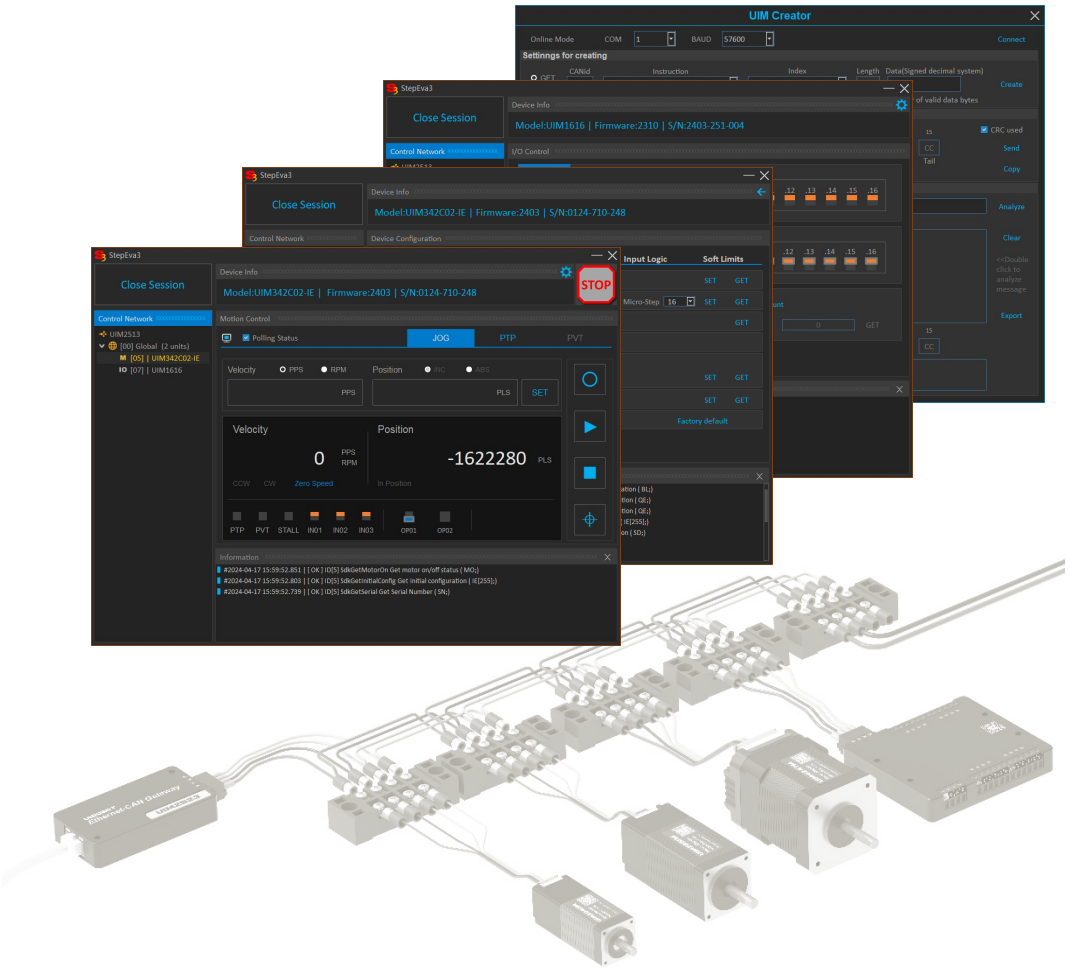
UIROBOT

User Manual

StepEva3 Control Panel



StepEva3 Control Panel

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Revision

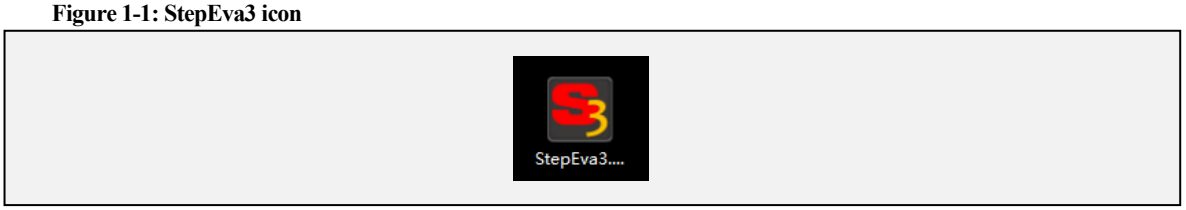
Manual version	Software version	Date of revision	Change
V1.0	V1.0	April 18, 2024	initial version

Contents

1.0 StepEva3 Software

Before using the software, first make sure that the PC is connected to our gateway (UIM2513/UIM2523/UIM2533) through the connection cable (232 serial port cable/network cable/USB data cable), and the gateway is connected to the drive through CAN cable. The drive and gateway require a 24V DC power supply.
Click on the following icon to run StepEva 3.

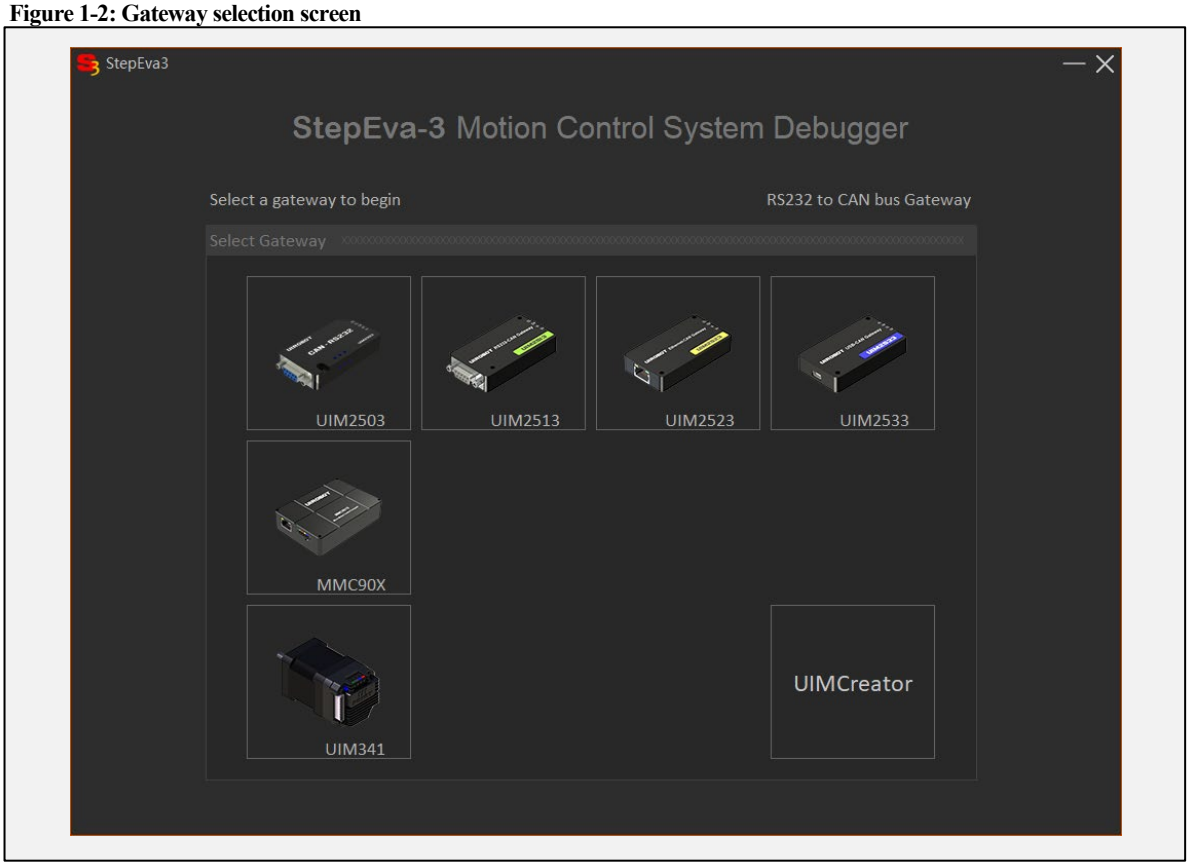
Figure 1-1: StepEva3 icon



1.1 Search for a gateway

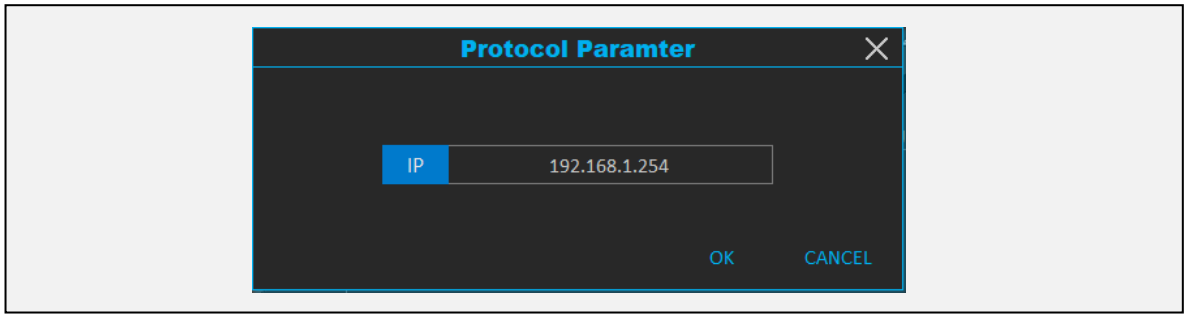
Double-click the StepEva3 software icon to enter the gateway search interface, as shown in the following figure, and click to select the matching gateway device.

Figure 1-2: Gateway selection screen



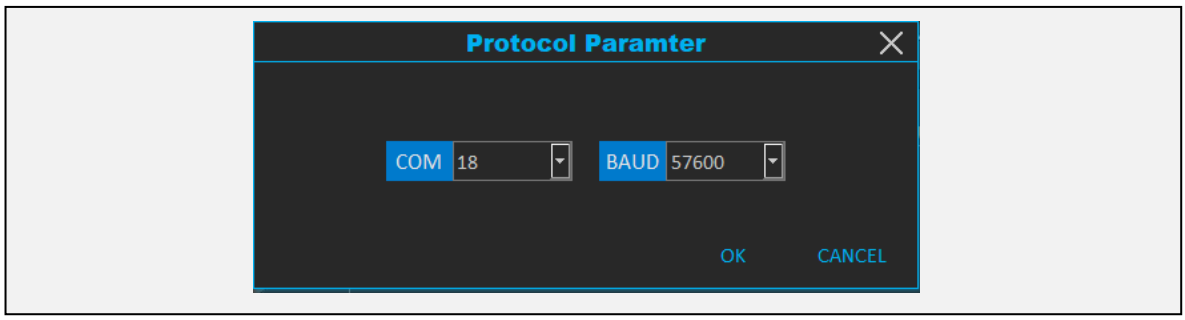
For Ethernet connection, you need to enter the correct IP address in the pop-up dialog box, as shown in the following figure.

Figure 1-3: Setting Ethernet Gateway Connection Parameters



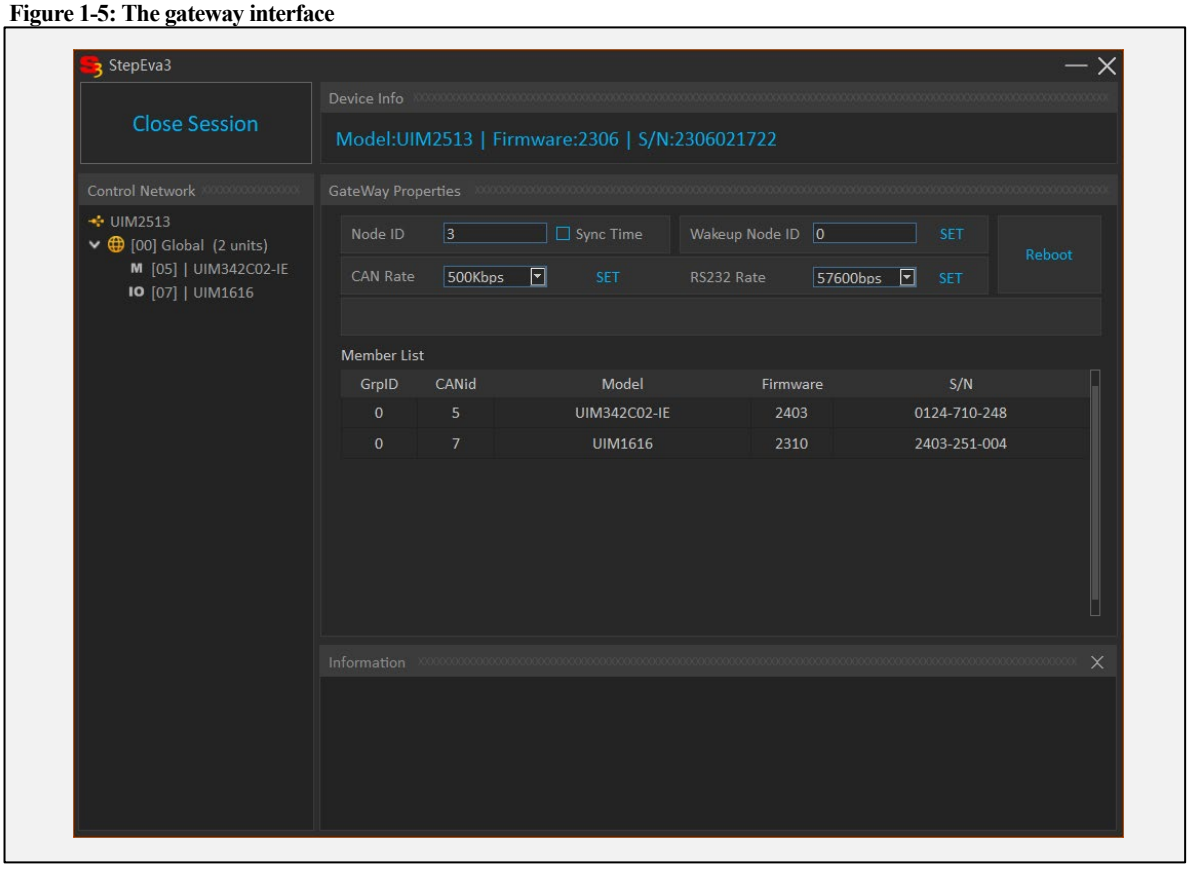
For serial port connection, you need to select the correct port (COM) and baud rate (BAUD) in the pop-up dialog box, as shown in the following figure.

Figure 1-4: Serial gateway connection parameters are set



1.2 Gateway parameter settings

Figure 1-5: The gateway interface



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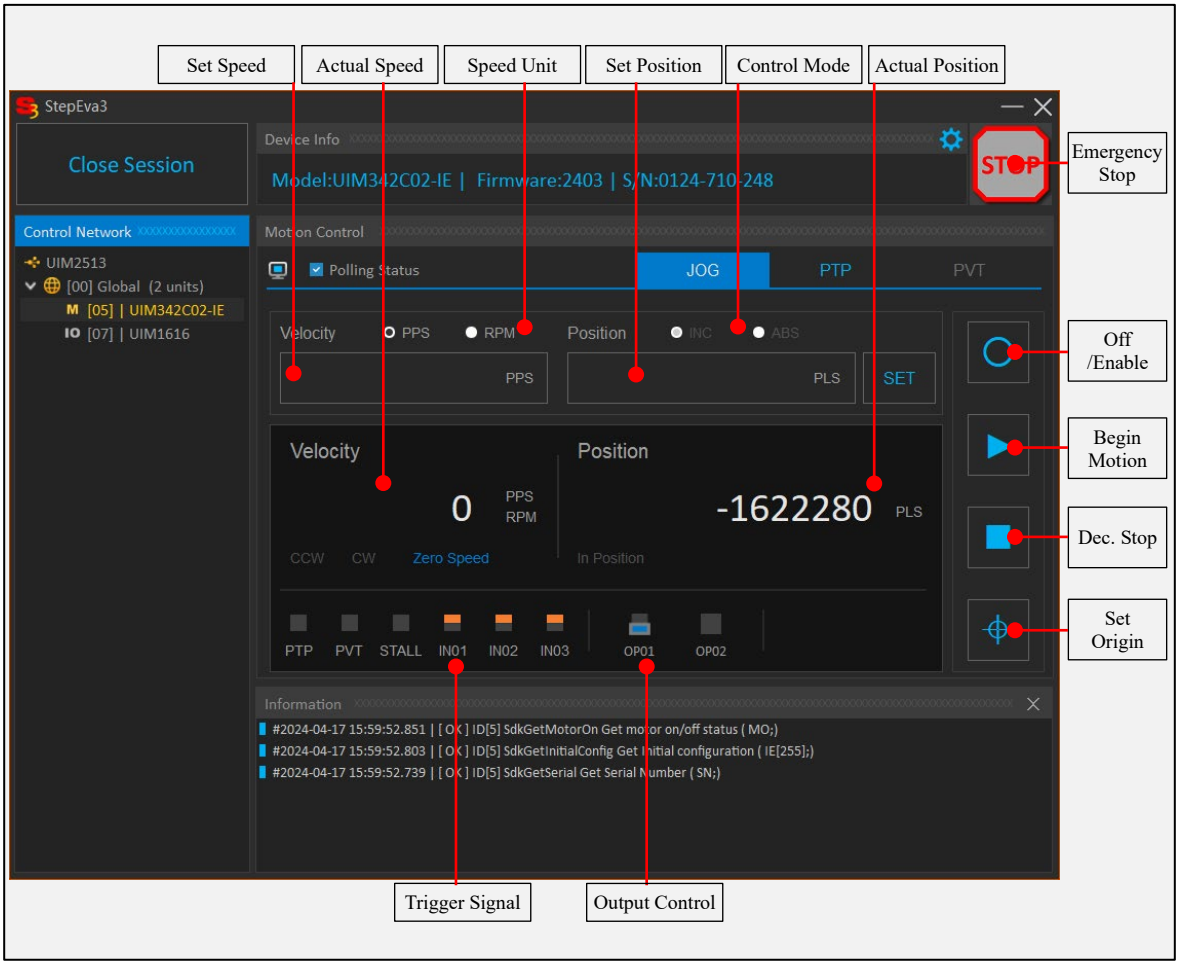
Object	Description
Close Session	Button used to close the current connection.
Device Info	Displays the model, firmware number, and serial number of the current gateway.
GateWay Properties	Gateway attributes, including Node ID (cannot be changed), Wake-up object ID, CAN Rate (CAN communication rate between gateway and device), RS232 Rate (baud rate BAUD when connected to the gateway).
Member List	The list of members (device lists) that are searched in the current gateway.
Reboot	Restart the current gateway button.
Information	Displays operational feedback, trigger and error messages.
Control NetWork	A tree list of gateway members, containing information about all drives connected to the current gateway, divided by Global, Group, and Node, and displays the number of members in each category. Group:0 (1 units) indicates that the drive group number is 0 and the group contains one member. Users can control the drive as a whole through global or group operations. [05]|UIM342C02-IE indicates that the driver type is UIM342 drive, the drive model is UIM342C02-IE, and the Node ID is 5.

1.3 Motion control settings

Click a drive information in the navigation bar to enter the drive motion control interface, as shown in the following figure.

Figure 1-6: Motion control interface



[Motion Control Interface Description]

Object	Description
Global control /Group control	Under Control Network, select Global or Group to control the synchronous movement of all motors. The actual speed and actual position values are not displayed in the global/group control mode, and neither the trigger signal nor the output control is valid.
Node control	Select the target motor (e.g., select UIM342C02-IE) to control the motor movement of the target node, monitor the motor status and trigger signal, and operate the output control.
Device Info	Display motor model, firmware version, S/N number.

Trigger Output

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Polling Status	Monitor switch. When turned on, the motor status can be monitored in real time, and the actual speed and actual position values can be updated.
JOG	The speed setpoint can be set by switching the speed unit PPS/RPM to the number of pulses per second / the number of revolutions per minute.
Speed Unit	Displays operational feedback, trigger and error messages.
PTP	Position control mode. The motor movement can be controlled by setting the speed value and position value.
PTP mode	Relative Position Control/Absolute Position Control can be toggled by switching the control method INC/ABS
PVT	Not implemented.
SET	Sets the input speed setpoint or position setpoint.
PLS	Number of pulses.
CCW, CW, zero speed	The corresponding direction of motion ("clockwise"/"counterclockwise") is highlighted when the motor is moving, and "zero speed" is highlighted when the motor is stopped.
In Position	In PTP control mode, the motor is highlighted when the motor movement is completed.
Emergency Stop	Click the emergency stop button and the motor stops immediately.
Offline/Enabled	The buttons that control the motor to enable and go offline, yellow is enabled, and blue is offline.
Begin Motion	Once you have set the speed or positional parameters, click the Begin Motion button to start the motor movement.
Dec. stop	Click Deceleration Stop, and the motor will decelerate and stop according to the set deceleration value.

Set Origin	Click the Set Origin button, the number of pulses at the current position is cleared, and the current position is set as the origin.
Trigger Signal	PTP is the motor in position signal in position control mode. PVT is not implemented. STALL is the motor stall signal. IN01, IN02, and IN03 are input port signals, yellow is high, and blue is low.
Output Control	OP01 and OP02 are output control buttons.

Velocity Mode (JOG) Control Steps:
Enable the motor >> set speed >>SET >> begin motion >> deceleration stop
Position Mode (PTP) Control Steps:
Relative position motion: enable the motor >> set speed > > switch to INC >> set position >>SET>> begin motion >> deceleration stop
Absolute position movement: enable the motor >> set speed >> switch to ABS >> set position >>SET >> begin motion >> deceleration stop

1.4 Drive parameter settings

Click the blue gear (configure member) button at the top right of the home page to enter the drive parameter setting interface, as shown in the following figure.

Figure 1-7: Click the Configure Member button

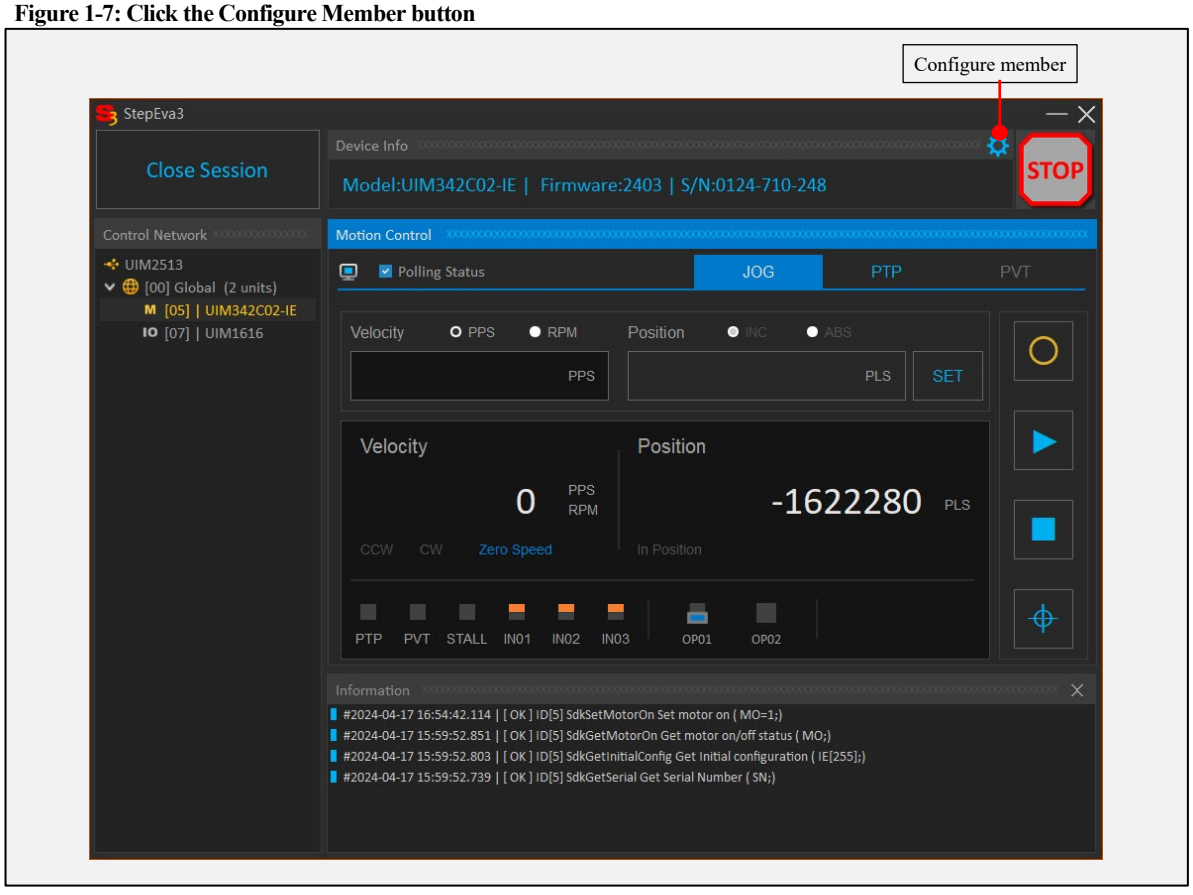
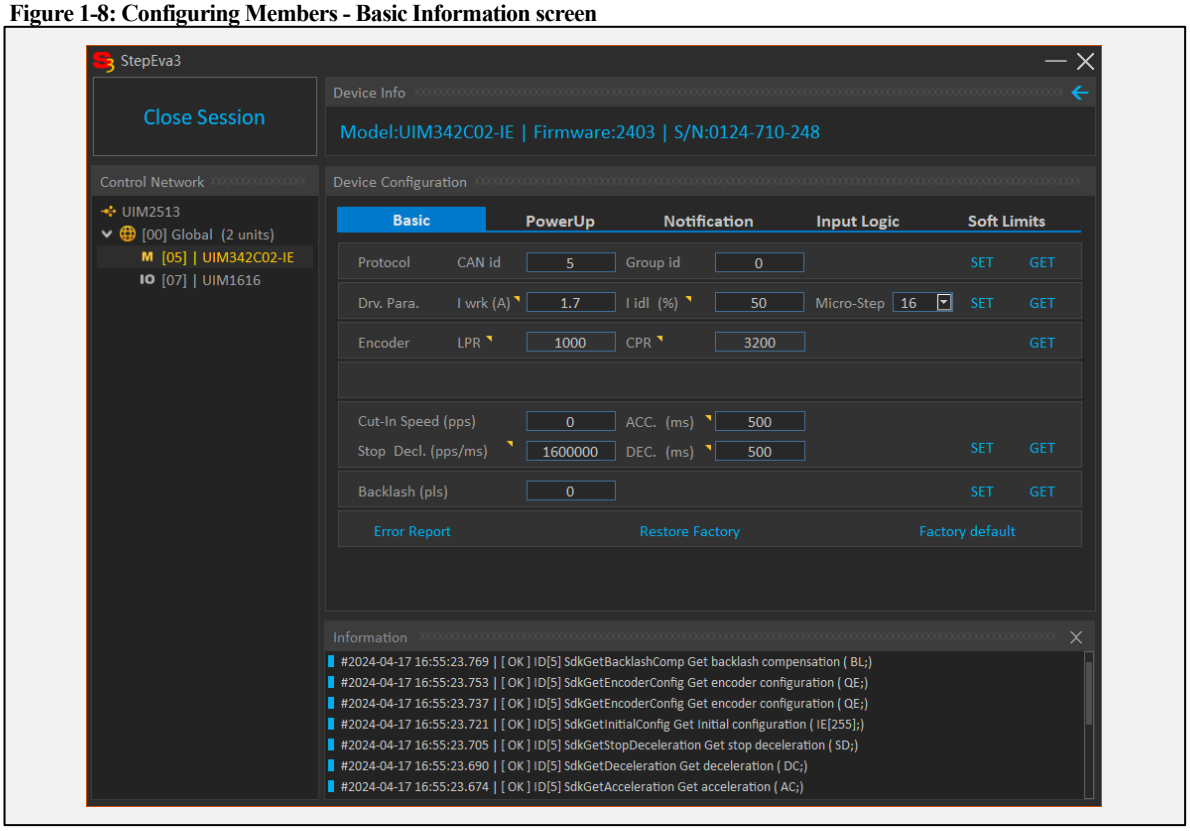


Figure 1-8: Configuring Members - Basic Information screen



In the current interface, objects with yellow badges have text descriptions, you can place the mouse over the text with badgs and wait a while to view the descriptions.

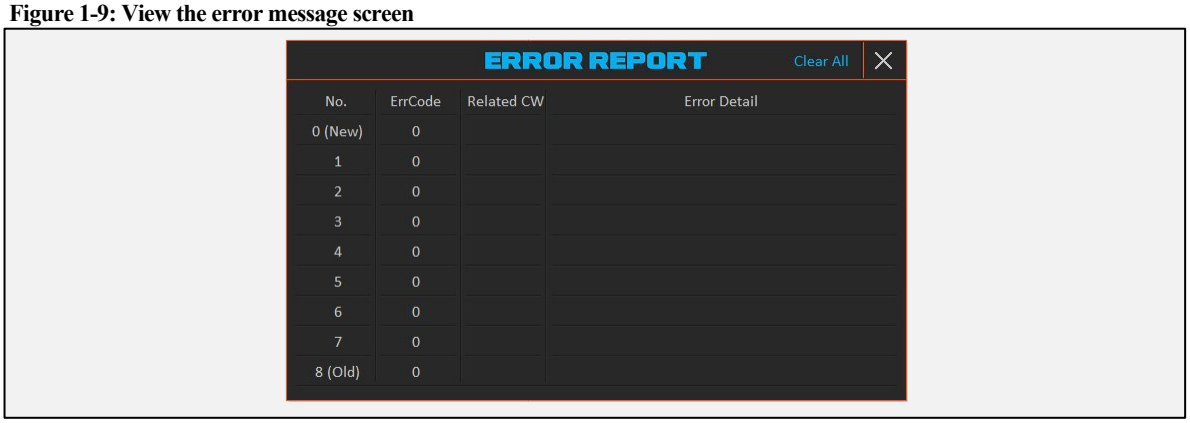
The configuration member interface includes five sections: basic information, power-on configuration, real-time notification, trigger control, and limit configuration.

1.4.1 Basic Information

Object	Description
CAN id	The Node ID of the current device (the default value of the motor device is 5), the CAN id and the Group id cannot be the same, and the power must be turned off and restarted to take effect after setting.
Group id	Device Group id (default group number 0), multiple devices can be grouped and controlled through the Group id, the Group id and CAN id cannot be the same, and the power must be turned off and restarted to take effect after setting.
I wrk (A)	Motor working current, the unit is A.
I idl (%)	The percentage value of the current when the motor is idling.

Micro-step	Current Micro-step value. Please note that the modification of the current Micro-step value affects the CPR value.
LPR	The number of single-turn wires of the motor encoder.
CPR	For example, the current CPR is 3200, which means that 3200 pulses are required for the motor to rotate one turn, and this parameter needs to be changed according to the Micro-step.
Cut-in speed	The initial speed at which the motor begins to move.
Stop Decl.	The deceleration value of an emergency stop.
ACC	Motor acceleration value.
DEC	Motor deceleration value.
Backlash	Motor backlash compensation value.
SET	Set button, modify the parameters, and click SET to write the parameters.
GET	Query button, click the GET button to read the parameters from the device.
Error Report	View the current list of errors. See Figure 1-9 for details.
Restore Factory	Restore the device parameters to the factory value.
Factory default	Manufacturer use.

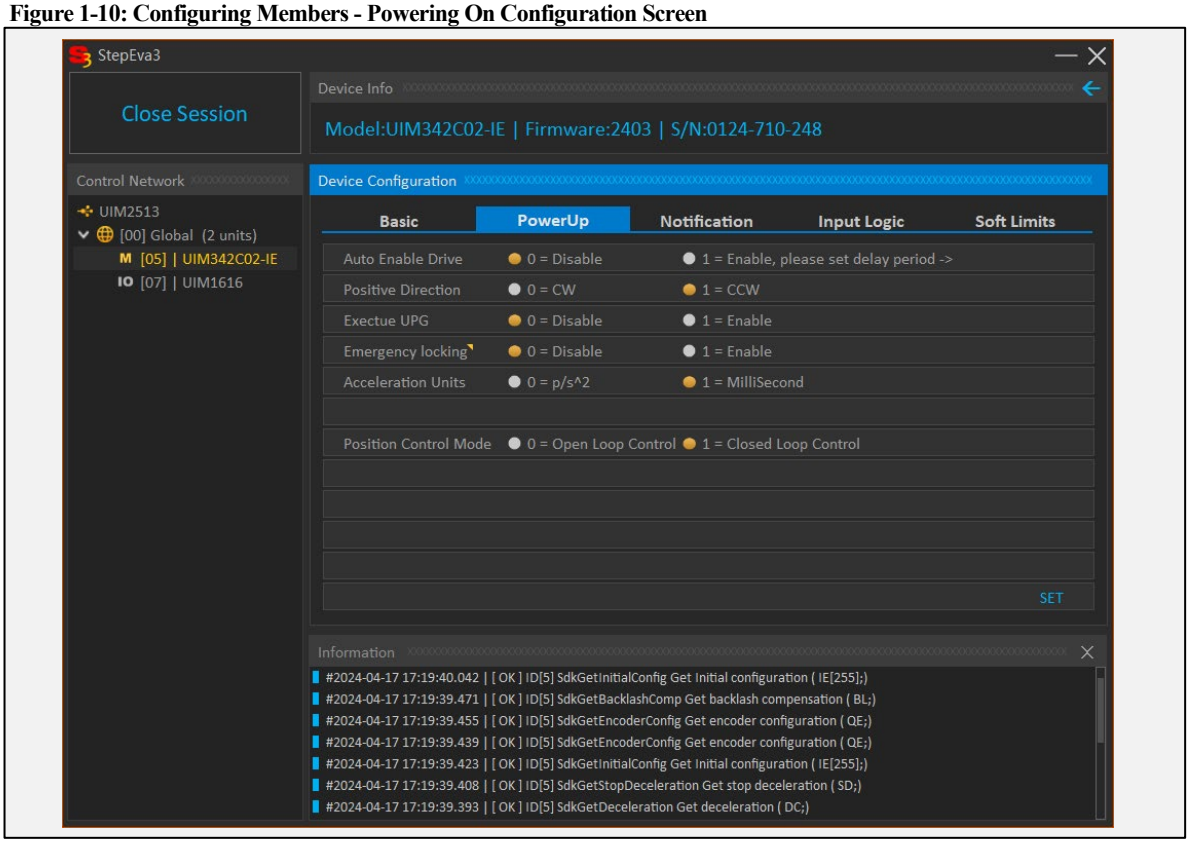
Figure 1-9: View the error message screen



1.4.2 Power-on configuration

Click the PowerUp button on the driver parameter setting page to enter the power-on configuration screen.

Figure 1-10: Configuring Members - Powering On Configuration Screen



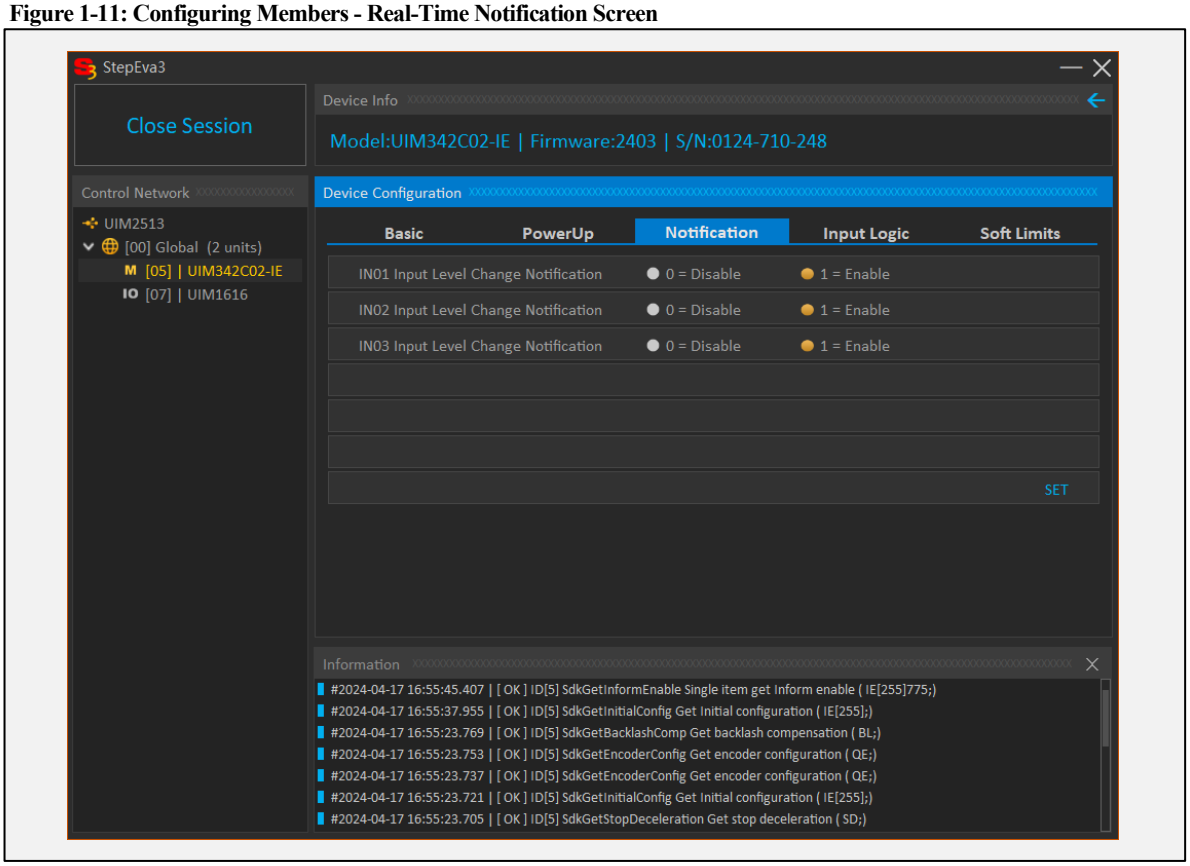
Object	Description
Auto Enable Drive	After the motor is powered on, whether to enable it, if allowed, specify the delay time in ms.
Positive Direction	Set the direction of rotation when the motor is controlled by a forward pulse.
Exectue UPG	This feature is not supported.
Emergency locking	The motor locks in the event of a malfunction.
Acceleration Units	Set the unit of motor acceleration and deceleration.
Position Control Mode	Set the motor to open-loop control or closed-loop control.

Note: After clicking SET to complete the setting, the motor drive will automatically restart.

1.4.3 Real-Time Notifications

Click the "Notification" button on the drive parameter setting interface to enter the implementation notification configuration screen:

Figure 1-11: Configuring Members - Real-Time Notification Screen

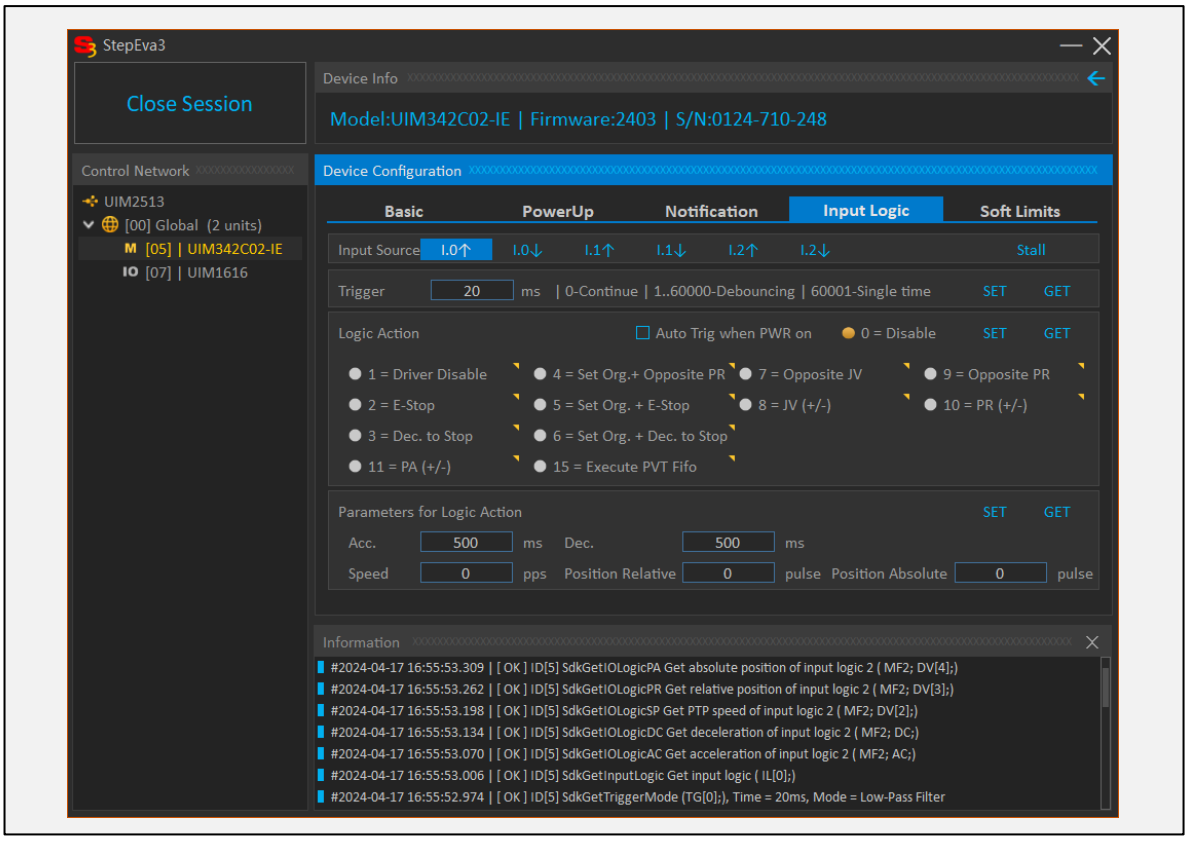


Object	Description
IN01 Input Level Change Notification	When allowed, a notification will be sent to the input 1 port level change.
IN02 Input Level Change Notification	When allowed, a notification will be sent to the input 2 port level change.
IN03 Input Level Change Notification	When allowed, a notification will be sent to the input 3 port level change.

1.4.4 Trigger Control

Click the "Input Logic" button on the drive parameter setting interface to enter the trigger control configuration screen:

Figure 1-12: Configuring Members - Triggering Control Screens



Trigger control is used to realize the function of executing after receiving the input trigger signal to the motor.

Trigger source: Select the port number and edge type of the trigger, the number represents the port number, ↑ represents the rising edge, and ↓ represents the falling edge, for example, I.0↑ represents the rising edge of input port 0 (port 1), I.2↓ represents the falling edge of input port 2 (port 3).

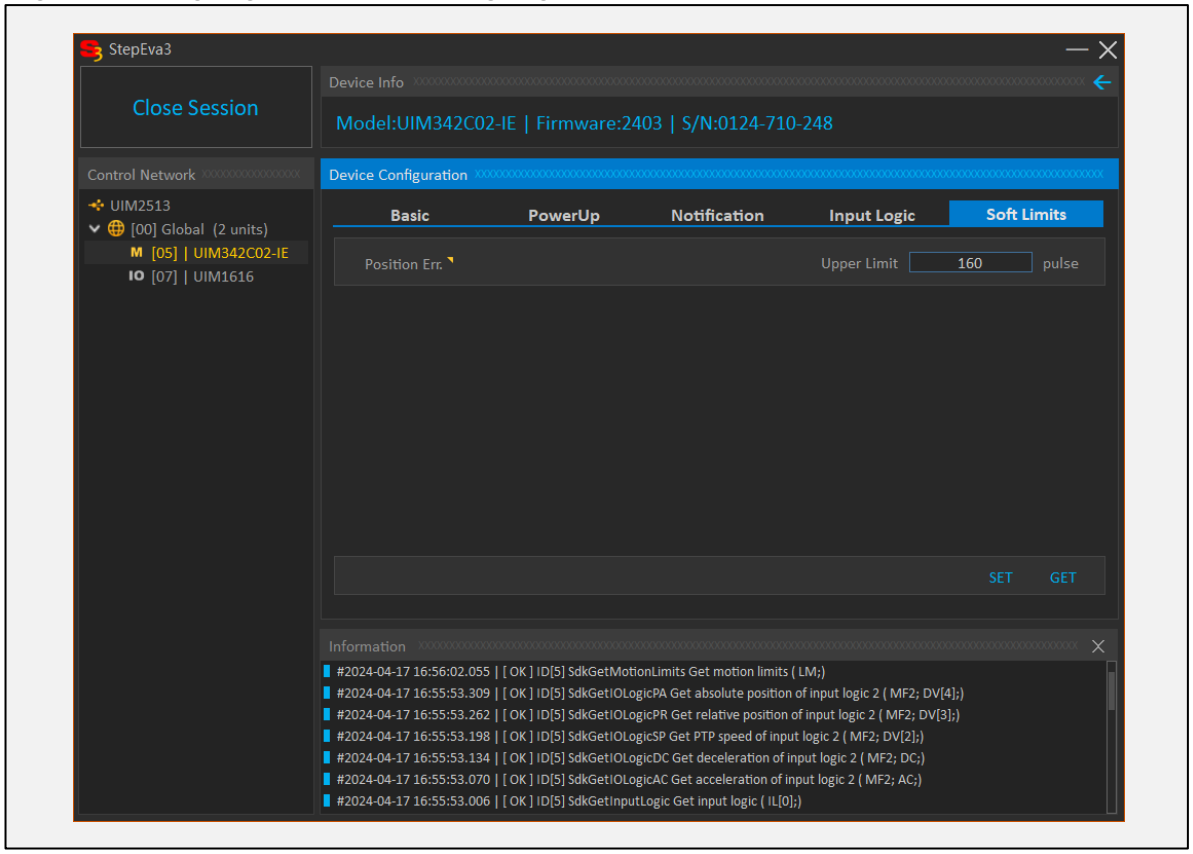
Figure 1-13: The rotor lock trigger action setting screen

Object	Description
Input Source	The level change (rising/falling) of the input signal IN1/IN2/IN3 or the locked-up can be set to the trigger source.
Trigger	Continuous trigger: the motor action is executed when the trigger source signal is generated, and the set value is 0; Debounce trigger: The trigger source signal needs to meet the set time before the motor action can be executed, and the set range is 1....60000 (ms); Single trigger: The trigger source only executes the trigger signal once, and if you need to trigger it again, you need to set it again, and the setting value is 60001.
Logic Action	The action performed after the trigger source signal is triggered, PVT function is not supported.
Acc.	The value of acceleration when the motor is executed after the trigger source is triggered.
Dec.	The deceleration value of the motor when executed after the trigger source is triggered.
Speed	The value of the speed when the motor is executed after the trigger source is triggered.
Position Relative	The position value at which the motor performs a relative position motion after the trigger source is triggered.
Position Absolute	The position value at which the motor performs an absolute position motion when the trigger source is triggered.
SET	Set button, modify the parameters, and click SET to write the parameters.
GET	Query button, click the GET button to read the parameters from the device.

1.4.5 Limit configuration

Click the "Soft Limits" button on the drive parameter setting interface to enter the limit configuration screen:

Figure 1-14: Configuring Members - Limit Configuring Screens



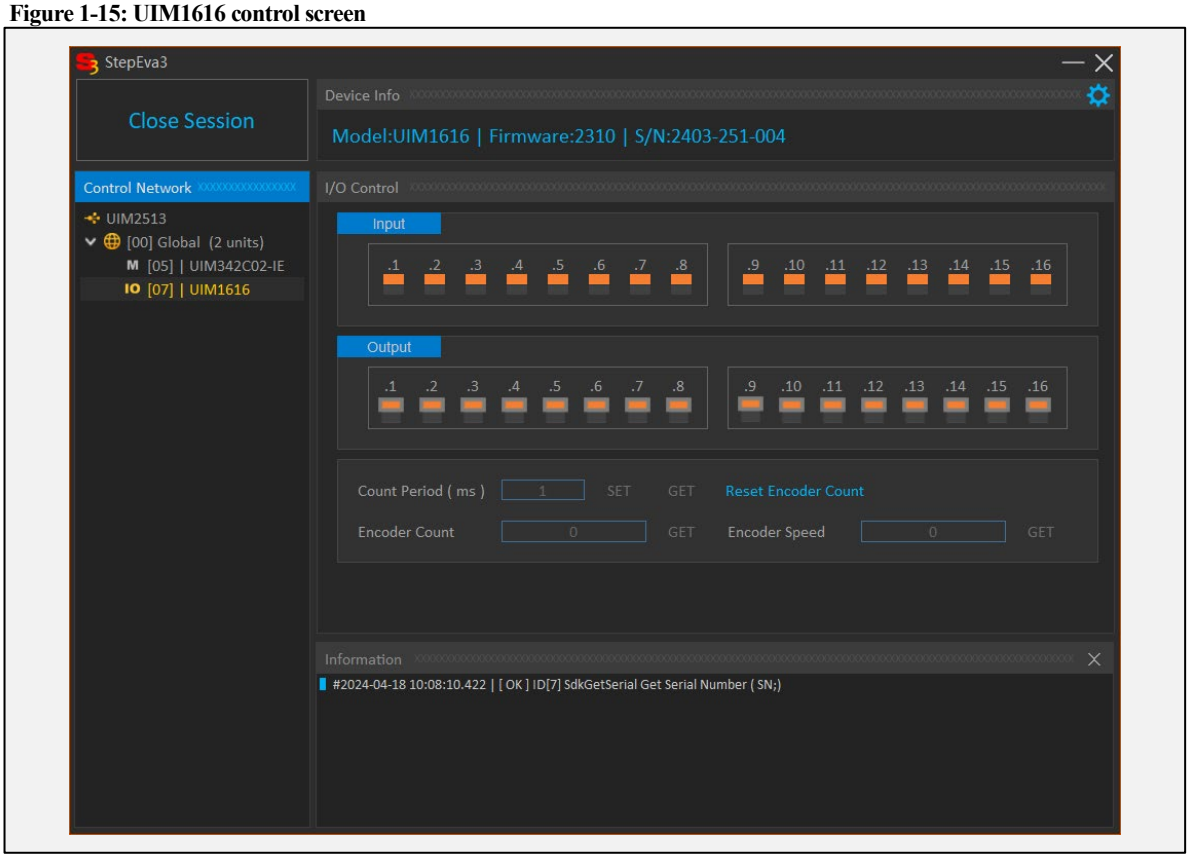
Object	Description
Position Err.	Set the maximum difference between the number of pulses running in position and the actual feedback value of the encoder, and if the position error set value is exceeded, the motor will report an error and stop running.
SET	Set button, modify the parameters, and click SET to write the parameters.
GET	Query button, click the GET button to read the parameters from the device.

1.5 I/O module control

1.5.1 UIM1616 Control

Select the UIM1616 to display the I/O control interface:

Figure 1-15: UIM1616 control screen

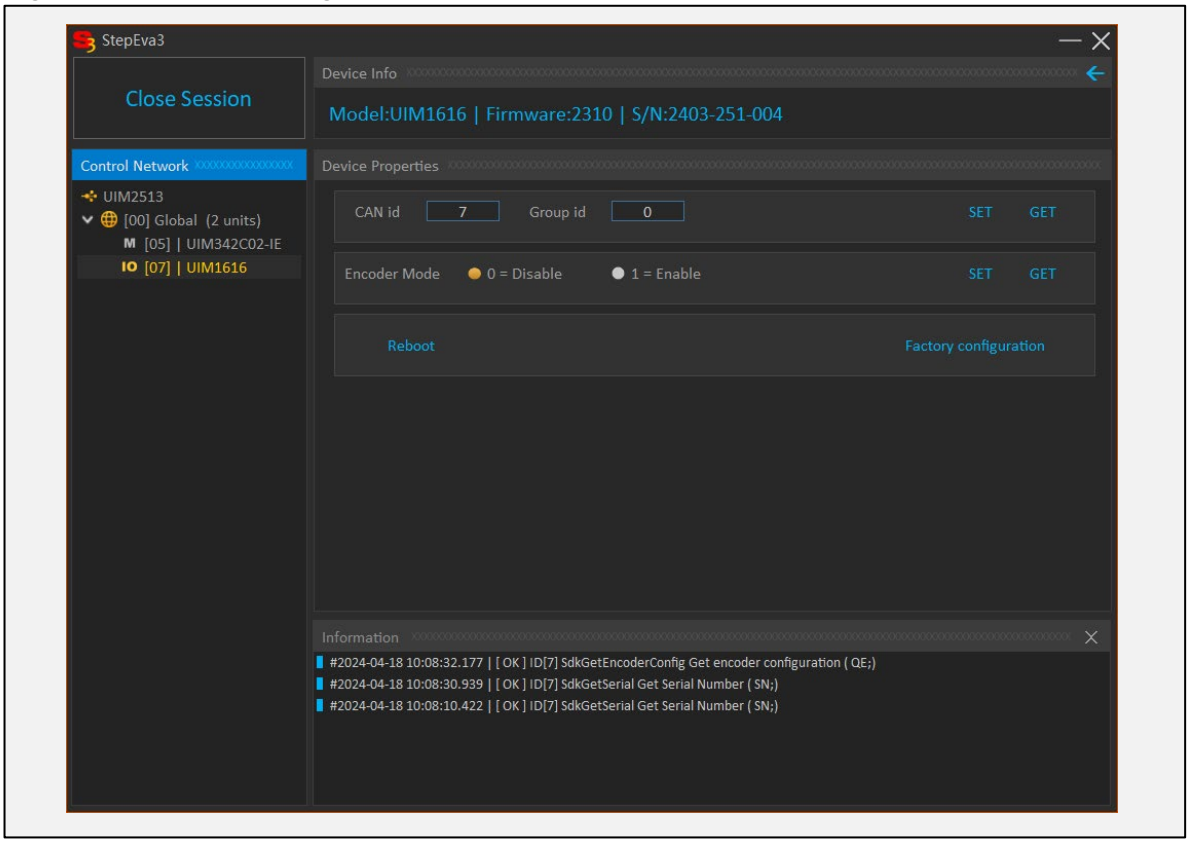


Object	Description
Input	Displays the input status when the external input changes.
Output	To control the output status, you can click the switch for each output to control the output.
Count Periods	Set the encoder count period.
Encoder Count	The actual location of the external encoder.
Encoder Speed	The actual speed of the external encoder. The unit is pls/s.
Reset Encoder Count	Clear the encoder count for the current location.
SET	Sets the current parameter value.
GET	Obtain the current parameter value.

1.5.2 UIM1616 configuration

Click the blue gear (configure member) button in the upper right corner of the I/O control page to enter the I/O parameter setting page, as shown in the following figure.

Figure 1-16: The UIM1616 configuration screen

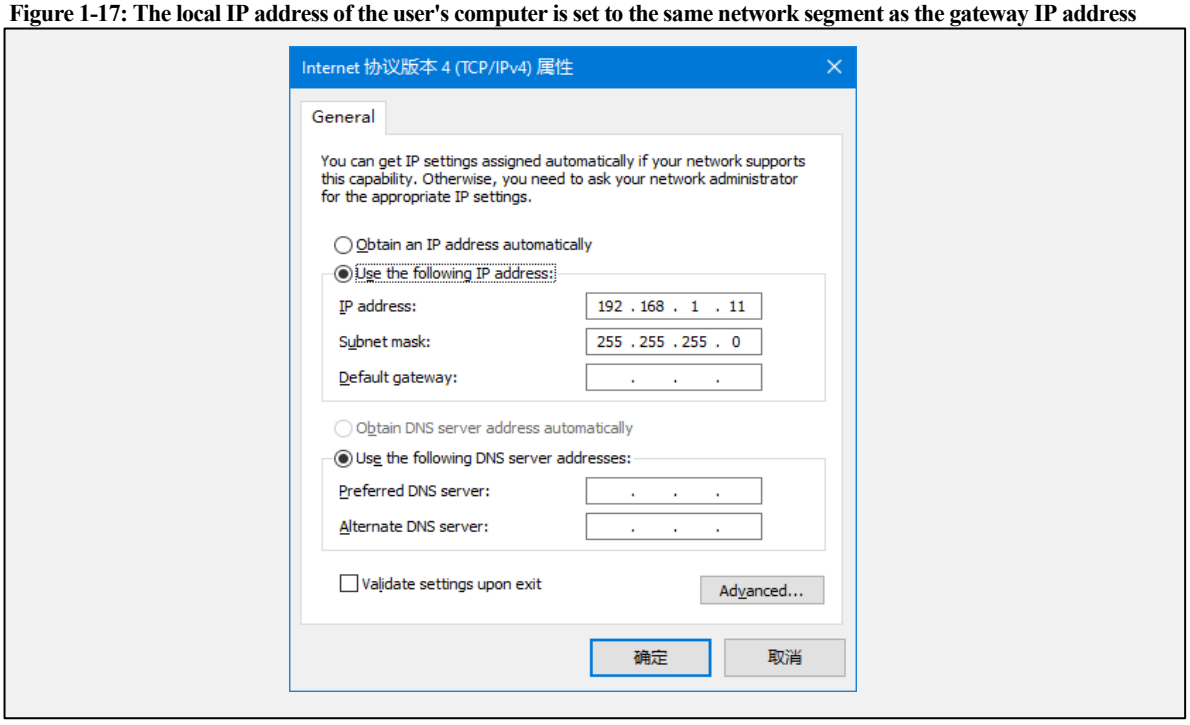


Object	Description
CAN id	The Node id of the current device cannot be the same as the group number, and you need to power off and restart after the modification.
Group id	The Group id of the current device cannot be the same as the CAN id, and you need to power off and restart after the modification.
Encoder Mode	Turn encoder counting on/off.
Reboot	Restart the current device.
Factory configuration	Manufacturer use

1.6 UIM2523 connection example

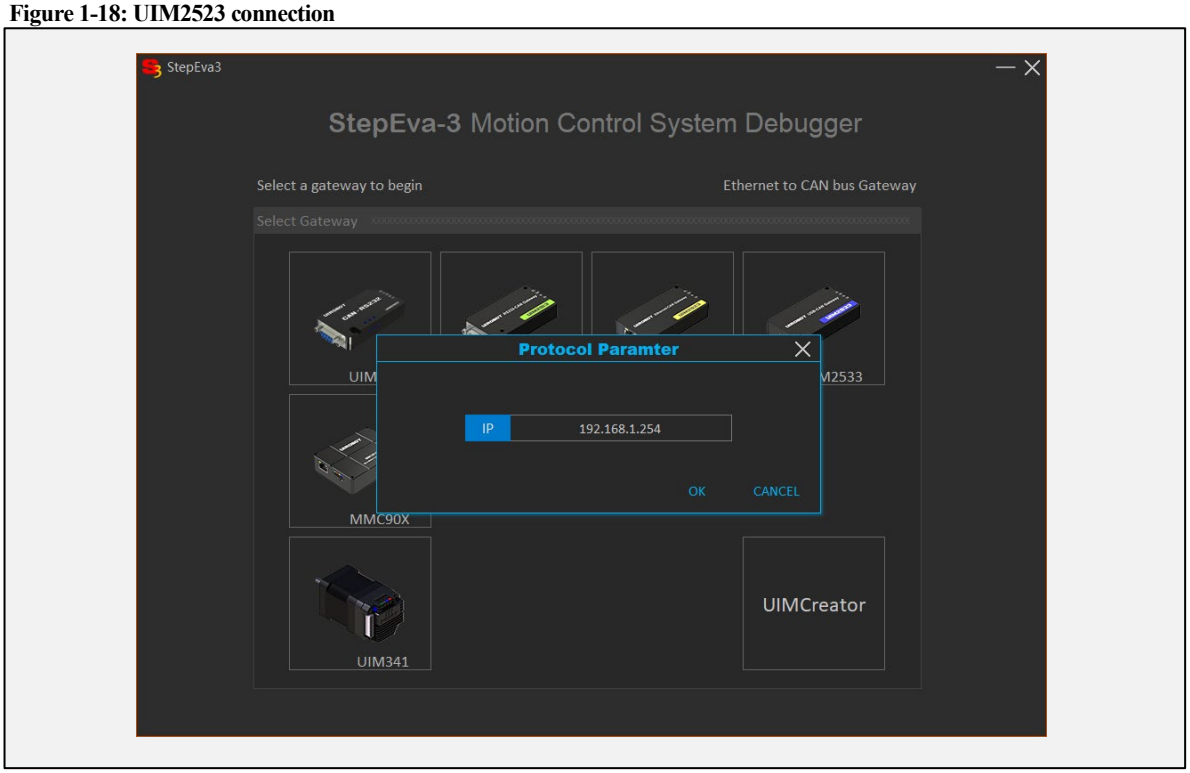
Before connecting, make sure that the IP address of the computer LAN port is in the 192.168.1.xxx network segment, otherwise the gateway cannot be searched.

Figure 1-17: The local IP address of the user's computer is set to the same network segment as the gateway IP address



Select UIM2523 gateway, enter the default IP address 192.168.1.254, and click OK to connect.

Figure 1-18: UIM2523 connection



2.0 UIM Creator

UIM Creator is a protocol generator for RS232 raw packets of UIM series products. This interface can generate the original packets of various instructions, and you can directly open the serial port on this interface and send packets to the UIM2513 gateway, and can receive and parse the feedback packets. Please refer to the manual of UIM342, UIM0808/UIM1616 to use this function, in order to deepen understanding and quickly get started.

From the main interface of StepEva3, find the UIM Creator button and click to enter.

Figure 2-1: The Packet Generator button is displayed

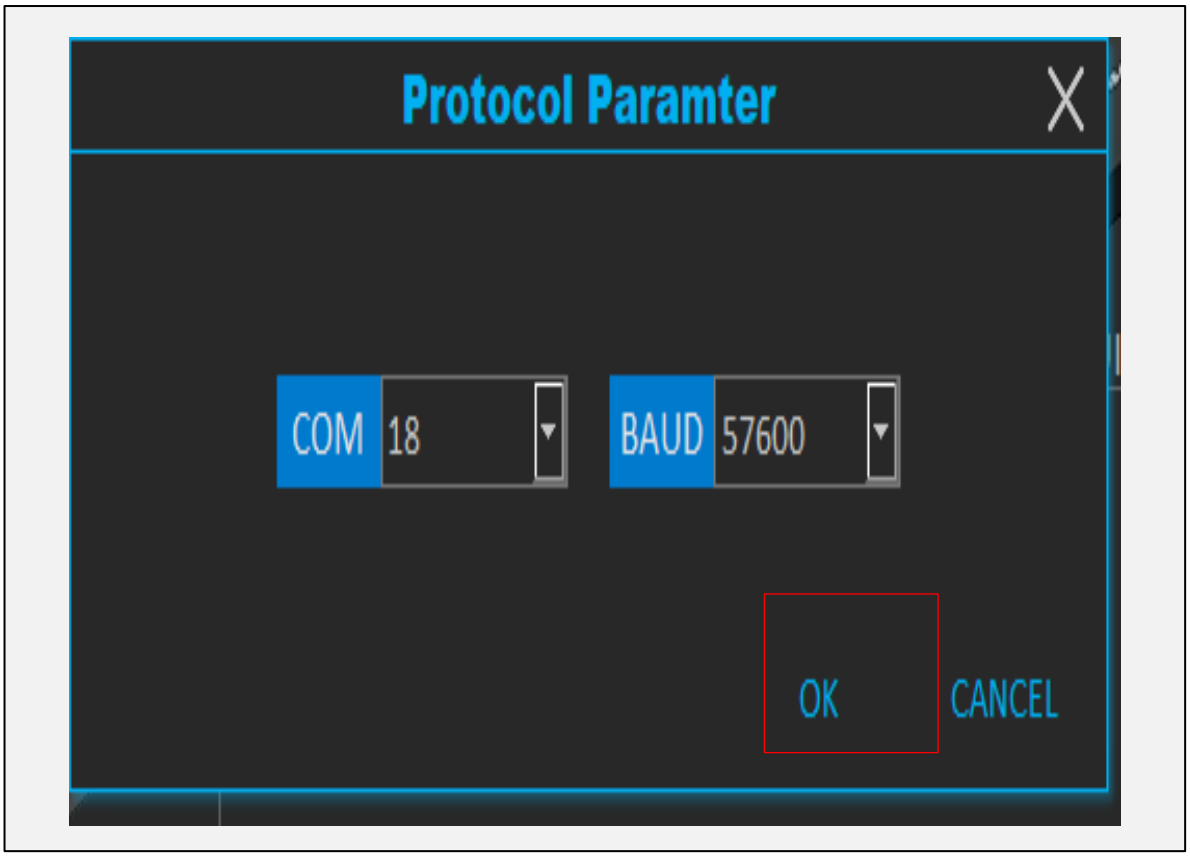
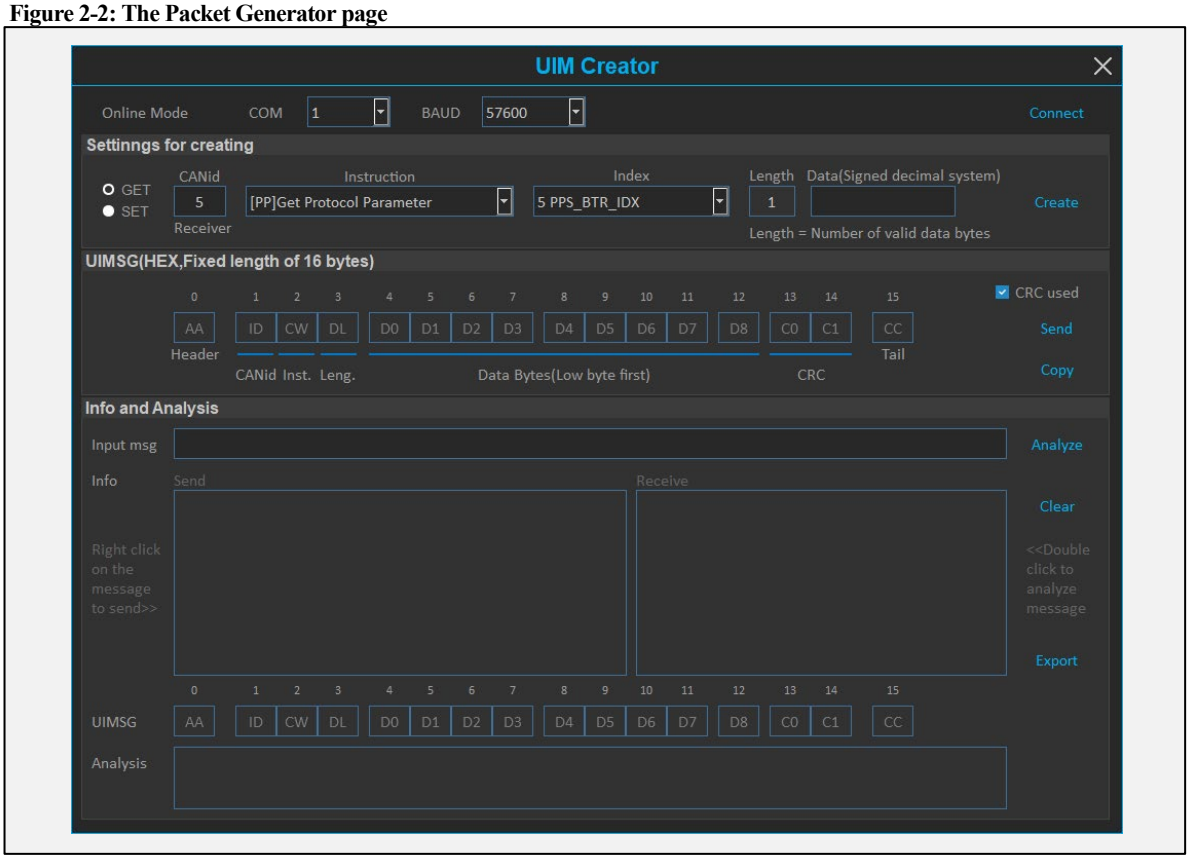


Figure 2-2: The Packet Generator page



Object	Description
COM	Select the serial cable on the current PC to which the UIM2513 is connected.
BAUD	The default baud rate for UIM2513 is 57600.
Connect	Make sure the communication parameters are correct, and click the button to open the serial port.
GET	If this option is selected, you need to generate a query command packet.
SET	If this option is selected, you need to generate a setting command packet.
CANid	Set the address of the Node to which you want to send instructions.
Instruction	Select the instruction you want to generate.
Index	Select the sub-instruction index of the current instruction, if there are no sub-directives, it will be grayed out by default.

Length	The generator will automatically display the corresponding data length according to different instructions.
Data	To set the data to be set in the setting command packet, it needs to be configured as a signed integer.
Create	After selecting the relevant commands, indexing, and entering data, click Create, and the packet will be generated in the Packet Generation area.
CRC used	If you select CRC used and set the Packet Header to AA, the CRC will be automatically calculated and the UIM2513 will perform CRC verification on the packet UIM2513.
Send	Click this button to send a message to the UIM2513.
Copy	Click this button to copy the message to the clipboard, where you can copy the text to Notepad.
Info and Analysis	In this area, there are "Send" and "Receive" in the Sending Packet List and Receiving Packet List area, double-click any packet, and the software will parse the packet and display it in the Analysis area. Right-click and select the packet in the Sending Packet list area to send the packet again.
Clear	Clear the message area.
Export	Click the export button to save the content of the "send" and "receive" areas to a text document.

The following is a live picture of receiving a feedback message after connecting to the serial port and sending a message.

Figure 2-3: Example of sending a packet