

DriverAppV2.0

User Manual

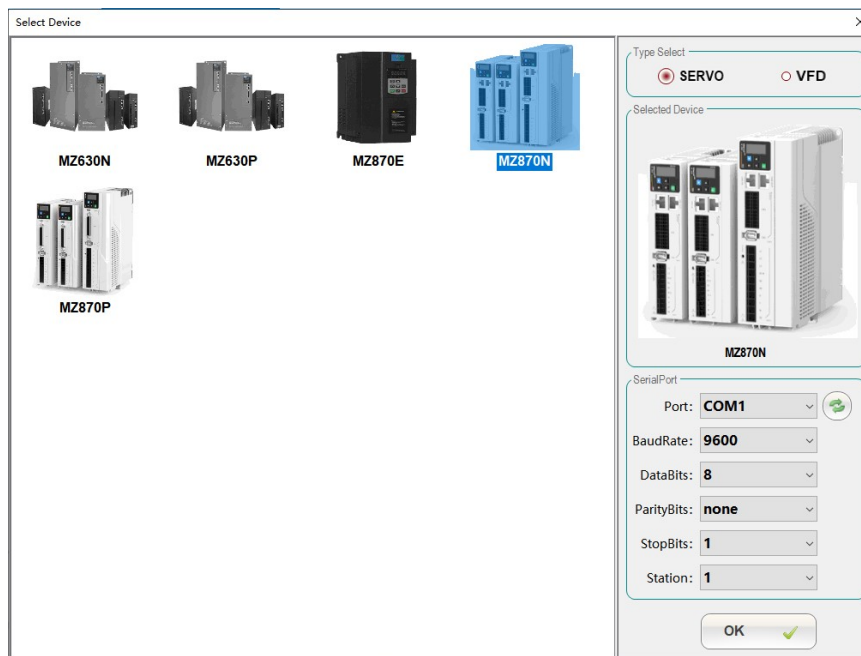
Chnchi Electric Nanjing Co., LTD.

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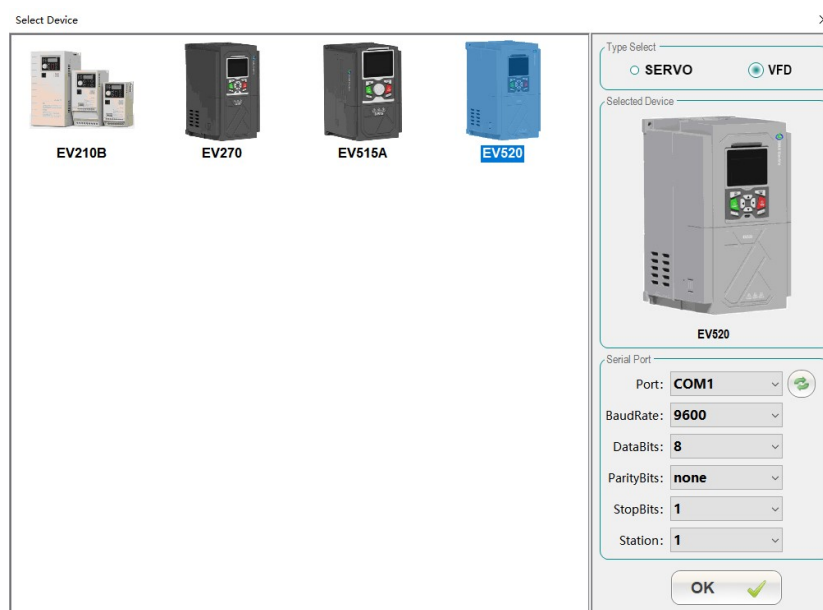
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1. Select Device

Double click the software program exe file to enter the initial interface and select the device interface, as shown in the following figure:



Firstly, select the device type in the upper right corner of the interface, and click the servo drive or frequency converter radio button. The corresponding left interface will display all the device models included in this device type. Select the frequency converter as shown in the following figure:



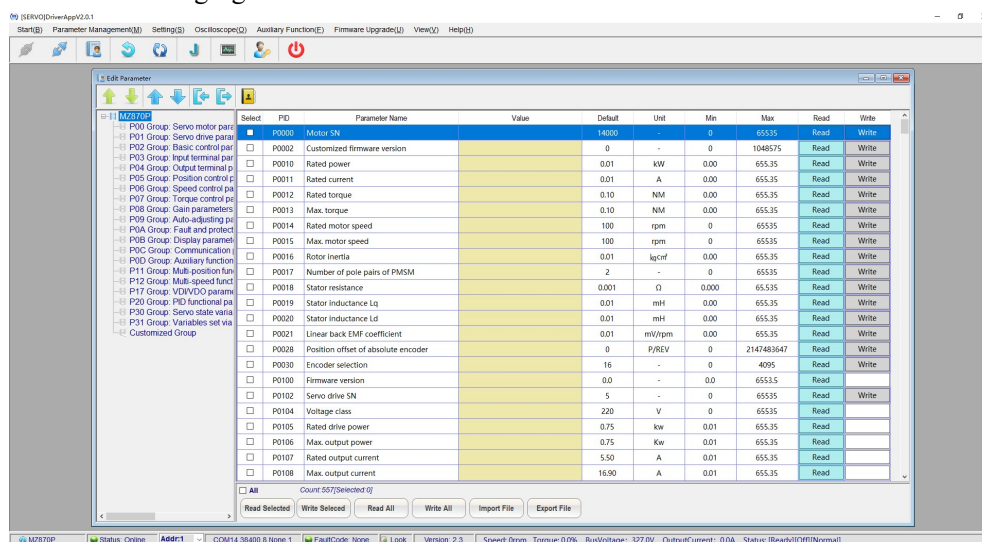
On the left side, display the image model area of each device. Select the servo drive or frequency converter model that will be connected for debugging. After clicking on the selection,

the corresponding model and image appearance will also be displayed on the right side.

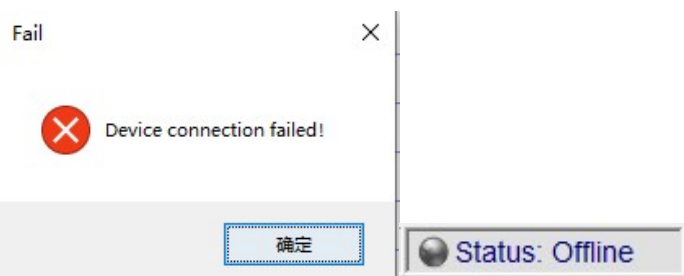
Further set the serial port parameters, such as port number, baud rate, data bit, checksum, stop bit, and slave address. Finally, click the confirm button to connect the device and enter the main interface.

2. Main Interface

Enter the main interface and connect the serial communication at the same time. If the serial connection is successful, the connection status in the bottom status bar will be "online" and the icon will be green. The main interface will default to the parameter editing function interface, as shown in the following figure:



If the serial port connection fails, a failure message box will pop up, and the connection status bar at the bottom of the software will be "offline" with a gray icon. As shown in the following figure:



The upper part of the main interface displays the software menu bar, which mainly includes text menus such as 'Start', 'Parameter Management', 'Setting', 'Oscilloscope', 'Auxiliary Functions', 'Firmware Upgrade', 'View', 'Help', etc; Below are the main icon shortcut keys, including serial port connection, serial port disconnection, parameter editing, software reset, parameter reset, JOG motion (if the frequency converter device is a control panel function), oscilloscope administrator login, software exit and other shortcut icon keys.



The status bar at the bottom of the software displays information such as device model, serial

port connection status, address axis, serial port parameters, fault codes, software version number, and critical control data for operation monitoring. If there is a fault code, you can also click the button to view the detailed information of the fault code.



3. Start

The first main menu in the software menu bar is "Start (B)". When expanded, it mainly includes serial port connection and disconnection, as well as exiting software functions.

3.1 Connect

- **Automatic search**

You can click the "Connect" menu button or shortcut key [Ctrl+C] in the menu to enter the device serial port connection interface. Click the "Search" button below, and the software will automatically search for serial port parameters until the connection is successful. You can also cancel the automatic search for serial port parameter configuration.



- **Manual setting**

You can also manually set parameters by selecting the correct port, baud rate, data bit, checksum, stop bit, and slave address parameters, and then click the connect button.



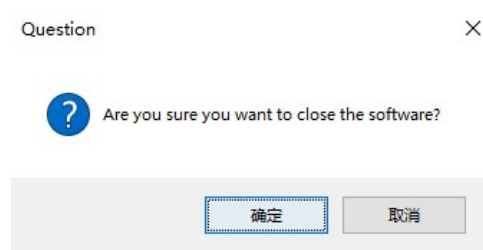
Click the refresh button after the port number to reload all the serial port numbers of the computer.

3.2 Disconnect

When the device is already connected, you can click the "Disconnect" menu button or the shortcut key [Ctrl+D] in the menu to disconnect the serial port connection of the current device.

3.3 Exit

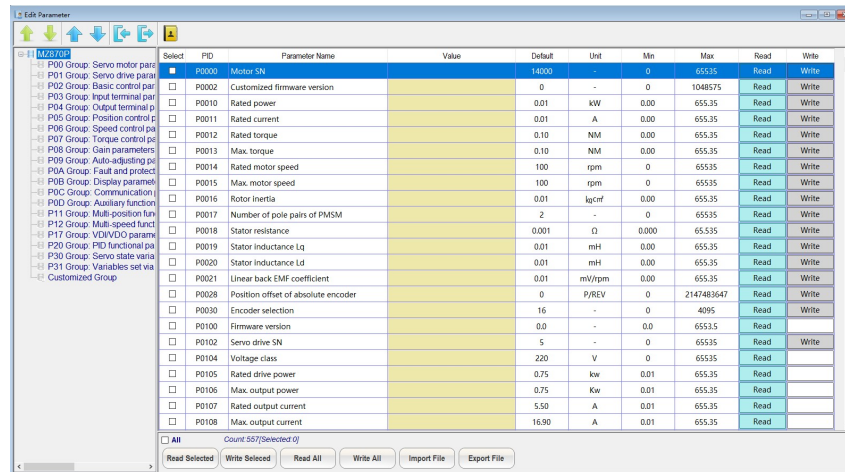
Click the "Exit" menu button or shortcut key [Ctrl+Q] to exit the system software. At this time, the system will give a prompt. Click confirm, as shown in the following figure:



4. Parameter Management

4.1 Edit Parameter

The initial interface allows entry into the parameter editing screen by clicking the "Parameter Edit" button or using the shortcut [Ctrl + E], as shown in the figure below:

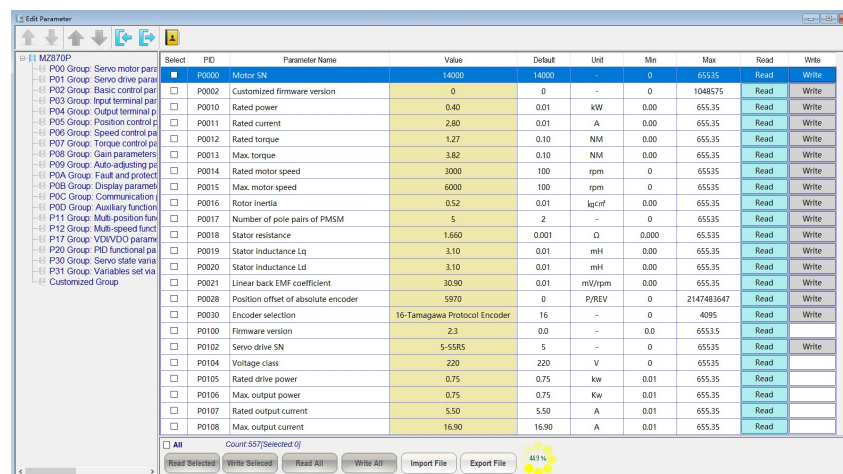


On the left side of the interface are parameter groups, while the right side displays the detailed parameter list of the currently selected group, allowing for read and write operations on the listed parameters.

● Parameter reading and writing

You can check the read and write options for the parameters in the parameter list, or read and write all the parameters in the current group. You can also perform a single parameter read or write operation by pressing the "read" or "write" button at the end of each line of parameters.

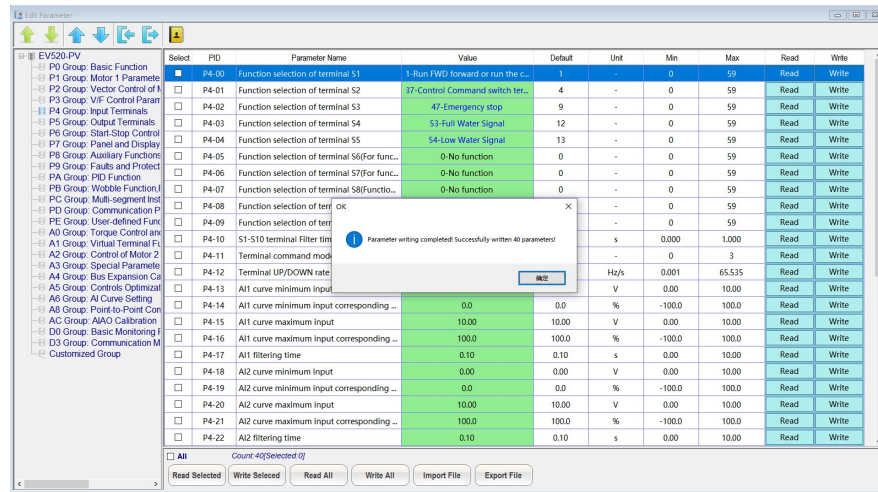
When reading or writing multiple parameters, there will be a percentage progress display of the operation, as shown in the figure:



If the parameter value is not equal to the default value, it will be displayed in blue font. If it

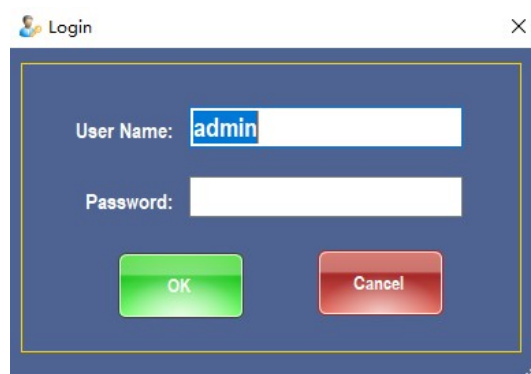
exceeds the range, it will be displayed in red font.

When writing parameters, double-click in the parameter value column to enter or select the parameter value. Note that some parameters are read-only and cannot be written, while others require administrator privileges to be written.



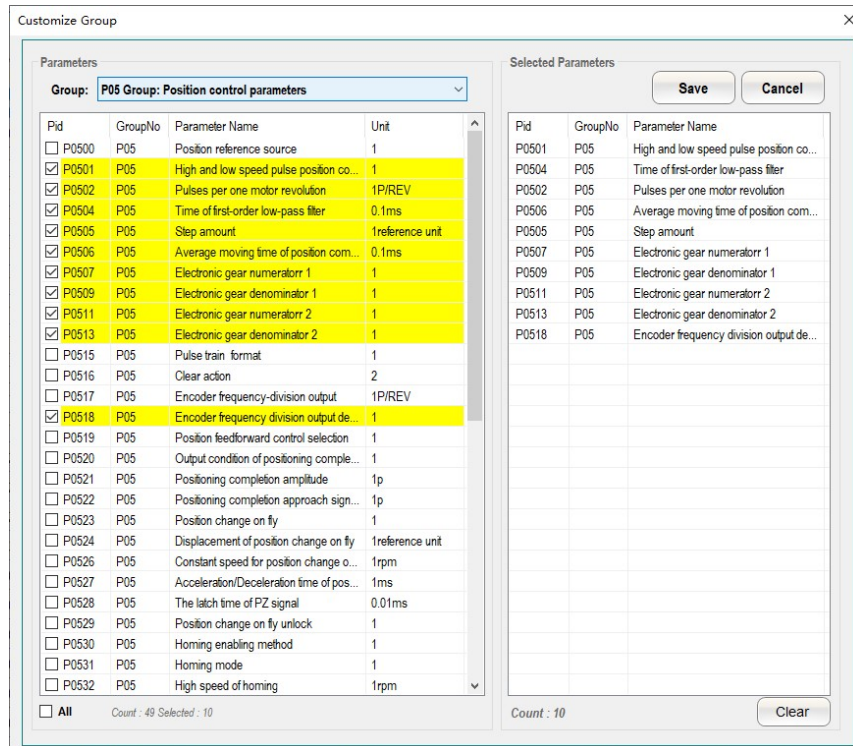
When the batch write is completed, it will prompt the number of successful and failed writes, and the background bar of the write value will display light green and light red colors corresponding to successful or failed writes.

When writing parameters with the attribute requiring administrator privileges, the system software will pop up a password input dialog box. Only by entering the correct password can the parameters be written. For continuous operations, only one password input is required.



● Customize Group

In addition to the default grouping of parameters, users can also have automatic grouping displayed in the "Customize Group" parameter group. They can select the customer custom group of parameters through the "Custom Parameter Group Image" button, as shown in the following figure:

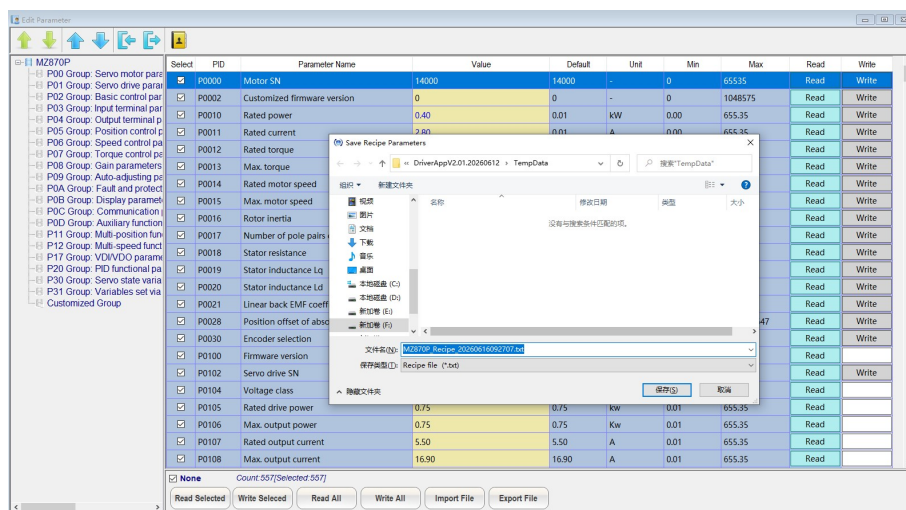


After setting the custom group parameters required for the selection number, you can manage and view the parameter group in the "Customized Group" at the bottom of the parameter group tree structure on the right side of the parameter editing interface.

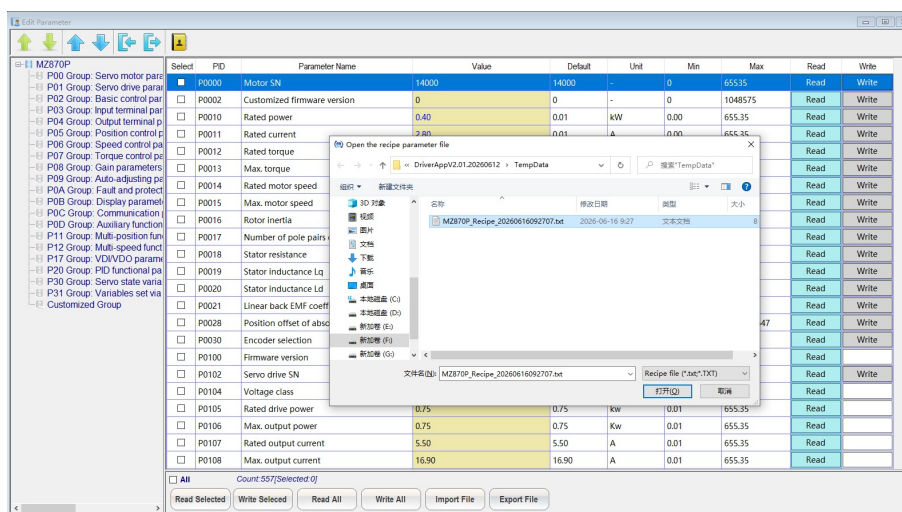
● Recipe Parameters

Users can also import and export all parameters into Excel files for practical purposes such as parameter recovery or unified settings during product debugging.

Formula parameter export can be performed in all parameter groups or customer customized groups. First, select the exported parameter item, and then click "Export File" or shortcut keys to export the text file, as shown in the following figure:



You can also click on "Import File" or shortcut keys to import the previously retained formula parameter text file, as shown in the following figure:



4.2 Motor Parameters

This function requires administrator privileges to operate. Set the key parameters of the motor through servo drive, open the txt file parameter table of the motor model, and then set the parameters, as shown in the following figure:



The main functions include opening parameter files, saving parameter files, reading parameters, writing parameters, etc.

5. Setting

5.1 Parameters Reset

Click the "Parameter Reset" or [Ctrl+R] shortcut key to pop up the function of resetting all parameters of servo drive or frequency converter equipment, as shown in the following figure:



Click the reset button, and after a few seconds of starting the reset, it will be completed. The system software will give a prompt message of "parameter reset successful".

5.2 Software Reset

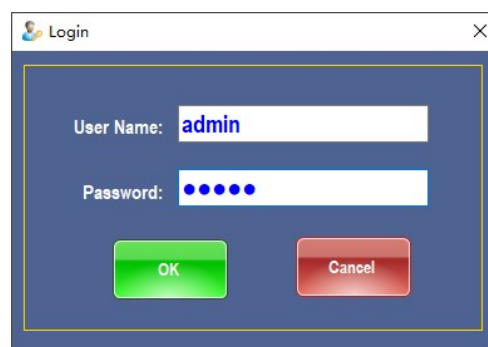
Click on the "Software Reset" or [Ctrl+S] shortcut key to pop up the software reset function for servo drive or frequency converter equipment, as shown in the following figure:



Click the reset button, and the device will restart and reset. The completion time is about a few seconds, and the system software will give a "software reset successful" prompt message.

5.3 Administrator Login

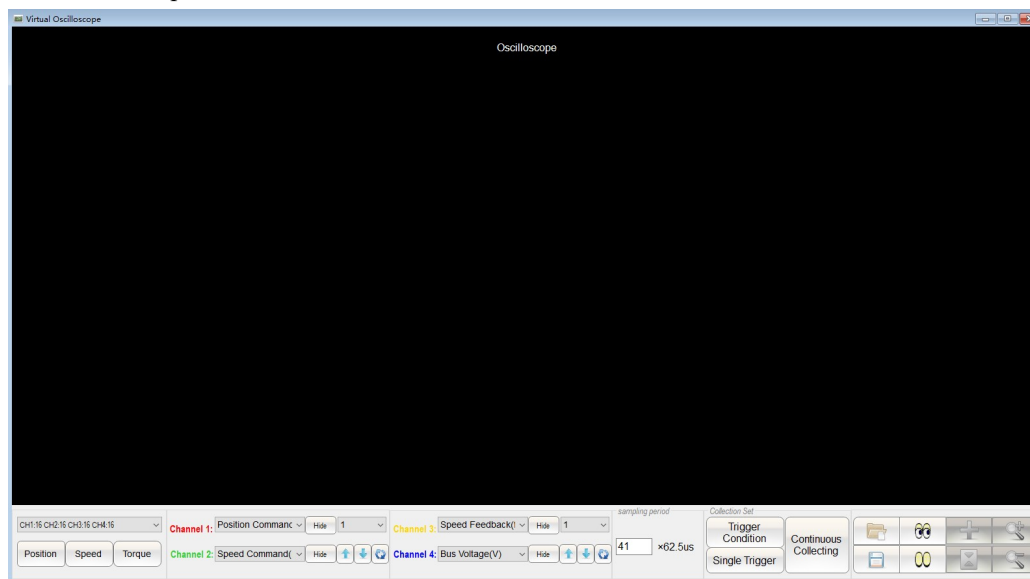
Some parameters or functions require administrator privileges to operate. Click on the "Administrator Login" or [Ctrl+L] shortcut key, enter the username (admin) and password in the pop-up window, and click the confirm button. If the password is correct and the device is successfully connected, the password value will be successfully written to the corresponding register of the device.



6. Oscilloscope

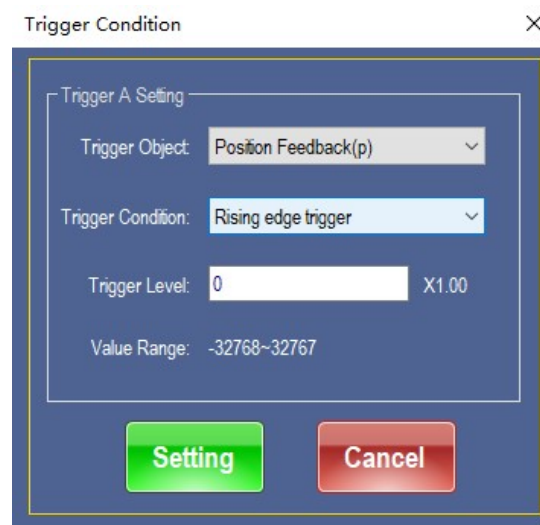
6.1 Oscilloscope

The waveform acquisition oscilloscope can simultaneously collect data waveforms from four channels of servo drives or frequency converters. The channel parameters are defined in each product parameter database, and waveform acquisition can be performed by selecting the acquisition mode and channel variables. There are two methods: trigger acquisition and continuous acquisition.



● Single Trigger

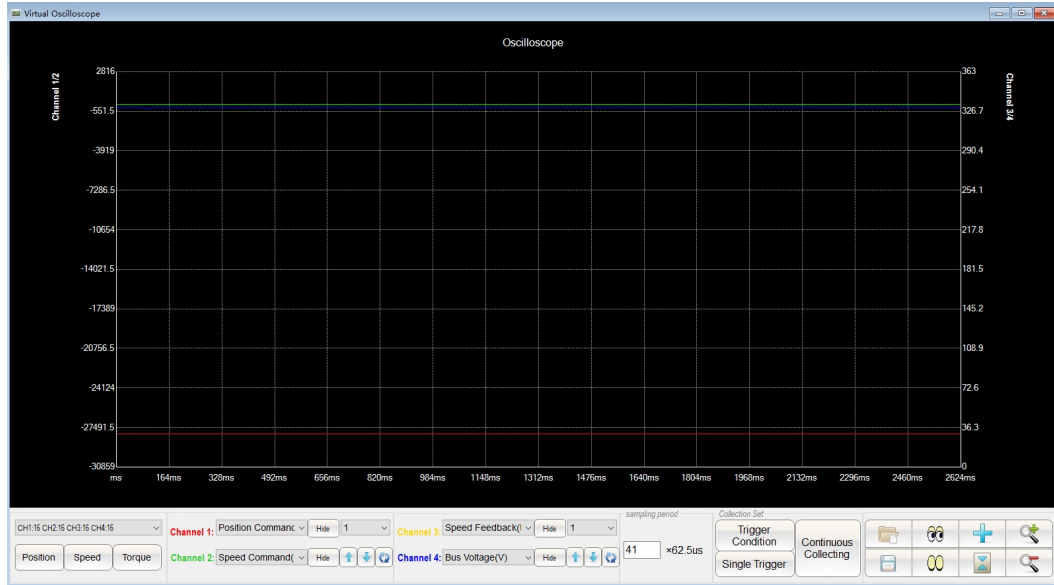
Triggering collection requires configuring triggering conditions, mainly including triggering objects, triggering conditions, triggering levels, and other parameters, as shown in the following figure:



After setting the parameters, triggering collection can be carried out with 1024 collection points. The collection process displays the progress, as shown in the figure:

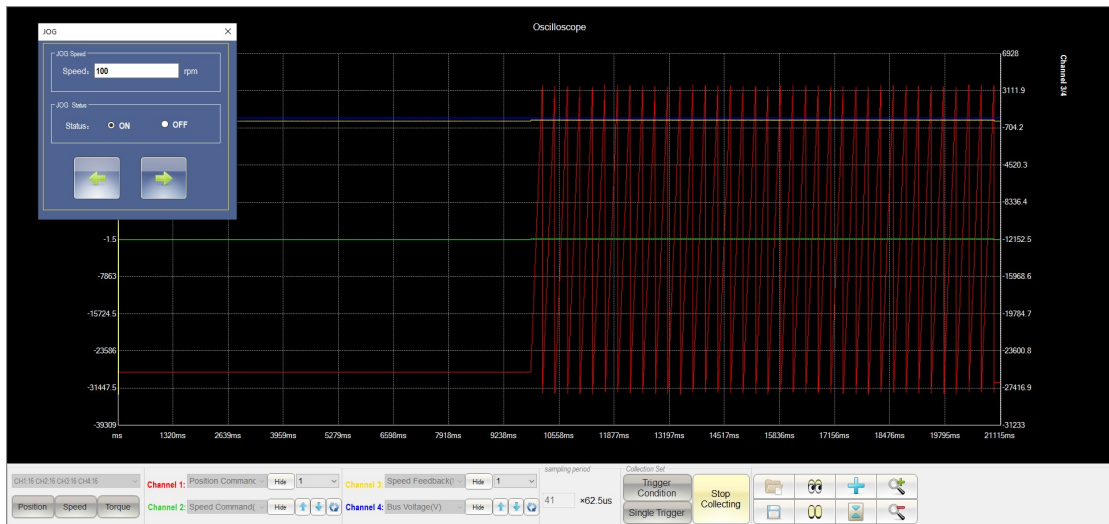
Waiting for triggering collection...

After the collection is completed, display the collected waveform as shown in the figure:



● Continuous Collecting

There is no triggering condition for continuous acquisition. Click the continuous acquisition button to start the acquisition until the stop acquisition button is pressed again. The displayed waveform is shown in the following figure:

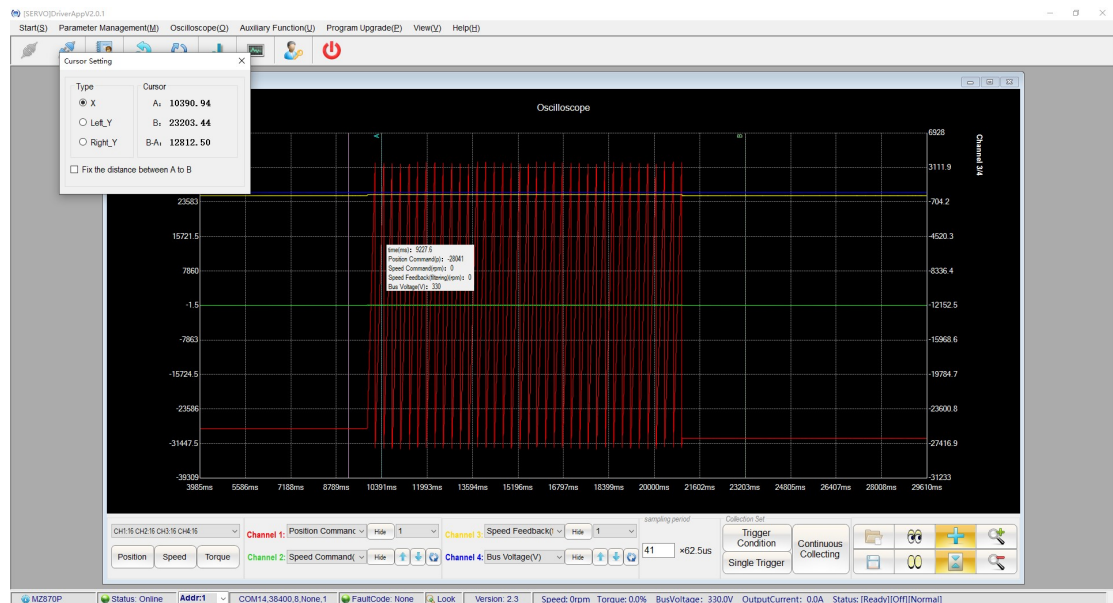


● Data analysis tools

A channel waveform can be displayed and hidden, and the overall waveform of channels 1, 2, or 3, 4 can also be moved up and down and scaled.

Button assisted waveform data collection and analysis can be used, mainly including

waveform comparison function, waveform cursor, coordinates, waveform zooming in and out, waveform stabilization, and other functions.



- Exported and imported

The collected waveforms can be exported and imported for easy analysis and comparison of waveform data in the future.

7. Auxiliary Function

7.1 JOG Motion(servo)

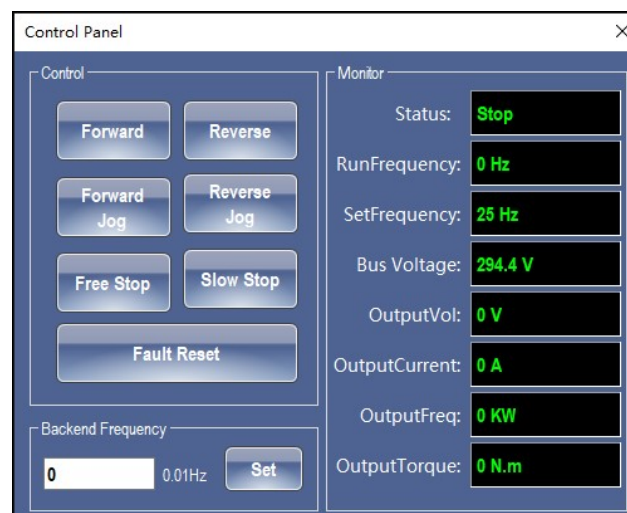
For servo drives, clicking on the "JOG motion" or [Ctrl+J] shortcut key will bring up the JOG motion dialog box interface, allowing for JOG operation control of the motor.



You can set the JOG speed value, switch the servo ON/OFF state, and control the motor's square rotation motion.

7.2 Control Panel(VFD)

For frequency converter equipment, click on the "Controller Panel" or [Ctrl+J] shortcut key to pop up the motor operation control panel, as shown in the following figure:



The motor can be controlled for forward and reverse rotation, jog, shutdown, fault reset, etc., and the motor operation data can be monitored and displayed on the control panel interface.

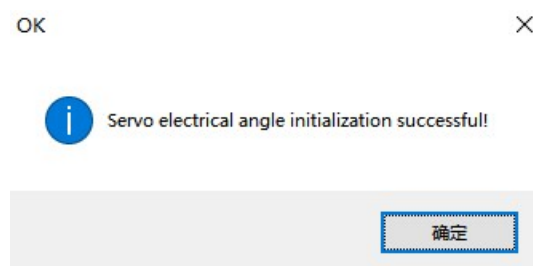
7.3 Initialize electrical angle(servo)

The servo drive can perform self-learning operation for initializing the electric angle of the

motor. Click the "Electric Angle Initialization" or [Ctrl+W] shortcut key to pop up the electric angle initialization function interface. Click the start button, and the servo drive will automatically start the electric angle initialization operation, as shown in the following figure:

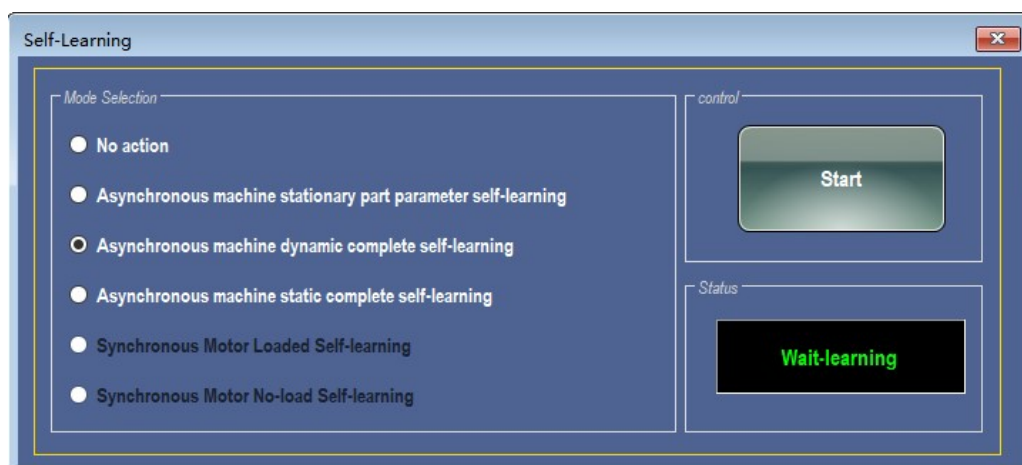


It takes about a few tens of seconds to succeed, and a success prompt will pop up, as shown in the following figure:



7.4 Motor Self-learning(VFD)

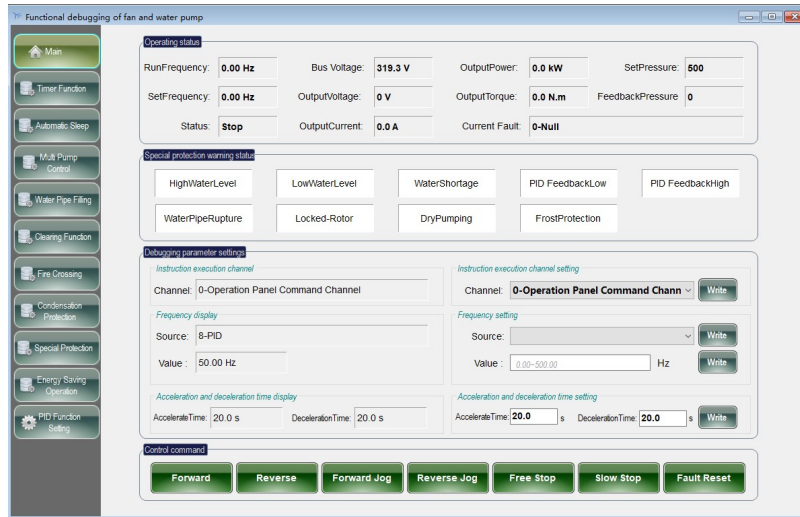
The frequency converter can self learn motor parameters. Click the "Motor Self Learning" or [Ctrl+W] shortcut key to enter the frequency converter motor parameter self-learning interface. First, select the self-learning mode, and then click the "Start Self Learning" button to enter the frequency converter automatic learning operation, as shown in the following figure:



During the self-learning process of motor parameters, the motor operating status is displayed until the self-learning is successful.

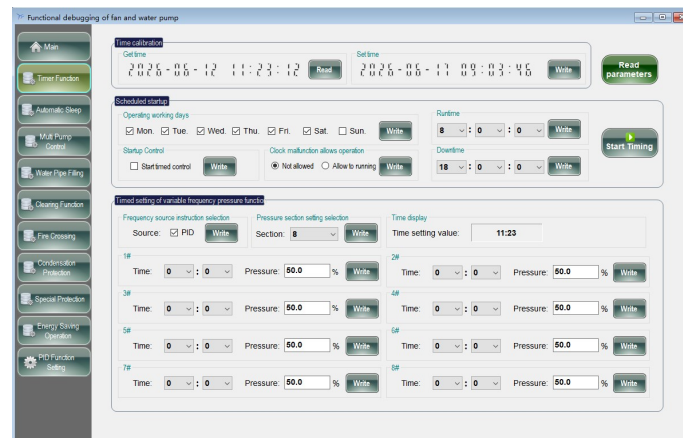
7.5 Fan and Water Pump(VFD:EV270)

For the specific EV270 series fan and water pump special frequency converter, if the serial port connection is successful, the software interface unlocks the fan and water pump debugging function. The interface is shown in the following figure:

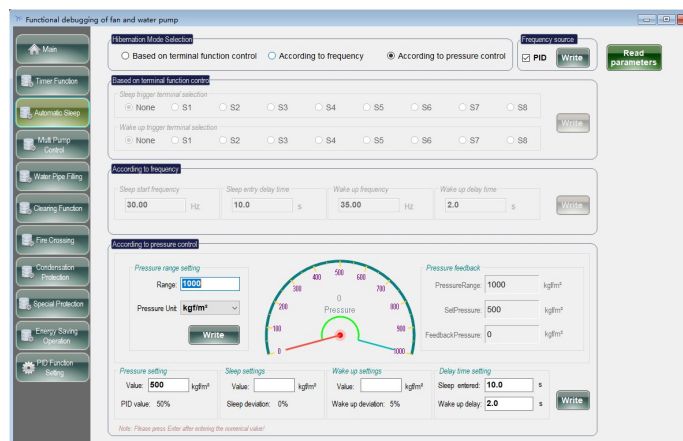


It can provide dedicated protection functions such as timing function, automatic sleep function, multi pump control function, water pipe soft filling function, blockage cleaning function, fire crossing function, condensation protection function, energy-saving protection, water level protection, water shortage protection, PID feedback abnormal protection, water pipe rupture protection, blockage protection, dry pumping protection, frost protection, etc. Several of the functional interfaces are shown below:

● Time Function



● Automatic Sleep



● Multi Pump Control

Functional debugging of fan and water pump

Multi pump mode control mode selection: Mode: **1-Addition and subtraction pump s** Write

Motor operation selection: ☒ Fixed mode ☐ Cyclic mode Write

Count of auxiliary pumps: **4** Write

Frequency source: ☒ PID Write

Manual mode operation control

Multi functional terminal selection

Manual control: **无** Motor 1# invalid: **无** Motor 2# invalid: **无** Motor 3# invalid: **无** Motor 4# invalid: **无**

Selection of output terminals for cyclic motors

Motor 1#: **无** Motor 2#: **无** Motor 3#: **无** Motor 4#: **无** Write

Frequency control mode - Fixed Variable frequency motor

AddJudgeFrequency: **48.00** Hz ReduceJudgeFrequency: **30.00** Hz

AddDelayTime: **20.0** s ReduceDelayTime: **10.0** s

AddRunFrequency: **25.00** Hz ReduceRunFrequency: **40.00** Hz

Reduce pump operation time: **5.0** s

Pump frequency conversion action: ☒ Normal ☐ Set frequency and time Write

Pressure control mode - Fixed Variable frequency motor

Pressure range setting: Range: **1000** Pressure Unit: **kgf/m²** Write

Pressure feedback: PressureRange: **1000** kgf/m² SelfPressure: **500** kgf/m² FeedbackPressure: **0** kgf/m²

Add pump pressure setting: Value: **500** kgf/m² Add: **20.0** s

Reduce pump pressure setting: Value: **500** kgf/m² Reduce: **10.0** s

Determine the delay time: Add: **20.0** s Reduce: **10.0** s

Variable frequency Value: Add: **25.00** Hz Reduce: **40.00** Hz

PID Value: **50%** Deviation: **10%** Deviation: **10%**

Pump frequency conversion action: ☒ Normal ☐ Set frequency and time

Reduce pump operation time: **5.0** s Write

Note: Press Enter after entering

Read parameters

● Special Protection

Functional debugging of fan and water pump

Water Level | PID Feedback Anomaly | Dry Pumping | Anti Blocking Rotation | Water Pipe Rupture Detection | Frost Protection

Signal selection of water level sensor: ☒ 0-None ☐ 1-S terminal ☐ 2-A1 ☐ 3-A2 ☐ 4-A3 ☐ 6-Communication Write

S-terminal function detection water level

Upper limit signal of inlet pool: ☐ None ☐ S1 ☐ S2 ☐ S3 ☐ S4 ☐ S5 ☐ S6 ☐ S7 ☐ S8

Lower limit signal of inlet pool: ☐ None ☐ S1 ☐ S2 ☐ S3 ☐ S4 ☐ S5 ☐ S6 ☐ S7 ☐ S8

Water shortage signal in the inlet pool: ☐ None ☐ S1 ☐ S2 ☐ S3 ☐ S4 ☐ S5 ☐ S6 ☐ S7 ☐ S8 Write

Analog or communication parameter settings

Upper limit of water level: **60.0** % Lower limit of water level: **40.0** %

Water shortage value of water source: **20.0** % Write

Read

Explain

Water level alarm detection is the core protection function of EV270 frequency converter to ensure system operation safety, prevent water resource waste and equipment damage. It mainly monitors the water level of reservoirs and water source pools (well water, river water, etc.) in real time, and is divided into high water level signal, low water level signal and water shortage signal. High and low water levels are water level detection signals in the reservoir. The water shortage signal is the water source detection signal for pumping. The system collects water level signals through water level sensors (float type, static pressure type, etc.), and the water level signal detection method can be set by selecting the parameter water level signal. Compare real-time water level data with preset high and low water level thresholds to achieve precise alarm and linkage control. When a water level signal is detected, the machine will immediately shut down.

● PID Function Setting

Functional debugging of fan and water pump

PID Given source: ☐ 0: PID values given ☐ 1: A1 ☐ 2: A2 ☐ 3: A3(Function extension card) ☐ 4: High-speed Pulse Input (S5) ☐ 5: Communication ☒ 6: Multi-segment instruction ☐ 7: Extended Communication ☐ 8: Timed setpoint

PID values given: **50.0** %

Direction of PID action: ☒ Positive action ☐ Reaction

Multi-segment instruction parameters set

Address terminal selection: Address 8: **无** Address 4: **无** Address 2: **S5** Address 1: **S4**

Multi stage pressure value setting

0-StagePressure: **0.0** % 4-StagePressure: **0.0** % 8-StagePressure: **0.0** % 12-StagePressure: **0.0** %

1-StagePressure: **0.0** % 5-StagePressure: **0.0** % 9-StagePressure: **0.0** % 13-StagePressure: **0.0** %

2-StagePressure: **0.0** % 6-StagePressure: **0.0** % 10-StagePressure: **0.0** % 14-StagePressure: **0.0** %

3-StagePressure: **0.0** % 7-StagePressure: **0.0** % 11-StagePressure: **0.0** % 15-StagePressure: **0.0** %

PID feedback source: ☒ 0: A1 ☐ 1: A2 ☐ 2: A3(Function extension card) ☐ 3: A1-A2 ☐ 4: High-speed Pulse Input (S5) ☐ 5: Communication ☐ 6: A1+A2 ☐ 7: Max(A1|A2) ☐ 8: Min(A1|A2) ☐ 9: Extended Communication

PID parameter setting

Gain parameters 1: KP1: **20.0** T1: **2.00** s Td1: **0.000** s

PID switching parameters: ☒ 0: Do not switch ☐ 1: Switch via terminal X ☐ 2: Switch automatically based on bias ☐ 3: Switch automatically based on frequency

Switching bias 1: **20.0** % Switching bias 2: **80.0** %

Initial PID values: **0.0** % Initial value hold time: **0.00** s

Gain parameters 2: KP2: **20.0** T2: **2.00** s Td2: **0.000** s

PID shutdown operation: ☒ Not ☐ Operation

PID feedback range: **1000** Hz

PID reverse cut-off frequency: **0.00** Hz

PID deviation limit: **0.0** %

PID differential linking: **0.10** %

PID gives the change time: **0.00** s

PID feedback filtering time: **0.00** s

PID output filtering time: **0.00** s

Minimum positive deviation: **1.00** %

Minimum reverse deviation: **1.00** %

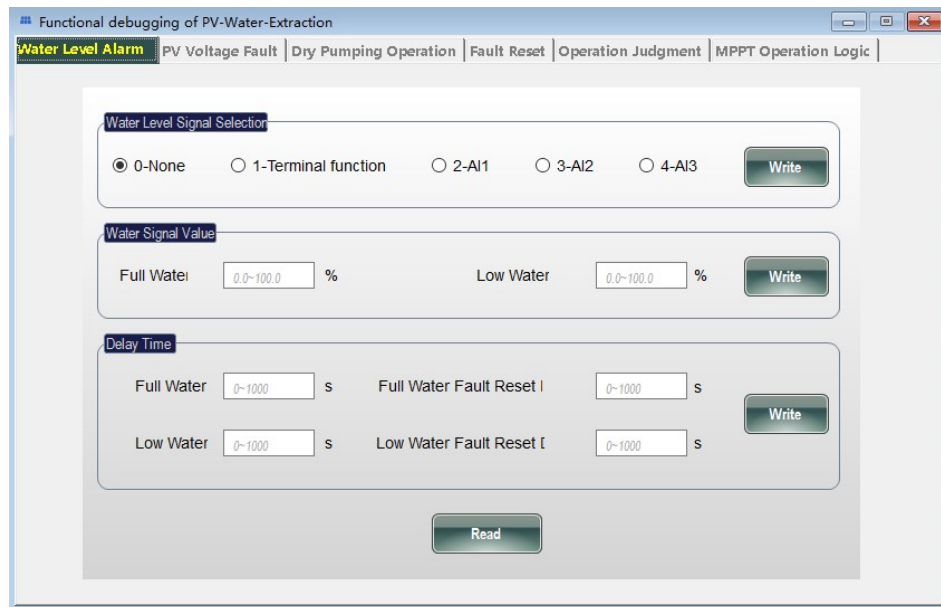
PID integral separation: ☒ Invalid ☐ Valid

Stop integrating at the output limit: ☒ Continue ☐ Stop

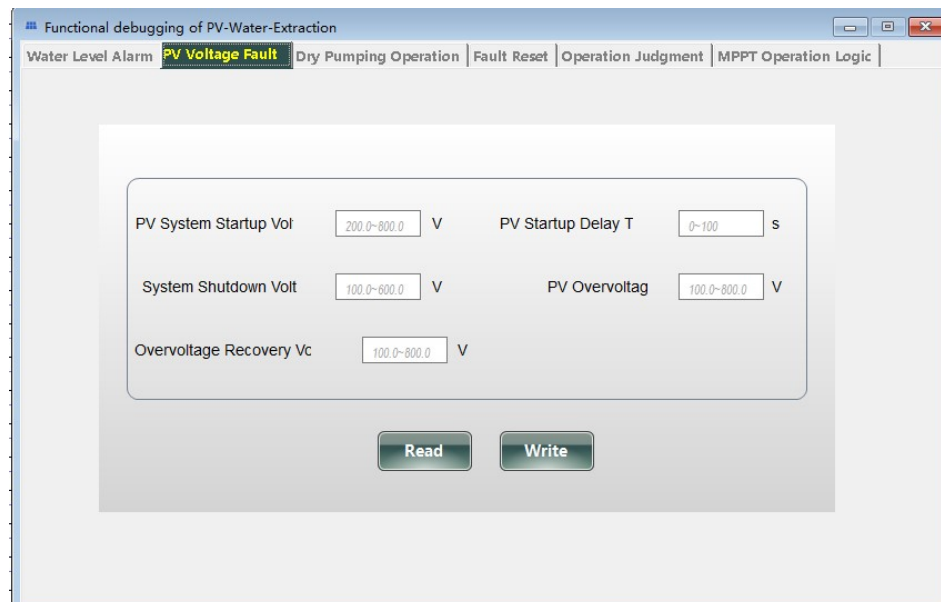
Read Write

7.6 PV Water Extraction(VFD:EV520-PV)

For the specific EV520-PV series photovoltaic water lifting special machine frequency converter, if the serial port connection is successful, the software interface unlocks the photovoltaic water lifting debugging function. Click on "Photovoltaic Water Lifting Debugging" or the [Ctrl+Shift+P] shortcut key to enter the debugging interface, as shown in the following figure:



The debugging of photovoltaic water lifting function mainly includes the debugging of water level alarm detection, photovoltaic voltage fault detection, dry shaft operation judgment, fault reset, operation judgment, photovoltaic MPPT operation logic and other functions.



Functional debugging of PV-Water-Extraction

Water Level Alarm | PV Voltage Fault | **Dry Pumping Operation** | Fault Reset | Operation Judgment | MPPT Operation Logic

Dry Run Detection V:

Dry Run Protection Delay s

Dry Run Reset Delay s

Read

Write

Functional debugging of PV-Water-Extraction

Water Level Alarm | PV Voltage Fault | Dry Pumping Operation | Fault Reset | **Operation Judgment** | MPPT Operation Logic

Command source selection

☒ 0-Operation Panel Command Channel
 ☐ 1-Terminal Command channel
 ☐ 2-Communication Command Channel
 ☐ 3-Automatic operation/stop of photovoltaic water pumping

Write

PV related parameters

PV System Startup Vol V
 PV Startup Delay T s

Write

PV System Shutdown Vol V

Read

Functional debugging of PV-Water-Extraction

Water Level Alarm | PV Voltage Fault | Dry Pumping Operation | Fault Reset | Operation Judgment | **MPPT Operation Logic**

PV Gain Parameters

PV Proportional Ga
 PV Integral Gain

Write

PV Voltage Setting

Control Switching Voltage V
 Minimum PV Input Volt V

Write

MPPT adjustment parameters

MPPT Adjust Step T s
 MPPT Maximum Adjust Vo %

Write

MPPT Adjust Voltage V

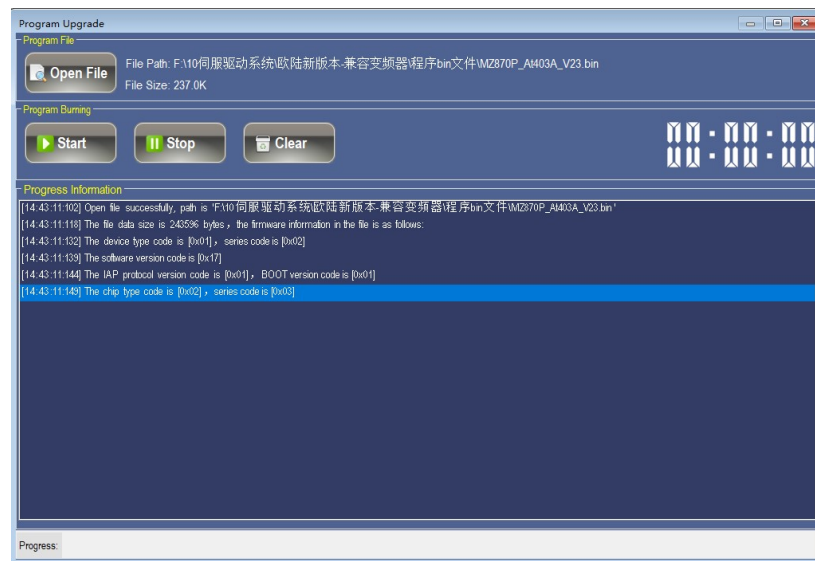
Read

8. Firmware Upgrade

This software can be used to upgrade and burn programs for servo drives or frequency converters. Click the "Program Burning Ctrl+P" submenu button under "Firmware Upgrade (U)" in the menu bar to open the program burning interface.

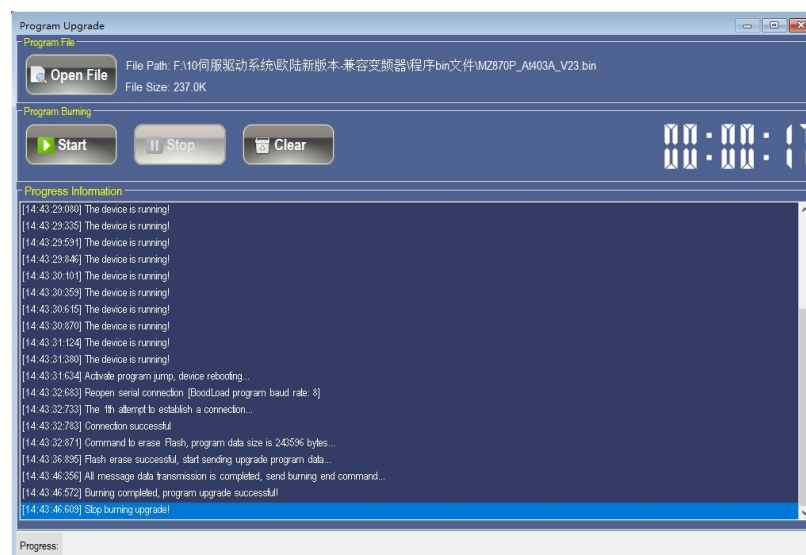
- **Open File**

Firstly, select the bin file of the binary program to be burned. After selecting the file, the information of the file will be displayed, including the main file size, number of bytes, and firmware information in the bin file (device type, device series code, product software version code, product chip type, chip series, etc.), as shown in the following figure:



- **Start**

After selecting the bin file, you can click the start burning button to burn the program. First, the device verifies the firmware information based on the bin file. Only after the firmware information verification is successful can the program continue to burn, as shown in the following figure:



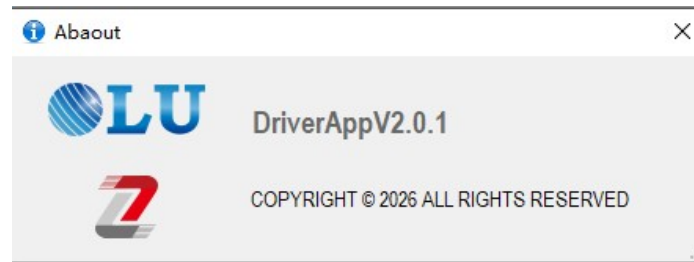
9. View

Show and hide software toolbars and status bars.

10. Help

10.1 About

Display software version number and copyright information.



10.2 User Manual

You can access and view the software user manual file.