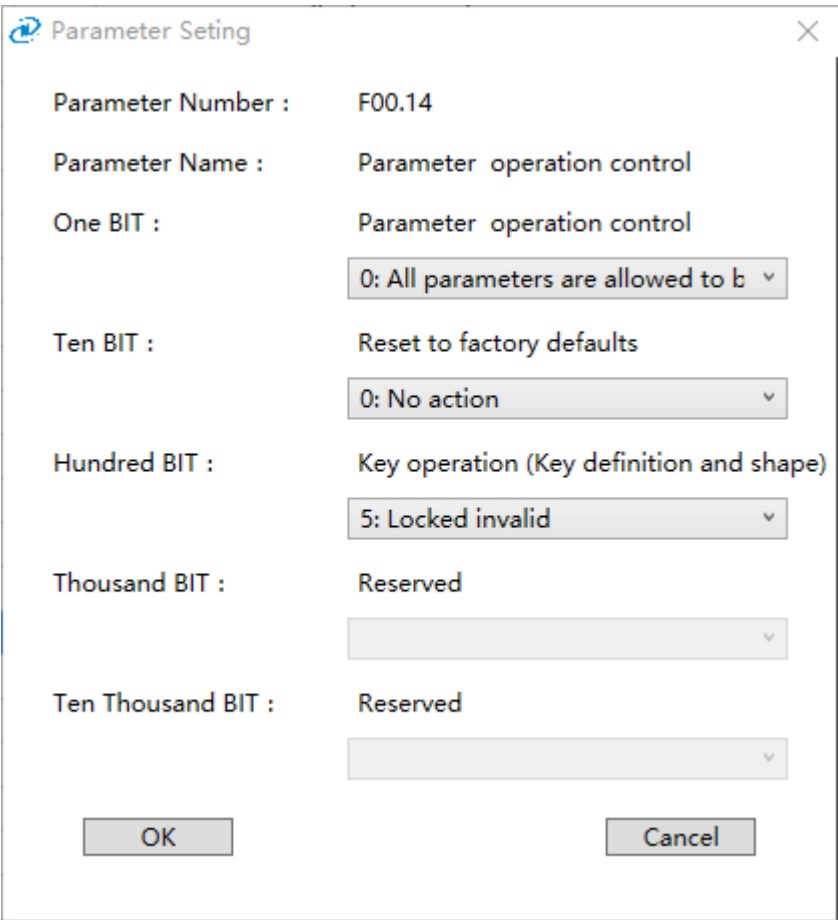
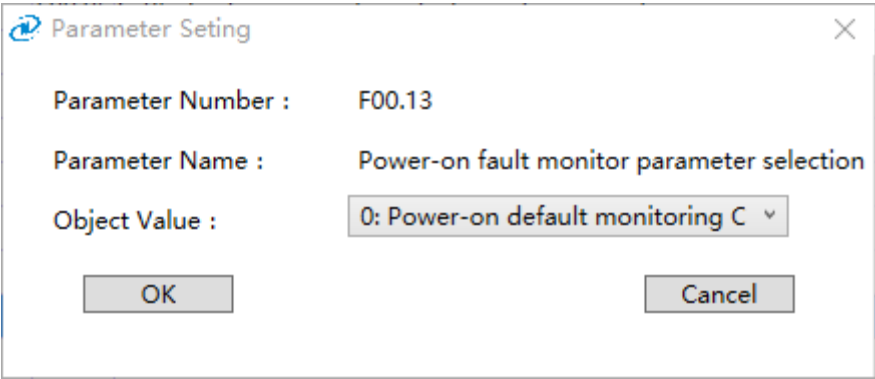
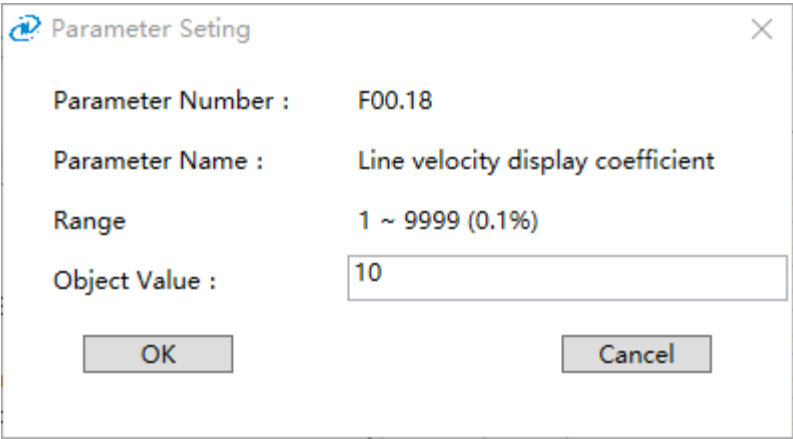
(1) Device select



Select the device in the project for parameter editing operation

(2) Parameter settings

Double-click the corresponding item in the parameter table to set the parameter value of the corresponding item.



(3) Parameter editing page toolbar



The parameter editing toolbar corresponds to the functions: save parameter file, parameter writing, parameter comparison, custom parameter table.

- Save parameter file: save the selected parameter in txt format.
- Parameter writing: write the parameters saved in txt format to the machine.

Write Parameters

Saved File : C:\Users\ENC1561\Documents\NewConfigDemo1\ Select... Write

☒ Select All

Select	Num	Name	Saved Value
<input checked="" type="checkbox"/>	F00.00	Parameter group display c	2
<input checked="" type="checkbox"/>	F00.01	C-00 display parameter se	51
<input checked="" type="checkbox"/>	F00.02	C-01 display Parameter se	2
<input checked="" type="checkbox"/>	F00.03	C-02 display parameter se	4
<input checked="" type="checkbox"/>	F00.04	C-03 display parameter se	5
<input checked="" type="checkbox"/>	F00.05	C-04 display parameter se	6
<input checked="" type="checkbox"/>	F00.06	C-05 display parameter se	9
<input checked="" type="checkbox"/>	F00.07	C-00 display parameter se	2
<input checked="" type="checkbox"/>	F00.08	C-01 display parameter se	6
<input checked="" type="checkbox"/>	F00.09	C-02 display parameter se	48
<input checked="" type="checkbox"/>	F00.10	C-03 display parameter se	14
<input checked="" type="checkbox"/>	F00.11	C-04 display parameter se	20
<input checked="" type="checkbox"/>	F00.12	C-05 display parameter se	9
<input checked="" type="checkbox"/>	F00.13	Power-on fault monitor p	0
<input checked="" type="checkbox"/>	F00.14	Parameter operation con	1280
<input checked="" type="checkbox"/>	F00.15	Button function selection	1
<input checked="" type="checkbox"/>	F00.16	Multi-function key run co	0
<input checked="" type="checkbox"/>	F00.17	Motor speed display coef	1000
<input checked="" type="checkbox"/>	F00.18	Line velocity display coeff	10
<input checked="" type="checkbox"/>	F00.19	Extended Port Parts set	0
<input checked="" type="checkbox"/>	F00.20	Analog input terminal cor	4352

### ● Parameter comparison

There are three comparison methods: parameter value VS factory value, parameter value VS file, and factory value VS file.

After selecting the comparison method, select the comparison file and click the OK button to compare the parameters.

The list only display items with different comparison values.

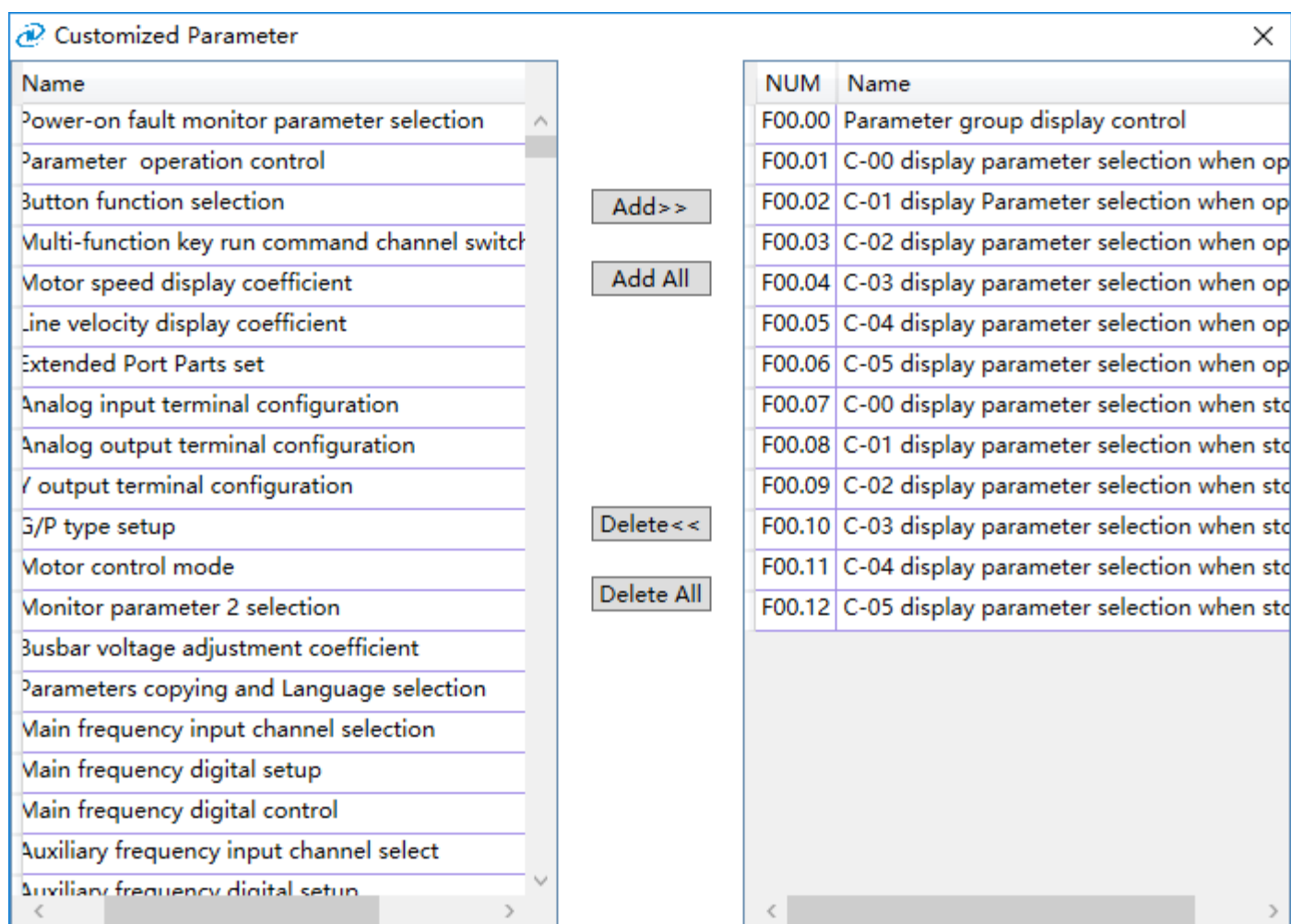
Compare Parameter

Comparison Method :Parameter Values VS Default OK

Saved File : Select...

No.	Parameter Name	Parameter Val	Default Value	Unit
F17.01	PZD2 write frequency scal	0	1000	0.1%
F17.02	PZD2 read frequency scali	0	1000	0.1%
F17.06	Water shortage protection	0	80	1%
F17.07	Wake up time after water	0	60	1min
F17.08	Water shortage judgment	0	50	0.1s
F17.09	Output power display cali	0	100	1%

### ● Custom parameter table



Add the corresponding parameter, after closing the window, click on the F\*\*\*-custom item in the parameter list to display the detailed information of the customized parameter.

**Device Select :** EN500 / 600-1 : online ☐ Select All

SELECT	Num	Name	Current Value	Default Value	Max	Min	Unit
<input type="checkbox"/>	F00.00	Parameter group display control	2	2	0	4	--
<input type="checkbox"/>	F00.01	C-00 display parameter selection when operation	51	51	0	70	--
<input type="checkbox"/>	F00.02	C-01 display Parameter selection when operation	2	2	0	70	--
<input type="checkbox"/>	F00.03	C-02 display parameter selection when operation	4	4	0	70	--
<input type="checkbox"/>	F00.04	C-03 display parameter selection when operation	5	5	0	70	--
<input type="checkbox"/>	F00.05	C-04 display parameter selection when operation	6	6	0	70	--
<input type="checkbox"/>	F00.06	C-05 display parameter selection when operation	9	9	0	70	--
<input type="checkbox"/>	F00.07	C-00 display parameter selection when stop	2	2	0	70	--
<input type="checkbox"/>	F00.08	C-01 display parameter selection when stop	6	6	0	70	--
<input type="checkbox"/>	F00.09	C-02 display parameter selection when stop	48	48	0	70	--
<input type="checkbox"/>	F00.10	C-03 display parameter selection when stop	14	14	0	70	--
<input type="checkbox"/>	F00.11	C-04 display parameter selection when stop	20	20	0	70	--
<input type="checkbox"/>	F00.12	C-05 display parameter selection when stop	9	9	0	70	--

**Parameter Table**

- F00-System Parameter Group
- F01-Basic Run Function Parameter Group
- F02-Start, Stop, Forward/Reverse, Brake function parameter group
- F03-V/F control parameter group
- F04-Auxiliary running parameter group
- F05-Terminal correlative function parameter group
- F06-Setting curve parameter group
- F07-Analog , Pulse input function parameter group
- F08-On-off input function parameter group
- F09-On-off ,analog output function parameter group
- F10-Simple PLC/Multi-speed Function Parameter Group
- F11-Close loop PID run function parameter group
- F12-Constant Pressure Water Supply Function Parameter Group
- F13-Traverse/ Fixed Length Control Function Parameter Group
- F14-Vector Control Parameter Group
- F15-Motor Parameter Group
- F16-Closed loop encoder parameter group
- F17-Extension Parameter Group
- F18-Enhance Control Parameter Group
- F19-Protective Relevant Function Parameter Group
- F20-Internal Virtual Input Output Node Parameter Group
- F21-Extension AI Parameter Group
- F22-Special for Hoister Parameter Group
- F24-Extension AO Parameter Group
- F25-User Definition Display Parameter Group
- F26-Fault Record Function Parameter Group
- F\*\*\*-Customized Parameters**



## Part IV: Virtual oscilloscope

### (1) Oscilloscope page



### (2) Device select

Select the device in the project for Virtual oscilloscope

### (3) Oscilloscope page toolbar



Corresponding respectively: open waveform, save waveform, waveform comparison, cancel waveform comparison, |, zoom in, pan, zoom, vernier caliper, coordinate prompt 1, coordinate prompt 2, |, FFT, trigger setting

- Open the waveform: select the CSV file in the user directory and convert the table data into a waveform.
- Save Waveform: Save the waveform in the waveform diagram as a CSV file.
- Waveform comparison: as shown in the figure, the original waveform is in color, and the contrasted waveform is grayish white.



- Cancel waveform comparison: After clicking the button, the grayish white waveform will be deleted and disappeared.
- Zoom in: Click the zoom button, press and hold the left mouse button on the waveform, and slide the mouse position to get a rectangular box; release the left mouse button, and the waveform in the rectangular box can be enlarged to the entire waveform.
- Pan: Click the pan button, hold the left mouse button on the waveform graph, and slide the mouse position to pan all the waveforms.
- Zoom: Click the zoom button. When the waveform stops sampling, all the waveform points will be zoomed to the entire waveform; when the waveform is sampling, only the Y axis will be zoomed.
- Vernier caliper: Click the button for the first time to display the vernier caliper and window; click the button again to hide the vernier caliper.

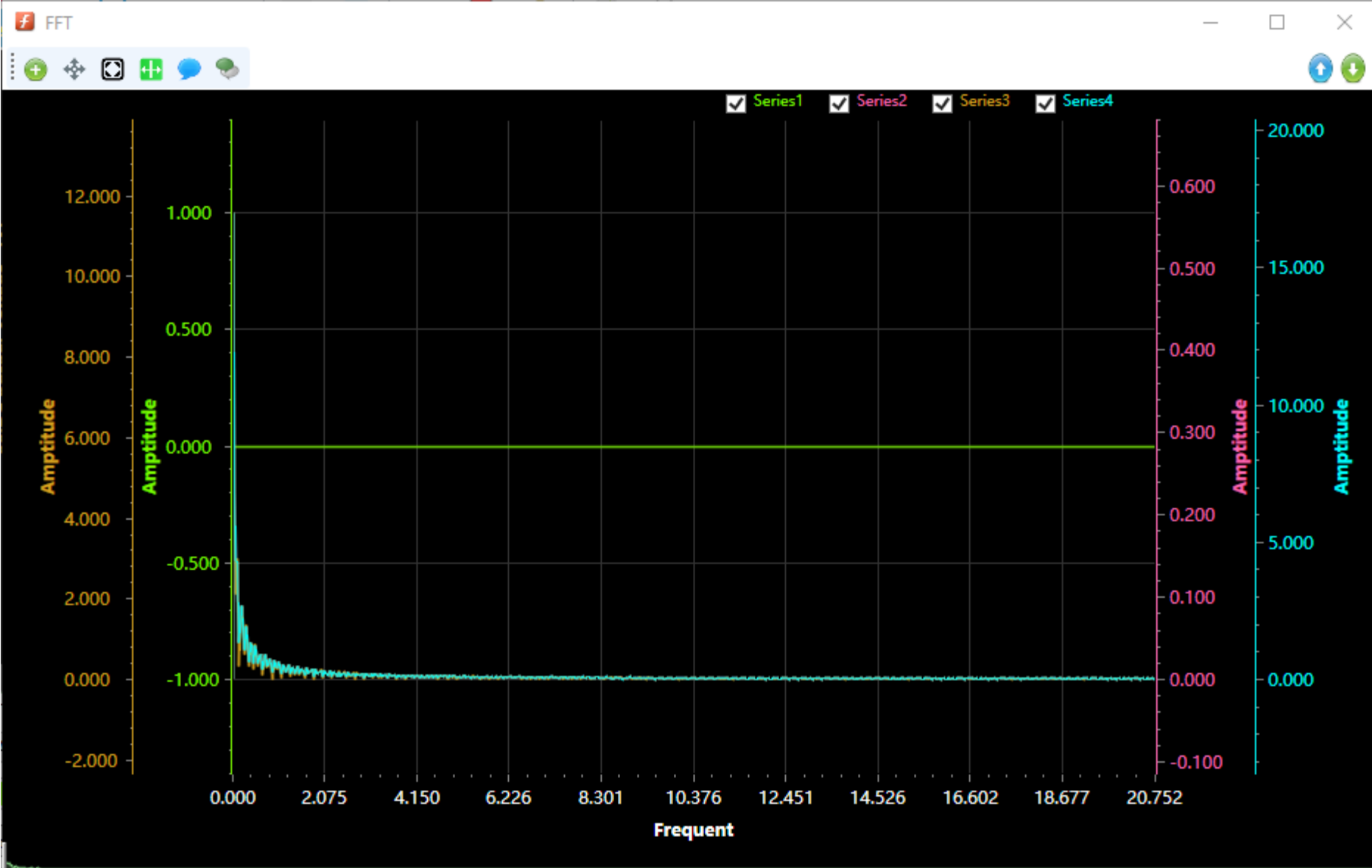


● FFT(Fast Fourier Transform):

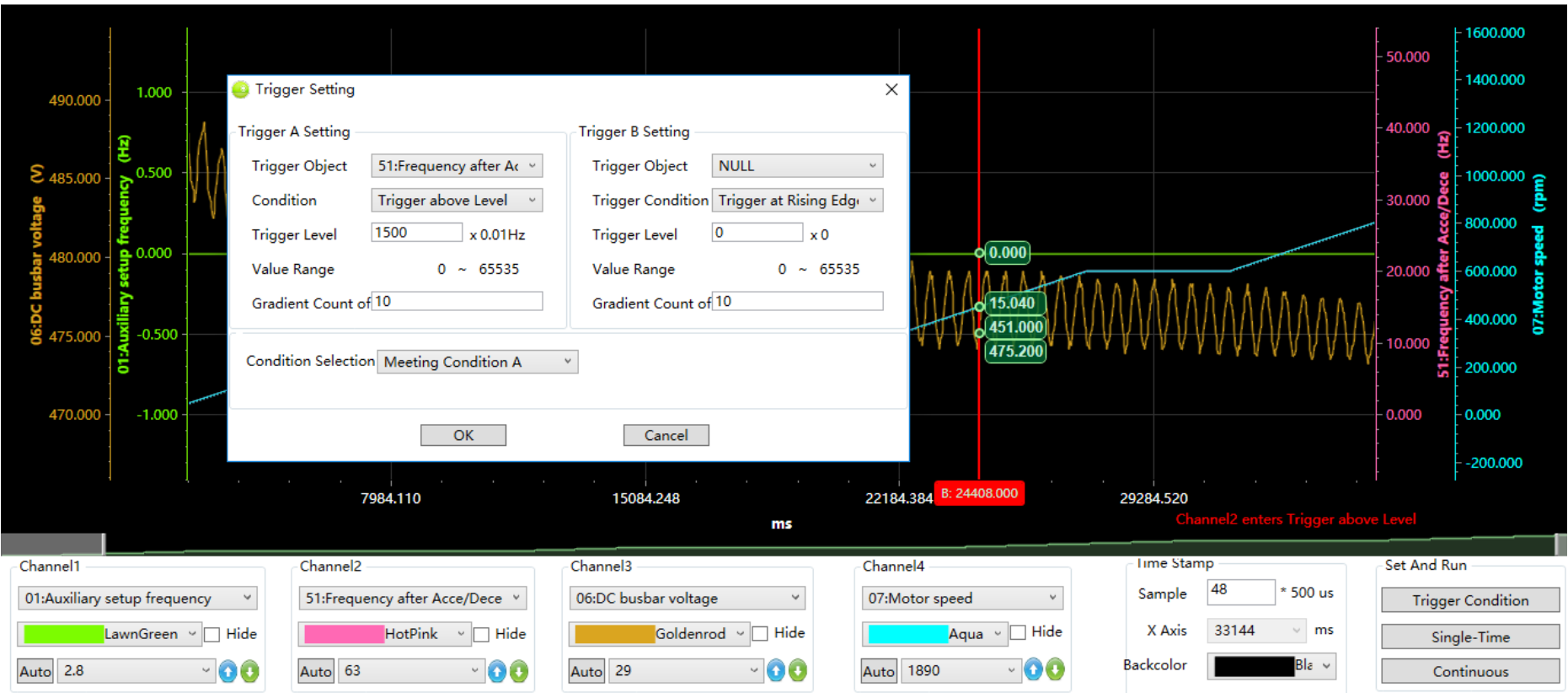
Usage steps: The first time click the FFT button to display two vernier calipers; The second time click the FFT button to display the FFT waveform window (the waveform in the FFT is calculated from the waveform point data between the two vernier calipers).

When the FFT window is closed, two vernier calipers will be left; at this moment, the right-click of the mouse click the FFT button to hide the two vernier calipers.

(Note: When applying this function, it should be set to single sampling, and sampling should be set to 3 \* 125us.)



● Trigger settings:



As shown in the figure: Click the trigger setting button or trigger condition button to display the trigger setting window.

Only when you click the "OK" button in the trigger settings window, after the set value is saved, the trigger can be performed when sampling.

Trigger object: The drop-down box displays the 4 channel parameters selected in the waveform graph of the main window.

Trigger conditions: rising edge trigger, trigger above the set value level, trigger below the set value level.

Trigger level: Set the trigger condition value.

Value range: The value range of the trigger object.

Slope counting point: According to the number of slope counting points, the slope is calculated from these points to determine the rising or falling edge of the waveform, so as to avoid the interference of the waveform sawtooth.

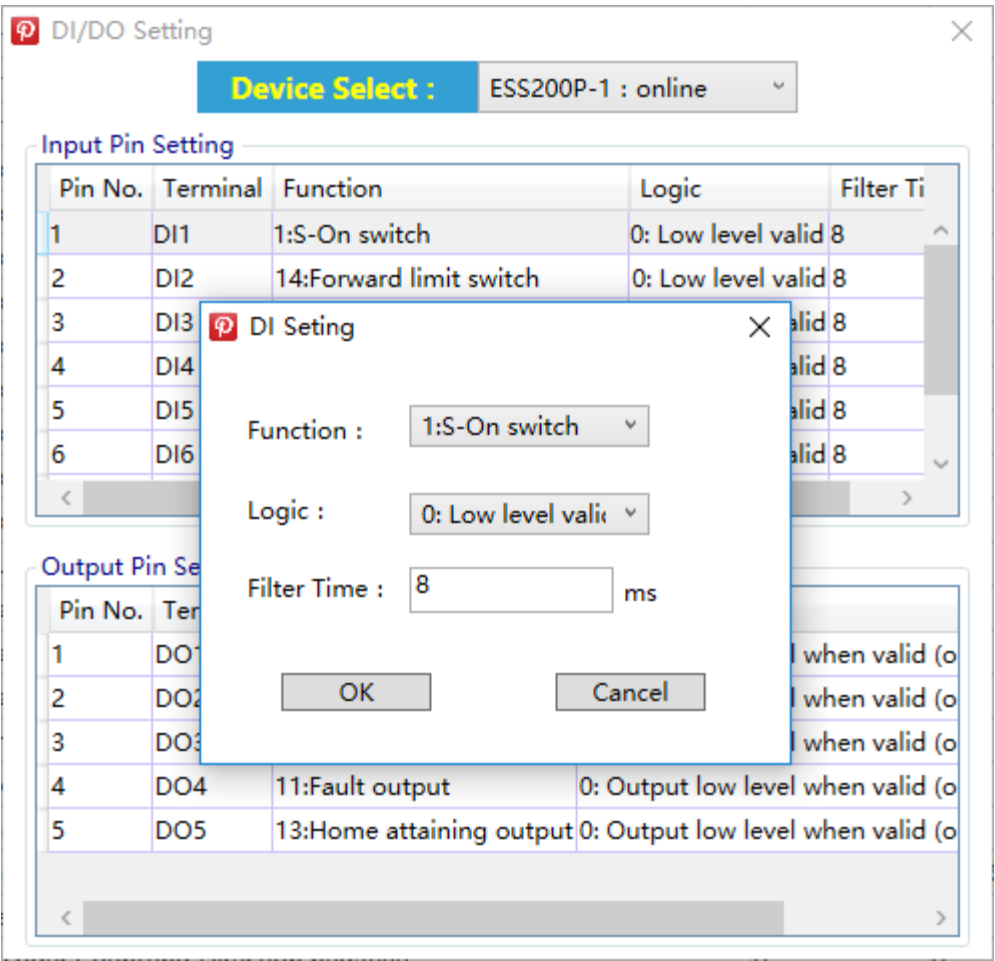
Trigger condition selection: four logic trigger conditions.

Part V: Trial Run

(1) DI/DO settings

Servo

Double-click the corresponding item in the table to set its parameters.



Inverter

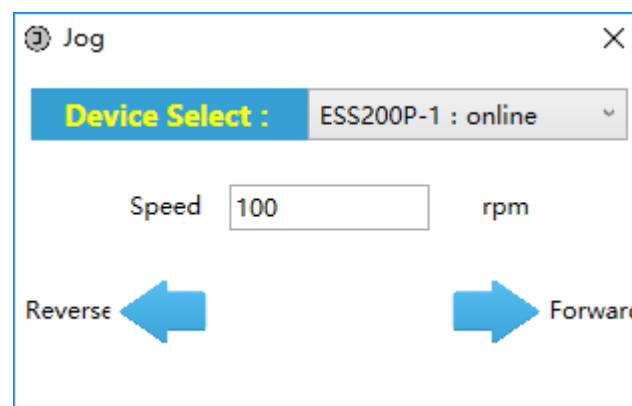
Double-click the corresponding item in the table to set its parameters.



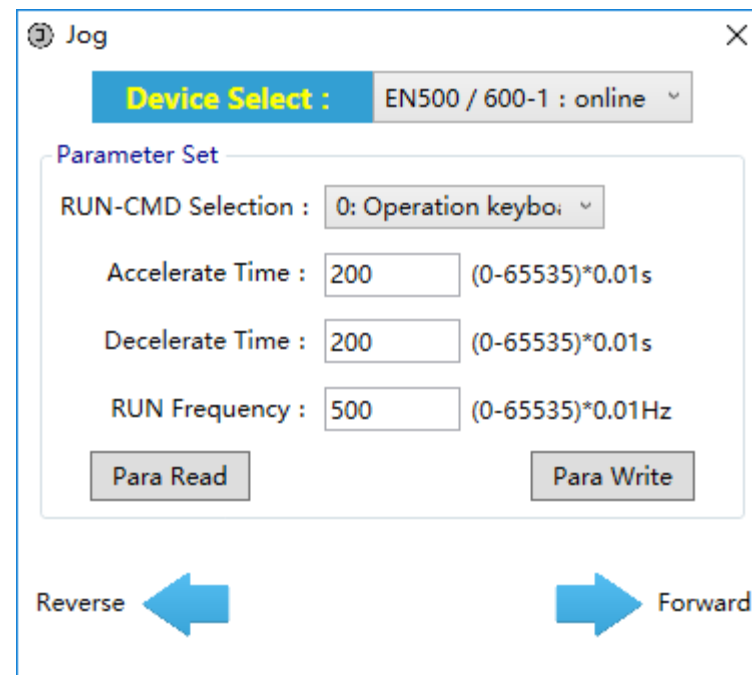
(2) Jog run

After connecting the serial port and inputting the motor speed, the motor direction button can make the motor run. When the motor rotates, release the mouse or leave the Jog window, and the motor will stop rotating.

Servo

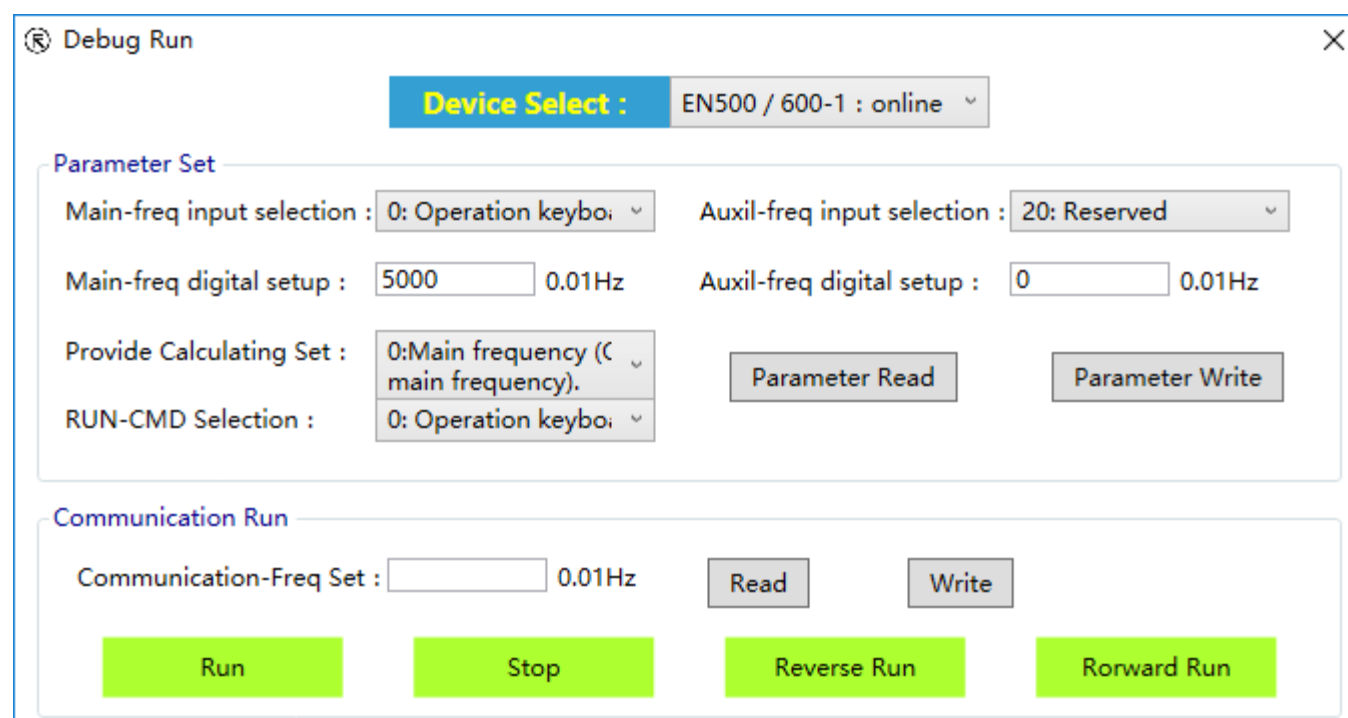


**Inverter**



### (3) Debugging

**Inverter function, servo is invisible**



### (4) Emergency stop

**Servo function, the inverter is invisible**

When the motor is running, click Emergency Stop, the motor will stop running.

Click the emergency stop button again to release the emergency stop state.

### (5) Fault reset

When the servo is faulty, click fault reset.

### (6) Software reset

**Servo function, the inverter is invisible**

After clicking software reset, the software reset parameter value is set to 1.





(3) Speed loop adjust

Inverter function, servo is invisible

Speed Loop Adjust

Device Select : EN500 / 600-1 : online

Asynchronous motor

High-speed kp gain : 200 0.1

High-speed ki : 40 0.001s

low-speed kp gain : 200 0.1

low-speed ki : 20 0.001s

switching frequency : 500 0.01Hz

Synchronous motor

High-speed kp gain : 0 --

High-speed ki : 0 --

low-speed kp gain : 0 --

low-speed ki : 0 --

Switching frequency 1 : 0 --

Switching frequency 2 : 0 --

Drive Motor Type :

Read Parameter

Write Parameter

(4) PID Parameter Adjust

Inverter function, servo is invisible

PID Parameter Adjust

Device Select : EN500 / 600-1 : online

Provision channel set

Pro-ch selection : 0: Digital provision

Pro-ch filtering time : 0 0.01s

Provision digital setting : 100 0.01V

Read Parameter

Write Parameter

Feedback channel set

Fed-ch selection : 0: AI1 analog input

Fed-ch filtering time : 0 0.01s

Pos-Neg characteristic : 0: Positive characteri

Read Parameter

Write Parameter

Output set

upper limit frequency : 5000 0.01Hz

lower limit frequency : 0 0.01Hz

regulation characteristic : 0: Action

output filtering time : 0 0.01s

Read Parameter

Write Parameter

PID set

Deviation limit : 20 0.1%

Kp : 50 0.0001

Ki : 25 0.0001

Kd : 0 0.001

PID diff limit : 10 0.01%

Sample cycle T : 10 0.01s

Read Parameter

Write Parameter

PID control set

PID run control selection : 0: PID close loop ru

Integral selection : 0: When integral an

integral separation limit : 1000 0.1%

Preset frequency : 0 0.01Hz

Hold time of pre-freq : 0 0.1s

Read Parameter

Write Parameter



Part VII: Monitoring

(1) Virtual oscilloscope

See part IV .

(2) Warning message

Servo

Fault Record Info

Device Select : ESS200P-1 : online

Fault Record	Fault Value	Bus voltage(0.1V)	Motor Speed(rpm)	Input Terminal State	Running Time(min)	Module Temperature(°C)
Last 1st fault	000:No fault	0	0	0	0	0
Last 2nd fault	000:No fault	0	0	0	0	0
Last 3rd fault	000:No fault	--	--	--	--	--
Last 4th fault	000:No fault	--	--	--	--	--
Last 5th fault	000:No fault	--	--	--	--	--
Last 6th fault	000:No fault	--	--	--	--	--

F10.46 Fault Record 0

Update

Parameter initialization

Inverter

Fault Record Info

Device Select : EN500 / 600-1 : online

Fault Record	Fault Value	SetFreq(0.01Hz)	OutFreq(0.01Hz)	Current(0.1A)	DC-BUS Voltage(0.1V)	Temp(°C)	Input Terminal
The last fault record	E-18: External device fault	4875	0	0	4735	19	1
The last two fault records	No fault	0	0	0	0	0	0
The last three fault records	No fault	--	--	--	--	--	--
The last four fault records	No fault	--	--	--	--	--	--

Record Upda

Record Reset

(3) Real-time data display:

Display Real-Time Clock

Monitor1

5000

0.01Hz

EN500 / 600-1 : online

Setting frequency

Monitor2

4813

0.1V

EN500 / 600-1 : online

DC busbar voltage

Monitor3

4854

0.1V

EN500 / 600-2 : online

DC busbar voltage