



# OHandSetting Instruction Manual

## V1.2

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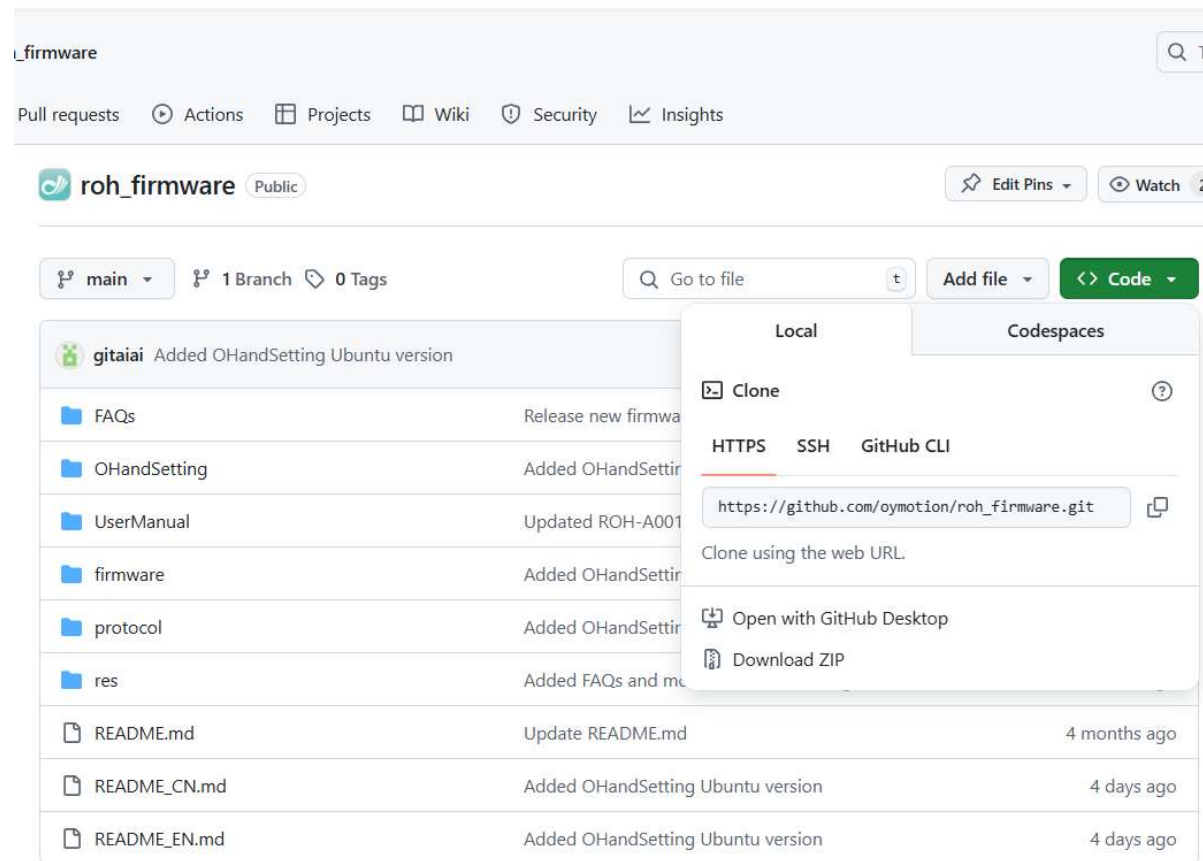
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## 1. Software Usage and Installation

1.1 OHandSetting is a desktop tool designed for OYMotion's ROHand series dexterous hand products to complete firmware updates, position calibration, device ID settings, reading and writing limit current and PID parameters, setting and reading finger angles and speeds, and real-time display of motor current values, among other functions.

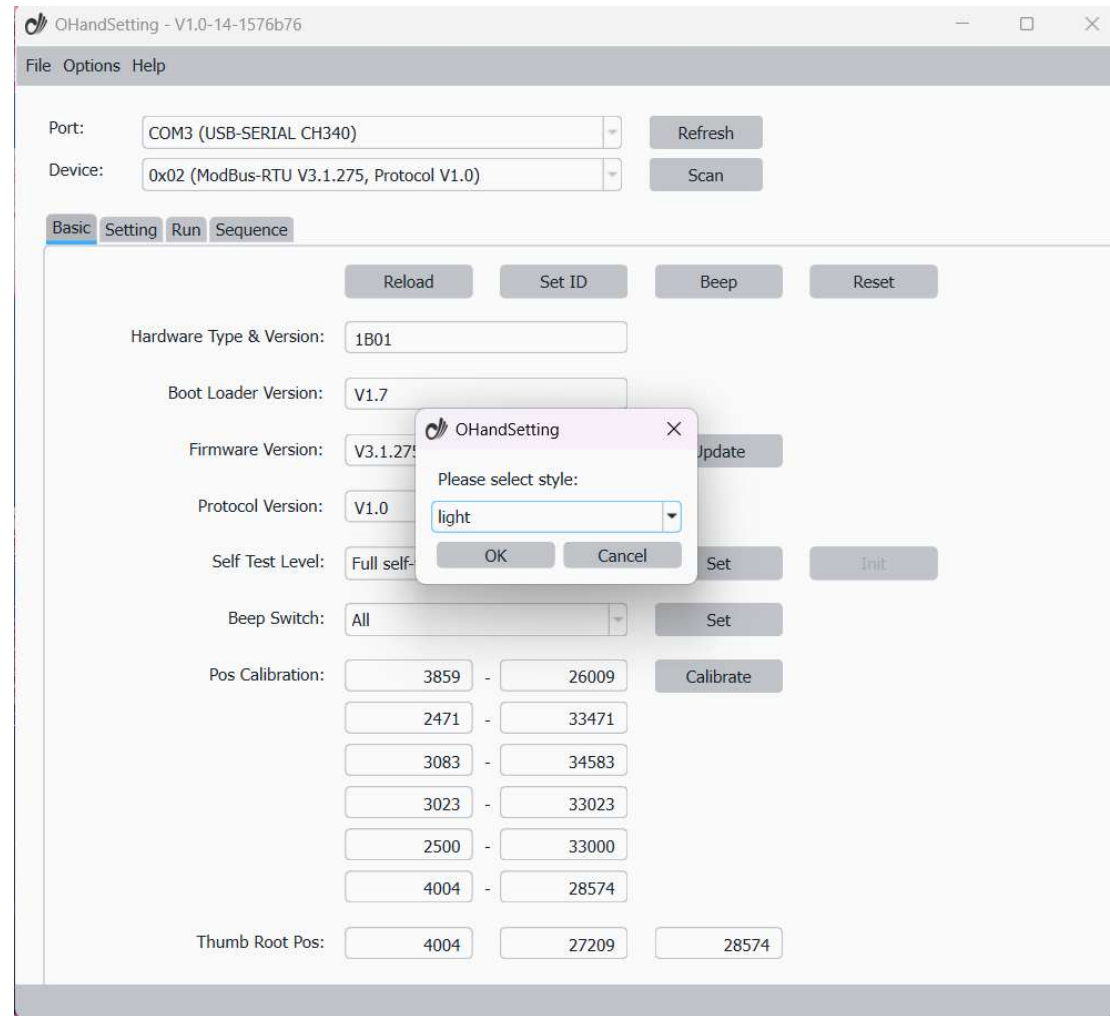
1.2 Installation: Open the URL in a browser

[https://github.com/oymotion/roh\\_firmware](https://github.com/oymotion/roh_firmware), click on the green "Code" button on the page, then click "Download ZIP" to download the compressed package; or copy the link and use the command "git clone [https://github.com/oymotion/roh\\_firmware.git](https://github.com/oymotion/roh_firmware.git)" in the command window to download (Git Bash must be installed).

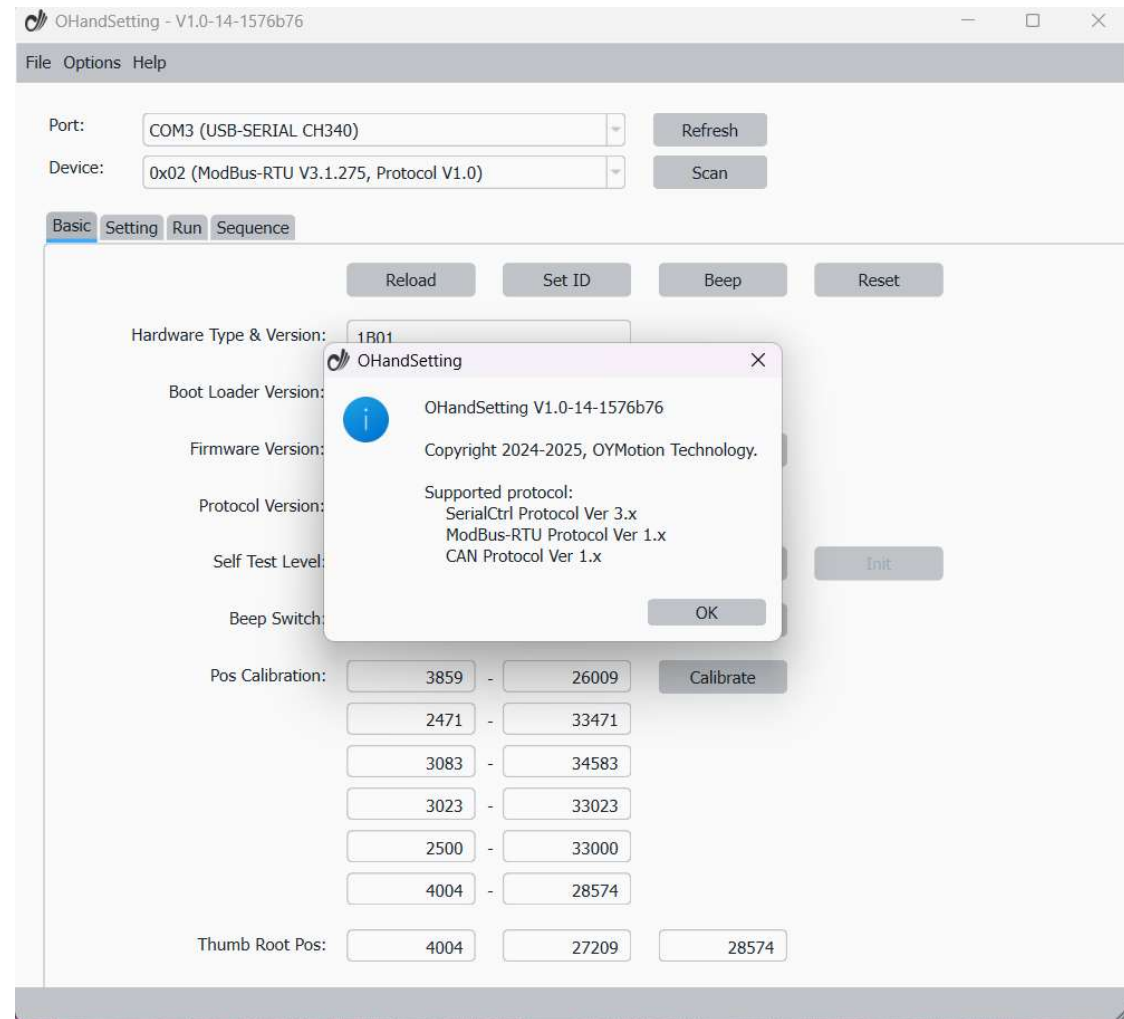


## 2. Run Software

- 2.1 According to the operating system, open the **OHandSetting** directory. **Windows:** Double click **OHandSetting.exe** to run directly. **Ubuntu:** After installing the environment according to the steps in the **compile-and-run on-ubuntu.md** file, enter the software root directory and add the execute permission 'sudo chmod+x' file name to OHandSetting in the **OHandSetting.sh** and bin folders. After completing everything, enter 'bash OHandSetting.sh' in the root console to start the software.
- 2.2 Connect the USB-RS485 module externally, make sure the CH340 driver has been installed on the computer, click '**Refresh**' button to recognize the port number.
- 2.3 Turn on the power of the ROHand, wait until the self-test is completed, click on the '**Scan**' button to identify the device, when the '**Device**' combo box appears in the device information, you can click on the '**Stop**' button to stop scanning. When the device information appears in the '**Device**' combo box, you can click '**Stop**' button to stop scanning.
- 2.4 Click '**Option – Theme**' to set the theme color of the interface, there are '**light**' and '**dark**' mode.

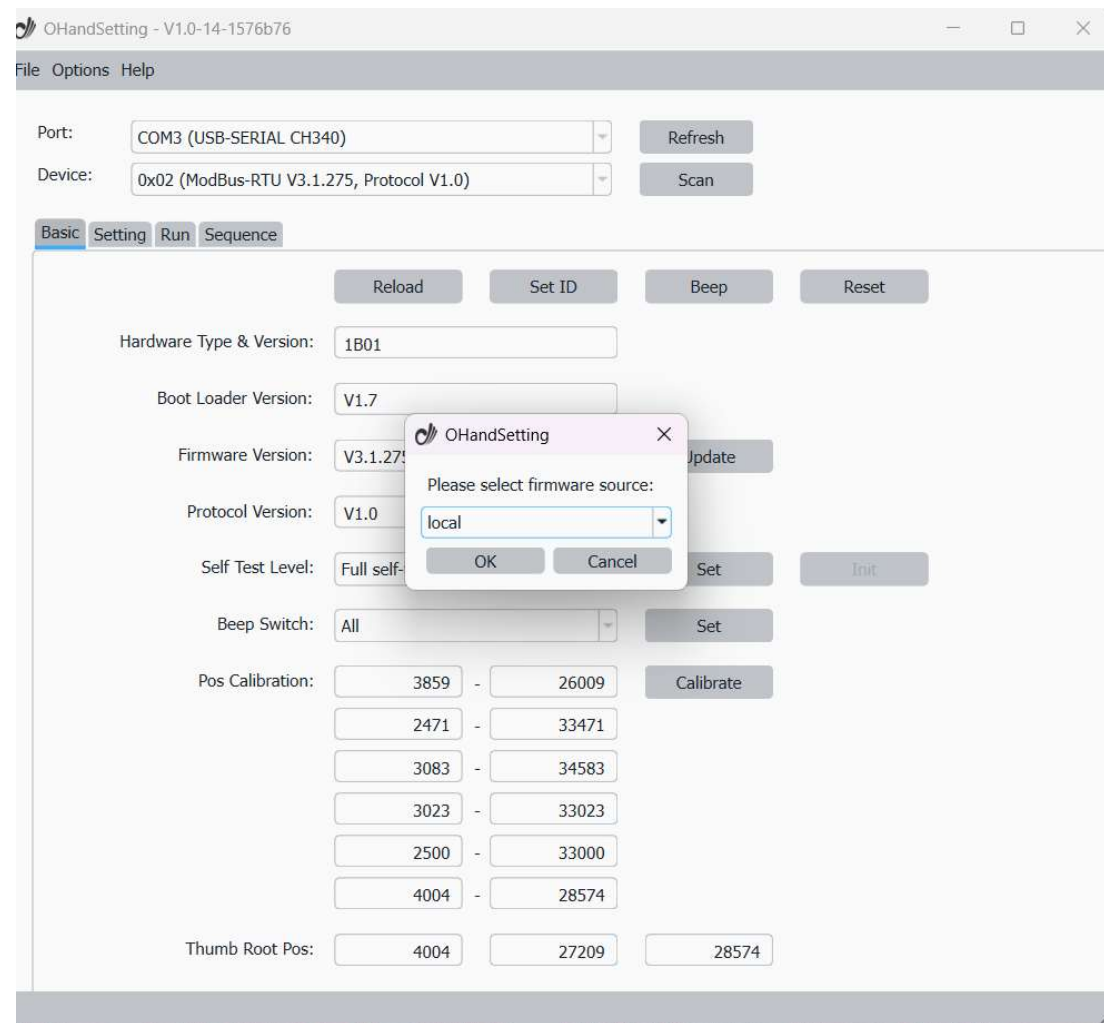


2.5 Click **'Help – About'** to view the software version information and supported protocol versions.

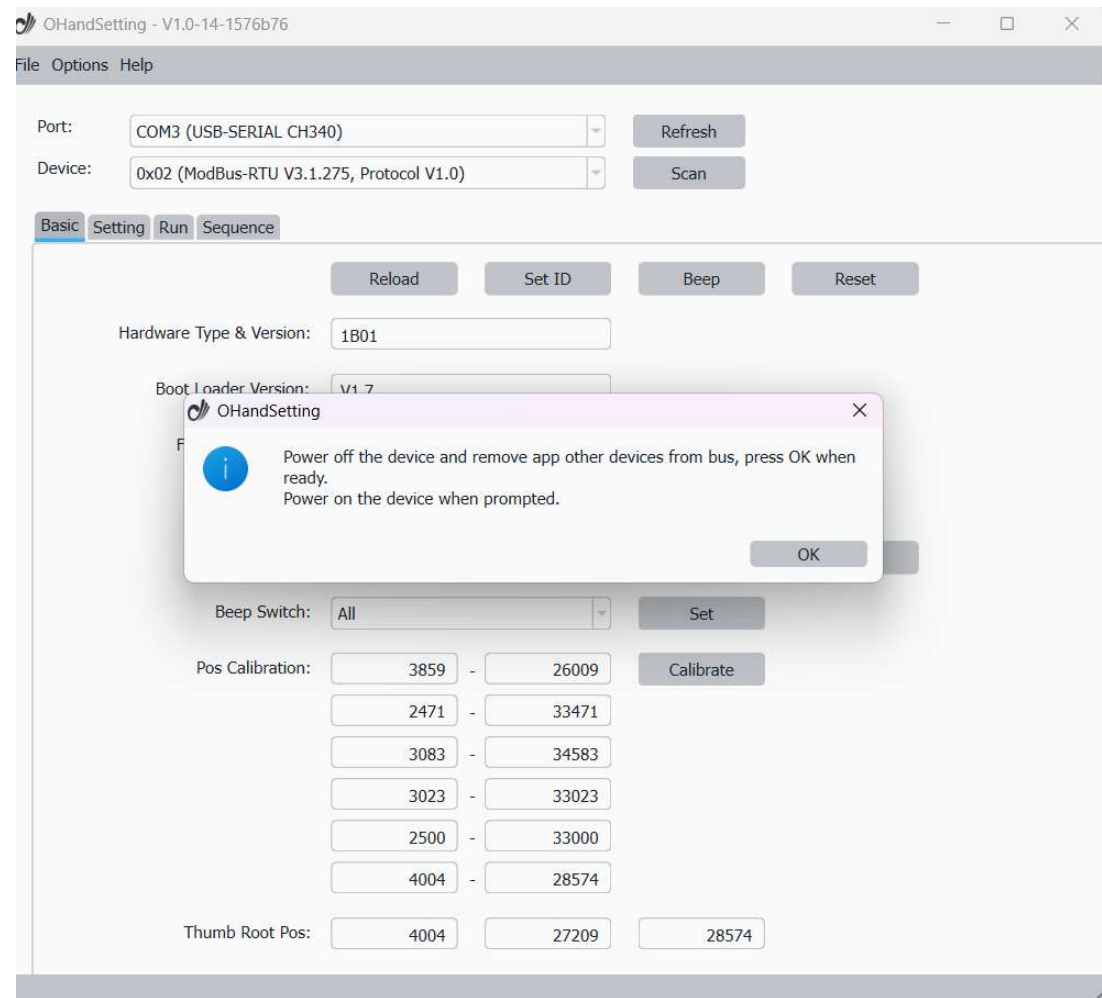


### 3. Update Firmware

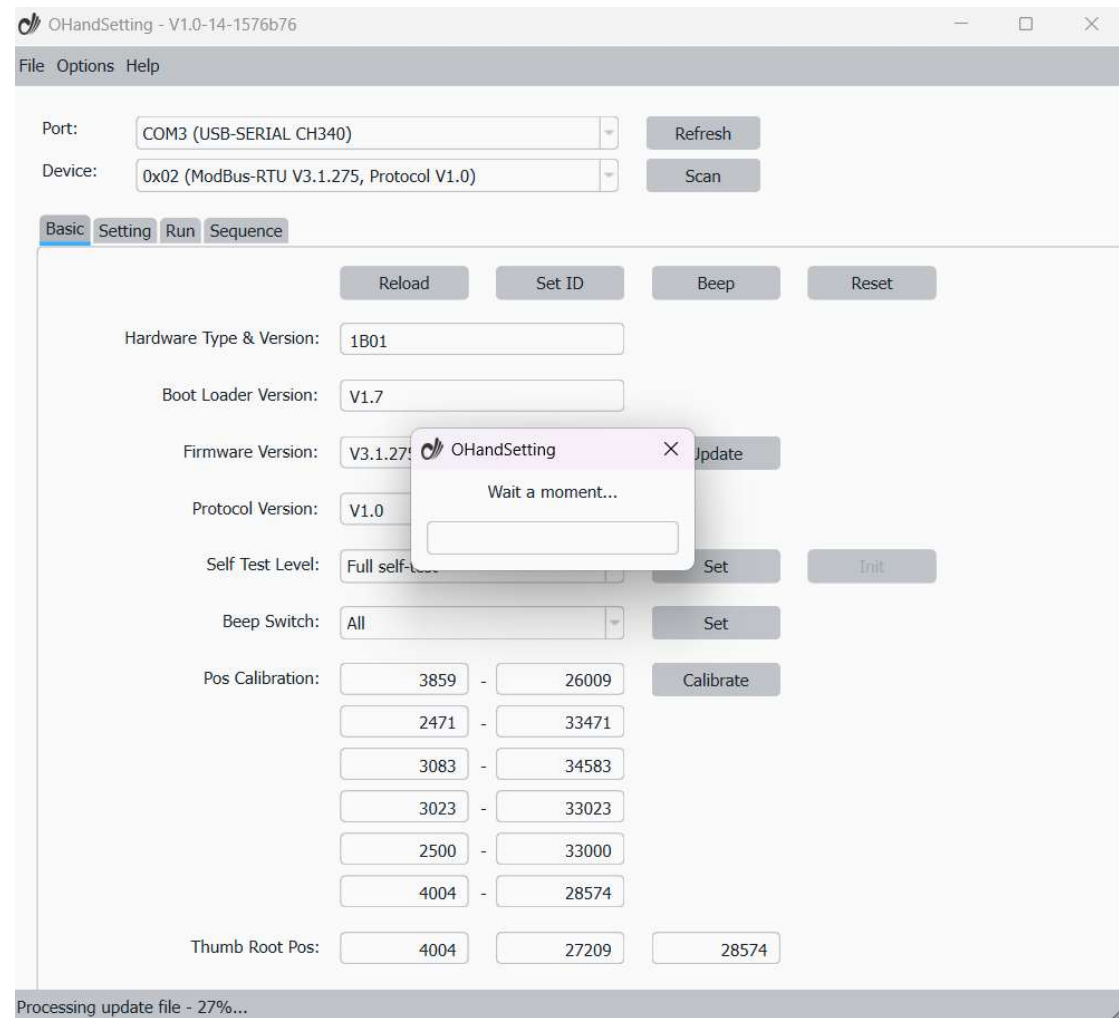
3.1 Enter '**Basic**' interface, click '**Update**' button, or select '**File - Force Upgrade**', it will enter the firmware upgrade mode. Select the local file as the source of firmware, and choose the latest **upd** file in the firmware directory.



3.2 When prompted, turn off the power to the device and click 'OK'.

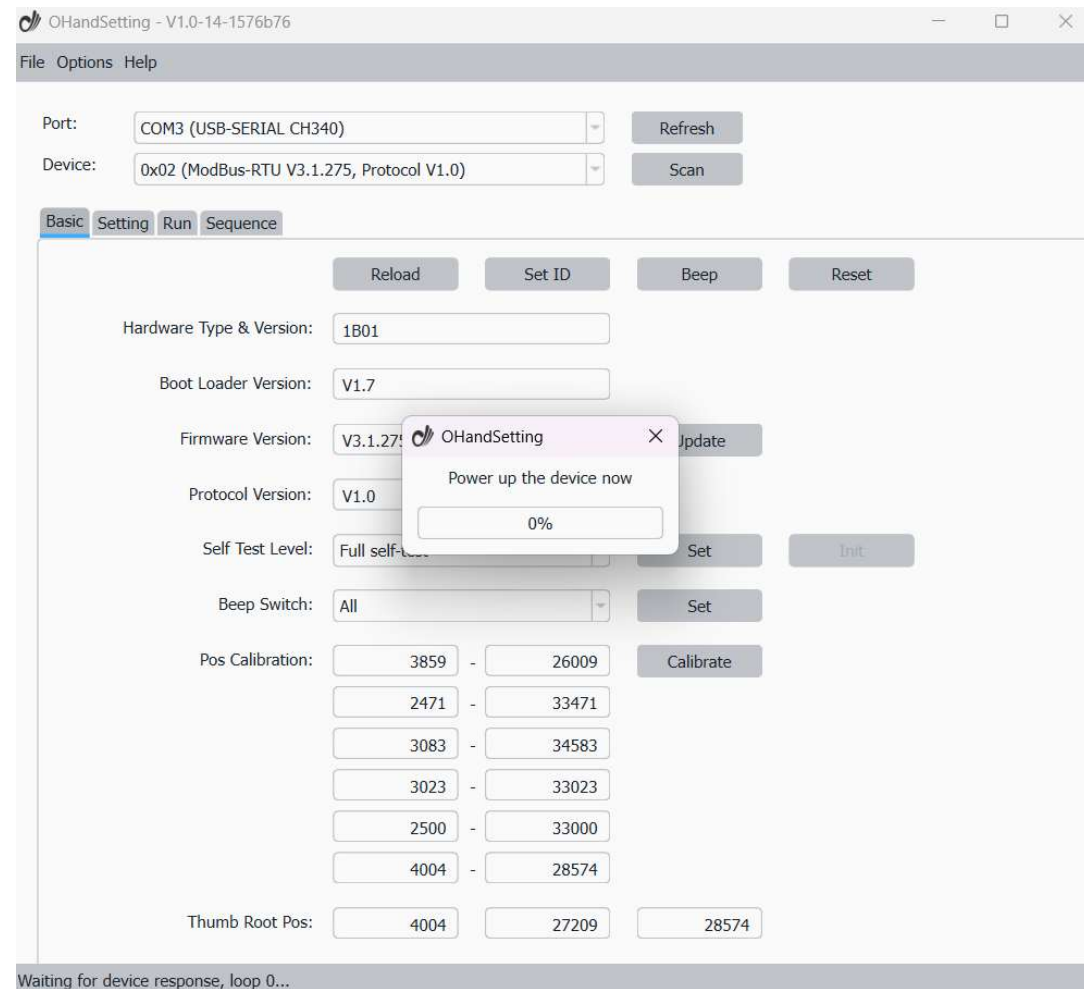


3.3 Wait for the software to process the upgrade file, at this time the progress will be shown in the status bar at the bottom left corner.

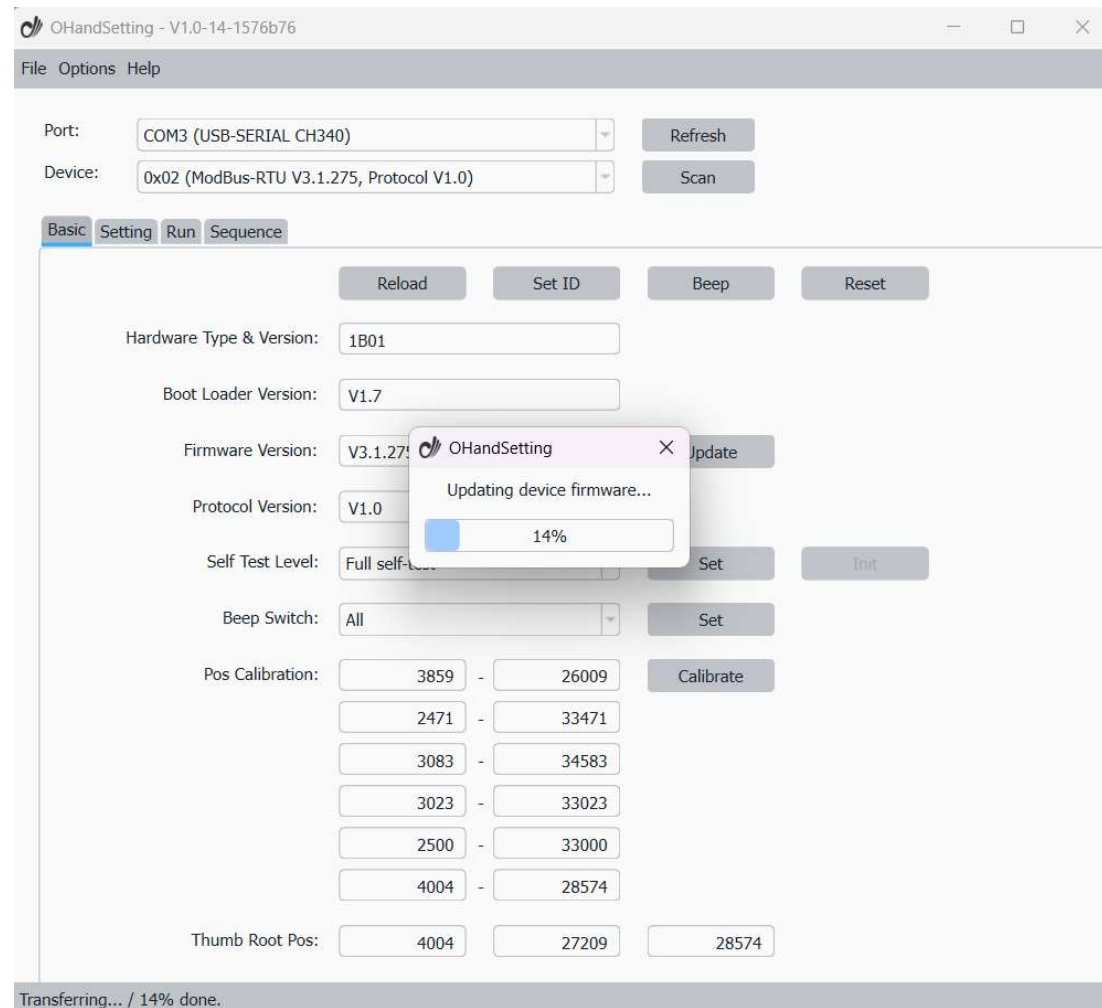




3.4 After the upgrade file is processed, you will be prompted to **‘Power up the device now’**, and the status bar at the bottom left corner will show **‘Waiting for device response, loop 0...’**, please power on the device before the **10th** loop, or the upgrade will be failed, and you have to go back to step **3.1** to upgrade again.



3.5 Wait for the upgrade progress to reach 100% to complete the upgrade, after the upgrade is completed, device will reboot , at this time to **scan** the device again, will reload the device information.



## 4. Basic Information Setting

- 4.1 **Reload:** Reload and display device basic information.
- 4.2 **Set ID:** Set the device ID number, support from **0x02** to **0xFF** (**0x01** is the host), device will reboot after successful setting.
- 4.3 **Beep:** Buzzer sounds for a period of time.
- 4.4 **Reset:** Reboot device.
- 4.5 **Update:** Update firmware, reference to step 3.

The screenshot displays the OHandSetting software window, version V1.0-14-1576b76. The interface includes a menu bar (File, Options, Help) and a main settings area. At the top, there are dropdown menus for 'Port' (COM3 (USB-SERIAL CH340)) and 'Device' (0x02 (ModBus-RTU V3.1.275, Protocol V1.0)), accompanied by 'Refresh' and 'Scan' buttons. Below these are tabs for 'Basic', 'Setting', 'Run', and 'Sequence', with 'Basic' currently selected. The 'Basic' tab contains several sections of controls: a top row of 'Reload', 'Set ID', 'Beep', and 'Reset' buttons; a 'Hardware Type & Version' field set to '1B01'; a 'Boot Loader Version' field set to 'V1.7'; a 'Firmware Version' field set to 'V3.1.275' with an 'Update' button; a 'Protocol Version' field set to 'V1.0'; a 'Self Test Level' dropdown set to 'Full self-test' with 'Set' and 'Init' buttons; a 'Beep Switch' dropdown set to 'All' with a 'Set' button; a 'Pos Calibration' section with six pairs of input fields (3859-26009, 2471-33471, 3083-34583, 3023-33023, 2500-33000, 4004-28574) and a 'Calibrate' button; and a 'Thumb Root Pos' section with three input fields (4004, 27209, 28574).

#### 4.6 Self Test Level:

**Full self-test** — Fingers fully open and fully closed;

**Stretch only** — Finger fully open;

**Wait for command** — Wait for the command to start the self-test, and click the **'Init'** button after the setting is successful, then the device will be self-tested.

After selecting it, click the **'Set'** button on the right side, **'Set self-test level succeed'** will be shown on the status bar at the bottom left corner, reboot the device or click **'Reset'** to check it.

The screenshot shows the OHandSetting software interface (V1.0-14-1576b76) with the Basic tab selected. The interface includes a menu bar (File, Options, Help) and a toolbar with buttons for Reload, Set ID, Beep, and Reset. The main settings area contains the following fields and buttons:

- Port: COM3 (USB-SERIAL CH340) with a Refresh button.
- Device: 0x02 (ModBus-RTU V3.1.275, Protocol V1.0) with a Scan button.
- Hardware Type & Version: 1B01.
- Boot Loader Version: V1.7.
- Firmware Version: V3.1.275 with an Update button.
- Protocol Version: V1.0.
- Self Test Level: A dropdown menu is open, showing options: Full self-test (selected), Wait for command, and Stretch only. To the right of the dropdown are Set and Init buttons.
- Beep Switch: A dropdown menu with options: Stretch only and Full self-test. To the right is a Set button.
- Pos Calibration: A table of position values for fingers 1 through 5, each with a Calibrate button to its right.
- Thumb Root Pos: A table of position values for the thumb, with a Calibrate button to its right.

Finger	Value 1	Value 2
1	3859	26009
2	2471	33471
3	3083	34583
4	3023	33023
5	2500	33000

Thumb	Value 1	Value 2
Root	4004	27209
Pos		28574

**4.7 Beep Switch:** The switch that sounds the buzzer is divided into:

**All** — Normal sound;

**Basic Only** — The buzzer will sound under certain circumstances, otherwise it will not sound.

After selecting, click the **‘Set’** button on the right side, the status bar at the bottom left corner will show **‘Set beep switch succeeded’**, click the **‘Beep’** button to check.

The screenshot shows the OHandSetting software interface. The title bar reads "OHandSetting - V1.0-14-1576b76". The menu bar includes "File", "Options", and "Help".

At the top, there are two dropdown menus: "Port:" set to "COM3 (USB-SERIAL CH340)" and "Device:" set to "0x02 (ModBus-RTU V3.1.275, Protocol V1.0)". To the right of these are "Refresh" and "Scan" buttons.

Below the dropdowns are four tabs: "Basic" (selected), "Setting", "Run", and "Sequence".

In the "Basic" tab, there are several configuration fields and buttons:

- Hardware Type & Version: 1B01
- Boot Loader Version: V1.7
- Firmware Version: V3.1.275
- Protocol Version: V1.0
- Self Test Level: Full self-test
- Beep Switch: All (with a dropdown menu showing "All", "Basic Only", and "All" selected)
- Pos Calibration: All (with a dropdown menu showing "All", "Basic Only", and "All" selected)

Buttons are located on the right side of the interface:

- Reload, Set ID, Beep, Reset (top row)
- Update (next to Firmware Version)
- Set, Init (next to Self Test Level)
- Set (next to Beep Switch)
- Calibrate (next to Pos Calibration)

At the bottom, there are several input fields for calibration values:

- Thumb Root Pos: 4004, 27209, 28574
- Other fields: 2471 - 33471, 3083 - 34583, 3023 - 33023, 2500 - 33000, 4004 - 28574

4.8 **Calibrate:** This function is a factory setting, not available to users at this time, and will display calibrate information in the edit box.

The screenshot shows the OHandSetting software interface, version V1.0-14-1576b76. The window has a menu bar with 'File', 'Options', and 'Help'. Below the menu bar, there are two dropdown menus for 'Port' (COM3 (USB-SERIAL CH340)) and 'Device' (0x02 (ModBus-RTU V3.1.275, Protocol V1.0)), each with a corresponding button ('Refresh' and 'Scan').

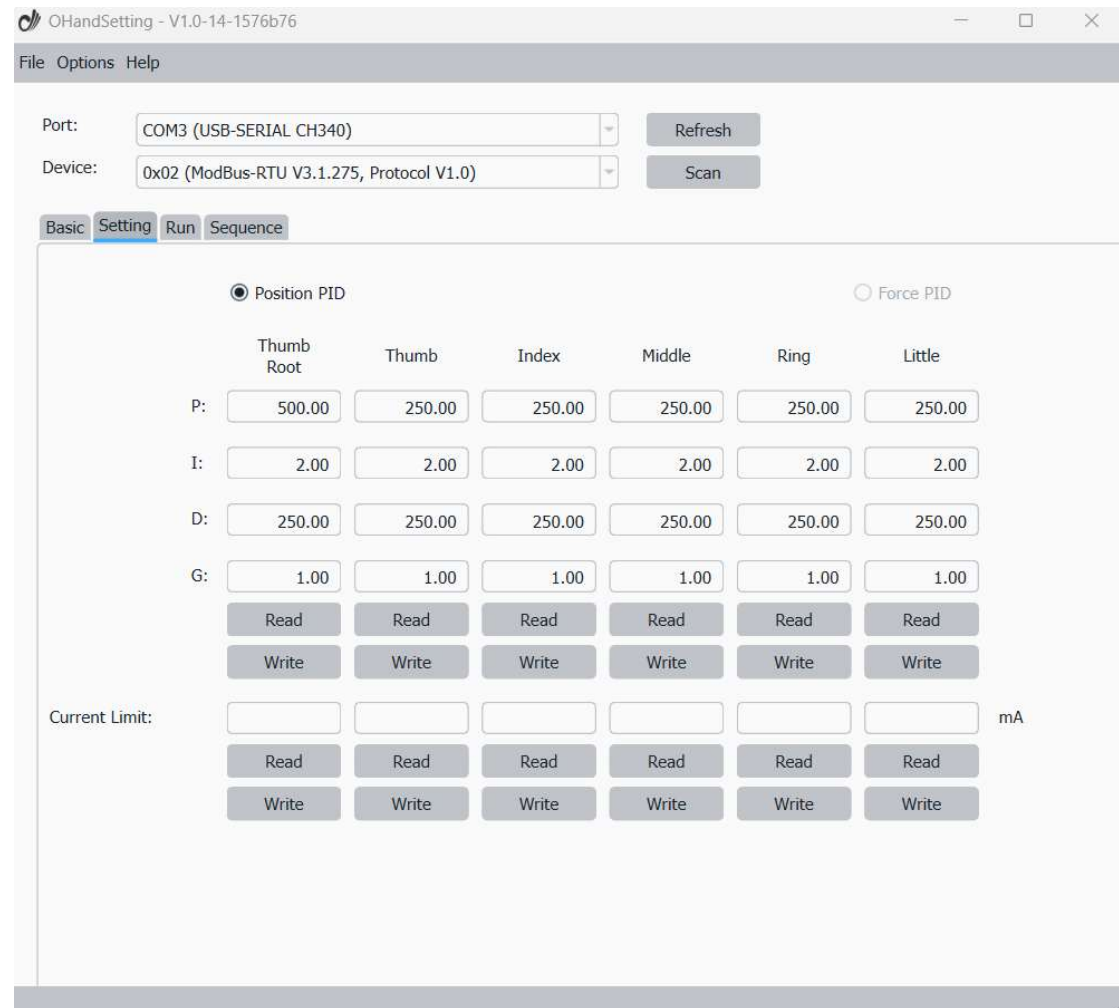
The main interface is divided into four tabs: 'Basic', 'Setting', 'Run', and 'Sequence'. The 'Basic' tab is currently selected. It contains several settings and buttons:

- Buttons: 'Reload', 'Set ID', 'Beep', 'Reset', 'Update', 'Set', 'Init', 'Calibrate'.
- Hardware Type & Version: 1B01
- Boot Loader Version: V1.7
- Firmware Version: V3.1.275
- Protocol Version: V1.0
- Self Test Level: Full self-test
- Beep Switch: All
- Pos Calibration: A table of position values.
- Thumb Root Pos: 4004, 27209, 28574

Pos Calibration	Value 1	Value 2
	3859	26009
	2471	33471
	3083	34583
	3023	33023
	2500	33000
	4004	28574

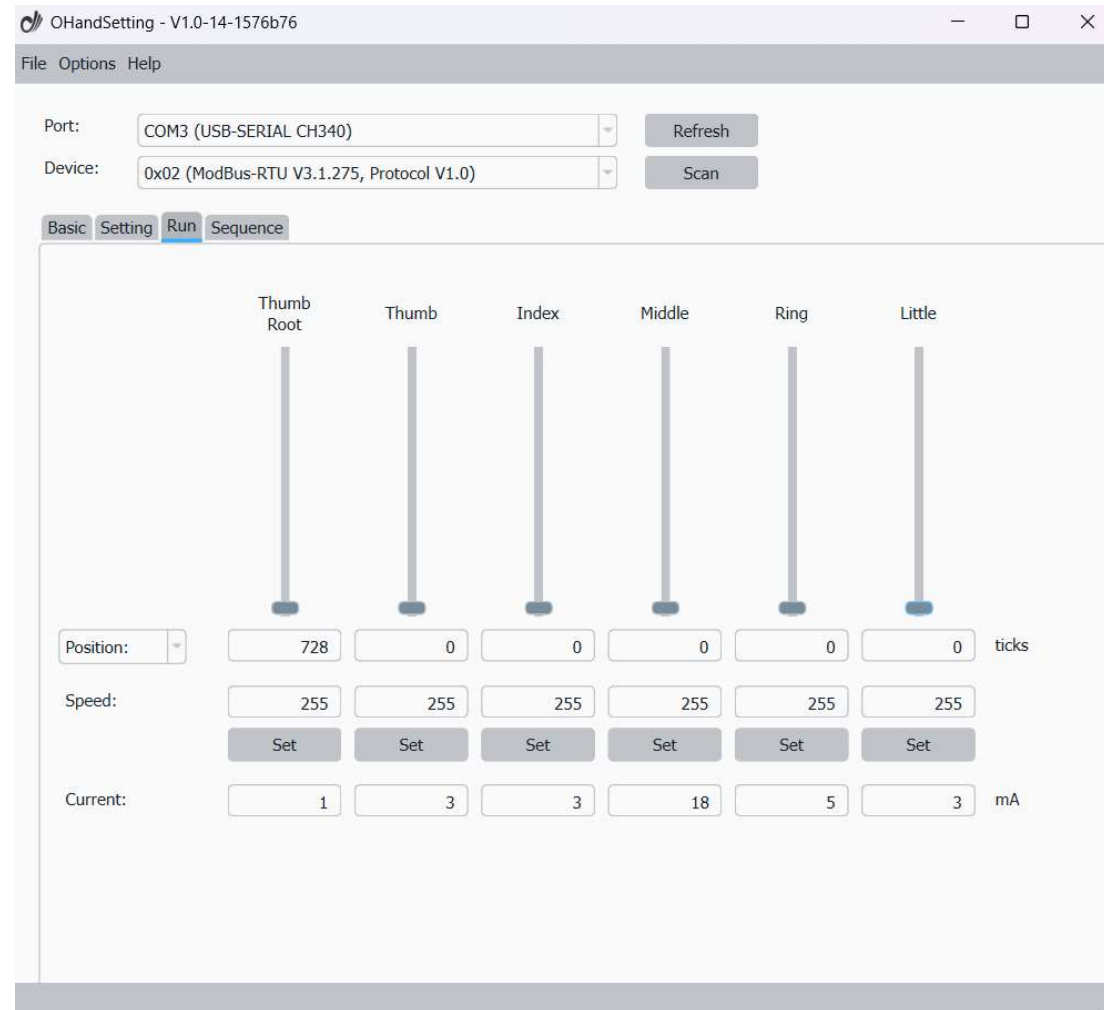
5.1 **PID Setting:** ROHand uses PID algorithm, you can click **'Read'** in the **'Setting'** interface to read the gain parameters of each motor, and click **'Write'** to write the parameters, after successful writing, the editing box will display the written value, otherwise it will remain unchanged.

5.2 **Current Limit Setting:** Set the motor current limit, after setting, when the motor is stuck and the current exceeds the limit, the motor will stop and restart after waiting for a new command. The default value is 1178mA, click **'Read'** to read the limit value, click **'Write'** to write the limit value, the range of write value is limited to 0 - 1178mA. After successful writing, the value will be displayed in the edit box.



## 6. ROHand Control

- 6.1 **Position control:** Select '**Position**' in the combo box, drag the vertical slider to display the corresponding position value in the edit box below, and the finger will run to the target position after releasing the slider, or write the value within 0 - 65535 (finger from open to closed) in the edit box, click '**Set**' and the finger will run to the target position.



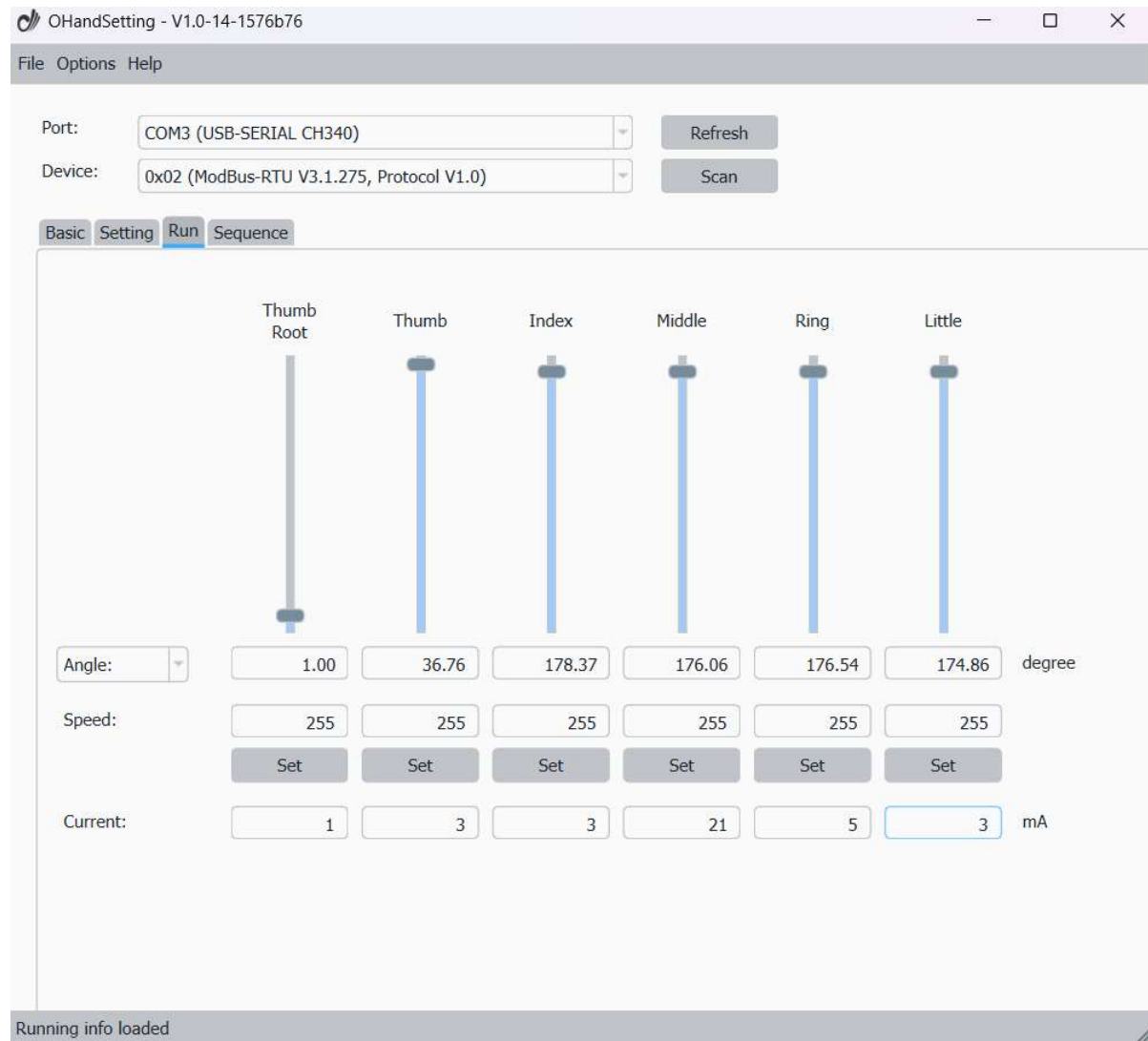


- 6.2 **Angle control:** Select ‘Angle’ in the combo box, when you move the vertical slider, the corresponding angle value will be displayed in the edit box below, after releasing the slider, the finger will run to the target angle (when you move it to the maximum or minimum position, you can read the maximum or minimum value of the finger angle from the edit box); or write the target angle value in the edit box, click ‘Set’ and then the finger will run to the target angle. For the definition of finger angle, please refer to protocol directory.

OHandModBusRTUProtocol\_EN.md

OHandSerialProtocol\_EN.md。

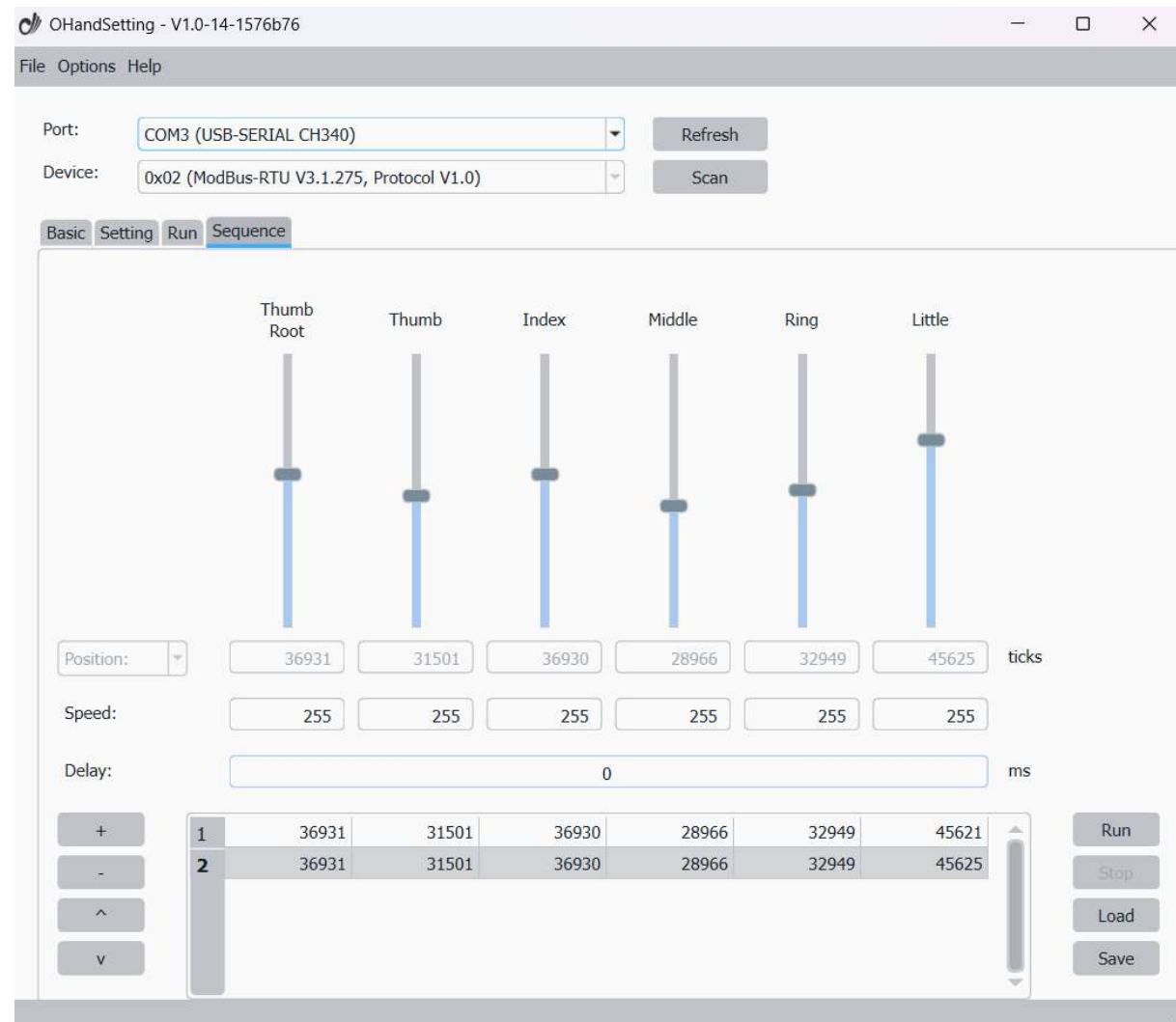
- 6.3 **Speed control:** The default value is 255 ticks/s, write the value within 0 - 255 in the edit box and click ‘Set’ to take effect, you can observe the running speed of the finger by position/angle control.
- 6.4 **Current read:** After entering the **Run** widget or rescanning the device, the current value collected from the motor encoder will be displayed in real time in the edit box.



## 7. Action sequence

**7.1 Action set:** Same to the position control, you can move the vertical slider to control ROHand to a specific gestures. Then click button ‘+’ to store the gesture and set the delay time before running the gesture. Also you can click button ‘-’ to delete the existing data. Click button ‘^’ or ‘v’ to reorder the gestures.

**7.2 Load and run:** When all gestures are set, click the ‘Run’ button and the device will perform the actions in the set order, and click ‘Stop’ button to stop running. Click ‘Save’ button to save the current action data, the file will be saved in json format. Click ‘Load’ button will read the action sequence file and load the gesture data in the form.



## 8. FAQs

- 8.1 OHandSetting can control multiple dexterous hands through one USB to 485 module, only need dexterous hands to set different ID (e.g. 0x02 and 0x03), and switch the dexterous hands that need to be controlled in the device drop-down box.
- 8.2 If you can't control the dexterous hand after reconnecting the dexterous hand or restarting after power failure, please refresh the serial port first, and then rescan the device to refresh the device information.
- 8.3 If you can't scan the device information, please try to upgrade the firmware first and then scan it again, if there is no answer from the device during the upgrade process, please check the external line through and through, refer to the FAQs\_EN.md document in the FAQs file directory, if you still can't solve the problem, please contact technical support [faq@oymotion.com](mailto:faq@oymotion.com).

## 9. Contact Details

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Download: [www.github.com/oymotion](https://www.github.com/oymotion)

## 10.Revision history

Modification date	Version	Revision content
2024.10.30	V1.0	Initial version.
2024.12.05	V1.1	Added action sequence; Modified revision history.
2024.6.24	V1.2	Modify the image; Add Ubuntu version instructions; Add modification records.