DEYOUZHI TECHNOLOGY

CCD Positioning Automatic Screen Printing Machine

# OPERATION

# MANUAL

Dongguan DEYOUZHI Intelligent Screen Printing Equipment Co., Ltd.

Address: Room 203, Building 1, No. 28 Yangwu Daxing Road,

Dalingshan Town, Dongguan City, Guangdong Province

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一、Operation Panel Key Description:

Pre-operation Inspection and Preparation:

1.First open the air source switch, then turn on the power switch.


Place the button in the ON position. After the machine is powered on, the touch screen will light up.


4.19 **Print Head Lift/Lower:** In manual mode, simultaneously switches the lifting/lowering of the squeegee and flood bar.

4.20 **Squeegee Lift/Lower:** In manual mode, switches the lifting/lowering of the squeegee.

4.21 **Flood Bar Lift/Lower:** In manual mode, switches the lifting/lowering of the flood bar.

4.22 **Jog Left:** In manual mode, moves the print head to the left. Press and hold to move, release to stop.

4.23 **Jog Right:** In manual mode, moves the print head to the right. Press and

hold to move, release to stop.

4.24 **Stop Left / Stop Right:** Selects whether the print head stops on the left or right side when idle.

4.25 **Single Cycle Print Once:** In manual mode, the print head prints once. **Requires the screen frame to be in the lowered position.**

4.26 **Platform Alignment:** In manual mode, activates platform alignment once.

4.27 **Screen Frame Lift/Lower:** In manual mode, performs the screen frame raising and lowering operation.

4.28 **Continuous Suction Switch:** In manual mode, turns the platen suction on or off.

4.29 **Computer Start Switch:** Starts the computer.

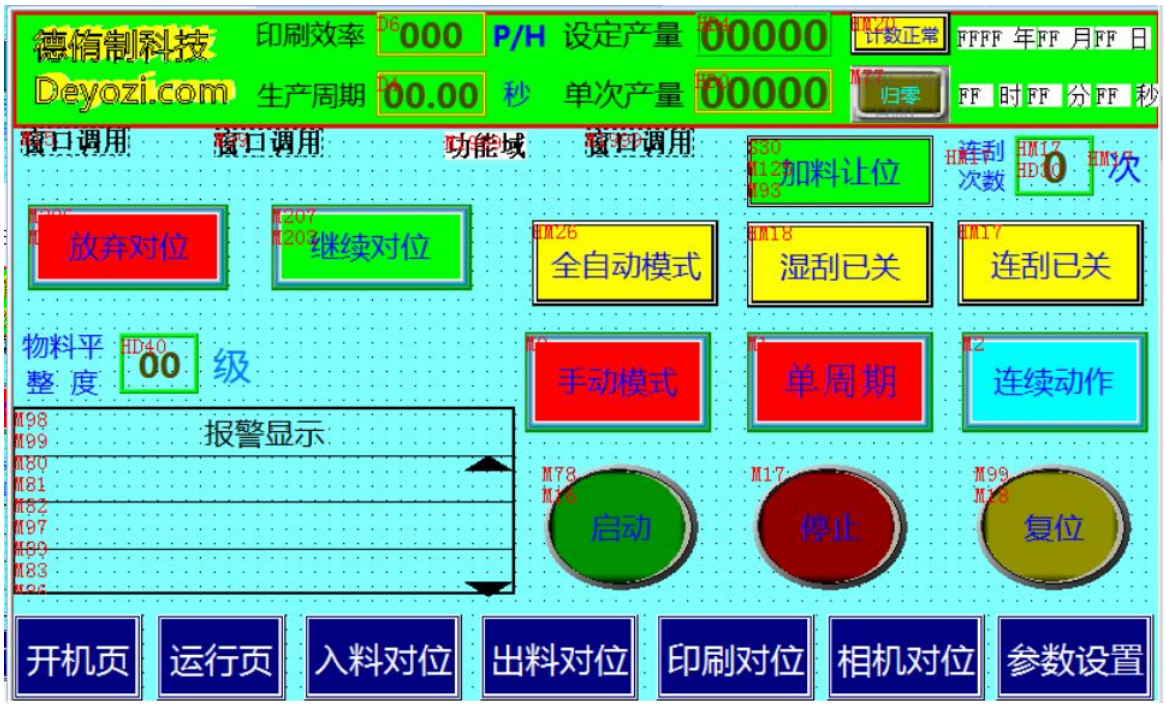
4.30 **Blower/Vacuum Pump:** Power switch for the blower and vacuum pump.

4.31 **Manual/Auto:** Toggle switch between manual and automatic modes. Has the same function as the manual/auto toggle button on the touch screen. Yellow indicator lights up in automatic mode.

Operation Interface

2.1、Operation Interface


2.2、Main Running Interface




2.1 After powering on the machine, the first step is to press the **Reset button** to perform homing. Otherwise, no operations can be performed.

2.2 Press the three-position rotary switch on the panel: Semi-Auto Mode / Manual Mode / Auto Mode toggle switch. The touch screen will display the corresponding mode.

2.3 Press the Single Cycle / Auto Cycle toggle button to switch to Auto Cycle mode. Single Cycle runs only one cycle then stops; Auto Cycle runs continuously until material is finished or the single batch quantity reaches the set value.

2.4 Press the Single Step / Continuous Action button to switch to Continuous Action. Single Step is used for single-step operation during machine setup.

2.5 When continuous printing is needed, click the Continuous Print button to switch to "Continuous Print On". An input field for the number of continuous prints will appear. The minimum input is 2 times; set to off if only 1 print is needed. (Continuous Print Mode is for setting the number of consecutive prints.)

2.6 When wet printing is needed, click the Wet Print button to switch to "Wet Print On". Options "Platen Lowering Wet Print" or "Screen Frame Raising Wet Print" will appear. (Wet Print Mode performs an additional print after the first print, allowing the material to detach from the screen before returning to the print position.)

2.7 After preparation is complete, press the Start button to run the equipment.

2.8 To temporarily stop the equipment, press the Stop button. The equipment will complete the current cycle and stop; press Start to continue running.

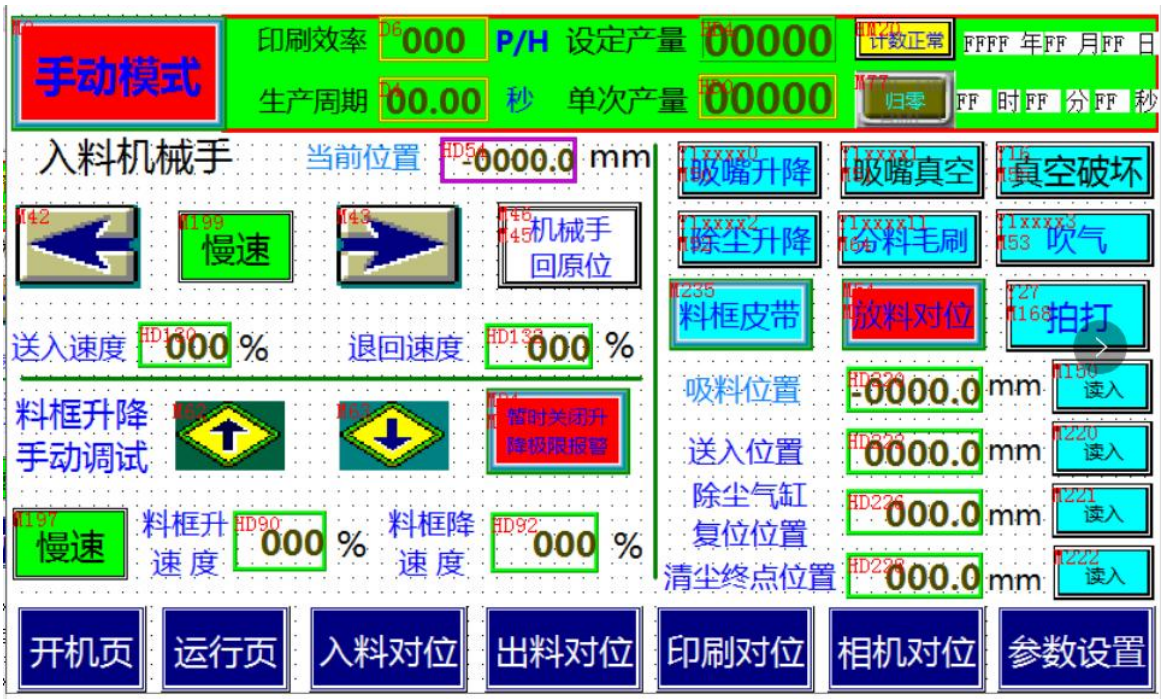
2.9 After the single batch quantity reaches the set value, the machine automatically stops. Press Start to reset the single batch quantity to zero and continue running. Below shows the time per production cycle and the hourly output.

2.13 Conveyor Belt Switch: Turns the conveyor belt on/off. When off, the conveyor belt stops; in Auto mode, the conveyor belt runs and this switch is ineffective.

2.14 Material Loading Clearance: Clicking this button lowers the material tray to its lowest position for easy material loading. In automatic production,

the tray also automatically lowers to its lowest position when the material in the tray is finished.

三、Feeding Alignment




3.1 Feed Speed: Sets the speed for feeding material.

3.2 Return Speed: Sets the speed for returning.

3.3 Pickup Position: Sets the position for picking up material from the tray.

3.4 Placement Position: Sets the position for placing material onto the platen.

3.5 Dust Removal Reset Position: Sets the reset position for activating dust removal.

3.6 Final Dust Removal Position: Sets the final reset position for dust removal.

3.7 Tray Lift Speed: Sets the tray lifting speed.

3.8 Tray Lower Speed: Sets the tray lowering speed.

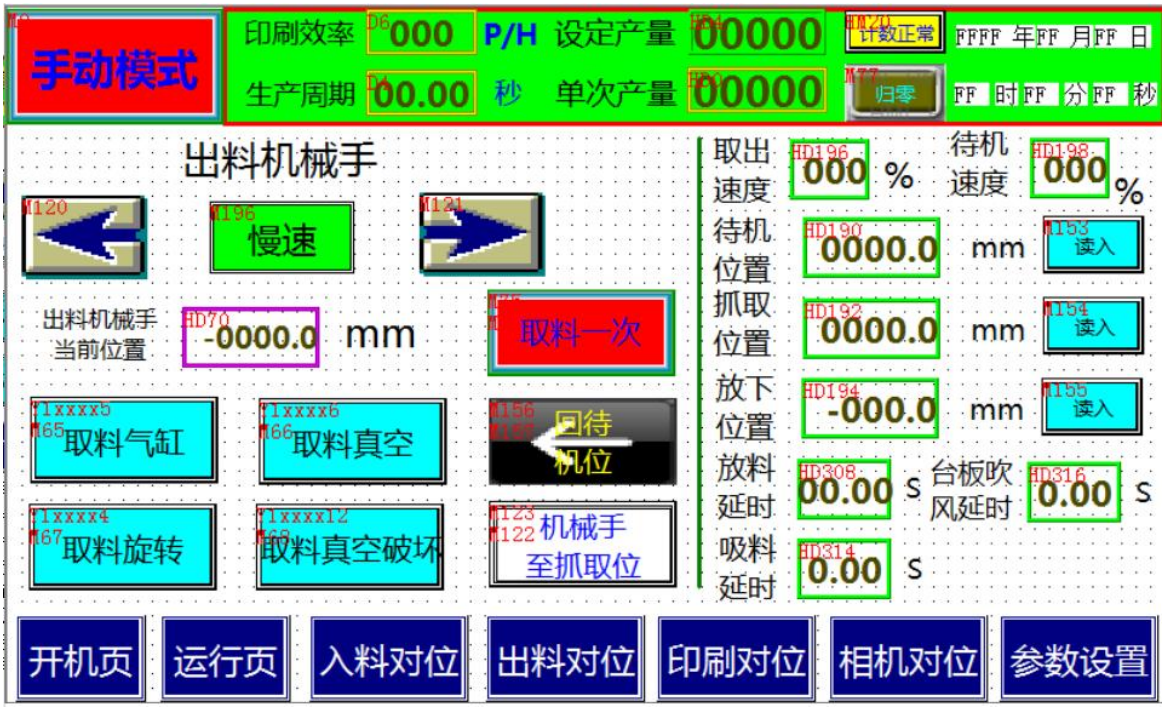
3.9 Manipulator Return to Home: In manual mode, automatically returns the

manipulator to its home position.

3.10 Material Placement Alignment: Automatically picks up a sheet of material and places it on the suction platen for positioning.

3.11 CCD Alignment: Automatically performs capture and alignment.

四、Discharge Alignment




4.1 Pickup Speed: Sets the speed for picking up material.

4.2 Standby Speed: Sets the return speed to standby position.

4.3 Standby Position: Sets the standby position.

4.4 Grab Position: Sets the grabbing position.

4.5 Placement Delay: Sets the delay time before placing discharged material onto the conveyor belt.

4.6 Release Position: Sets the release position.

4.7 Pickup Delay: Sets the delay time for suction pickup.

4.8 Platen Blow Delay: Sets the blowing time when picking up material.

4.9 Pickup Once: Automatically picks up material once.

## 五、Squeegee Alignment


5.1 Slow Speed: Toggle switch between fast and slow speed.

5.2 Go to Left Position: Automatically moves the squeegee to the left position.

5.3 Go to Right Position: Automatically returns to the right position.

5.4 Squeegee Left Position: Manually sets the left position of the squeegee.

5.5 Squeegee Right Position: Manually sets the right position of the squeegee.

5.6 Save as Left Position & Save as Right Position: Manually press left/right keys to confirm position, then click to save automatically.

5.7 Screen Frame Lift Speed: Sets the lifting speed.

5.8 Screen Frame Lower Speed: Sets the lowering speed.

5.9 Print Speed: Sets the printing speed.

5.10 Flood Bar Speed: Sets the flood bar speed.

5.12 Continuous Print Count: Sets the number of continuous prints.

六、Camera Alignment


七、Parameter Setting: Sets the delay times for cylinder or motor position switching.


7.1 Process Selection: Enables or disables the required function switches.


7.2 Input Points:

：


7.3 Output Points:


7.4 Engineering Debugging: Already completed by the manufacturer.


Main Technical Specifications:

| **Item** | **Parameter Value** |
|---|---|
| Working Environment | Temperature ≤45°C; Humidity ≤85% (no condensation); No strong magnetic fields; No severe vibration or impact; No corrosive or conductive gases |
| Power Supply | Three-phase 380VAC, 50Hz±5% |
| Control Voltage | DC24V |
| Air Pressure | 0.5~0.6MPa, Flow Rate: 10000 l/min |
| Equipment Power | 3.5KW |

| Item | Parameter Value |
| --- | --- |
| Dimensions (L×W×H) | 2400×1300×1850 (mm) |

Safety Precautions:

5.1 The electrical cabinet should only be opened for inspection by an electrician with electrical knowledge.

5.2 After stopping the machine, the main power switch must be turned off.

5.3 When repairing the machine, the emergency stop button must be pressed or the power switch turned off.

5.4 Do not touch switches, buttons, or keys with wet hands. Otherwise, there is a risk of electric shock in case of leakage or poor grounding.

5.5 When the machine is running, ensure there are no other operators or obstacles within the safety protection area and around moving parts.

5.6 When performing maintenance, adjustment, inspection, lubrication, preparation, or cleaning inside the machine, disconnect the power to the control cabinet.

5.7 When performing machine maintenance or inspection, display a "Work in Progress / Energy Source Off" notice on each operation panel; do not leave wrenches or other unnecessary objects inside the machine.

5.8 This machine has been debugged to meet user specifications, maximize

performance, and ensure safety. Do not modify the machine or change its specifications.

## 四. Simple Fault Causes and Troubleshooting

| **Fault Phenomenon** | **Possible Cause** | **Troubleshooting Method** |
|---|---|---|
| Emergency Stop Fails | Button switch fault | 1. Replace faulty button. |
| | Wiring fault | 2. Check relevant wiring for disconnection or breakage. |
| Unable to Operate | Fault alarm | 1. Handle according to alarm content or check switch wiring/replace switch. |
| | Sensor displacement | 2. Adjust sensor position. |
| Pickup Abnormality | Cannot pick up material | Confirm vacuum pump is on, check suction nozzle for blockage/leaks, nozzle height, etc. |
| Unable to | 1. Servo driver | 1. Power off for 30 seconds, then |

| **Fault Phenomenon** | **Possible Cause** | **Troubleshooting Method** |
|---|---|---|
| Home/Reset | alarm | restart. |
| | 2. Long display of "Resetting..." | 2. Power off, push the manipulator to the photoelectric sensor position, then restart. |
| | | |
| | | |

# Screen Printing Machine Vision System Manual

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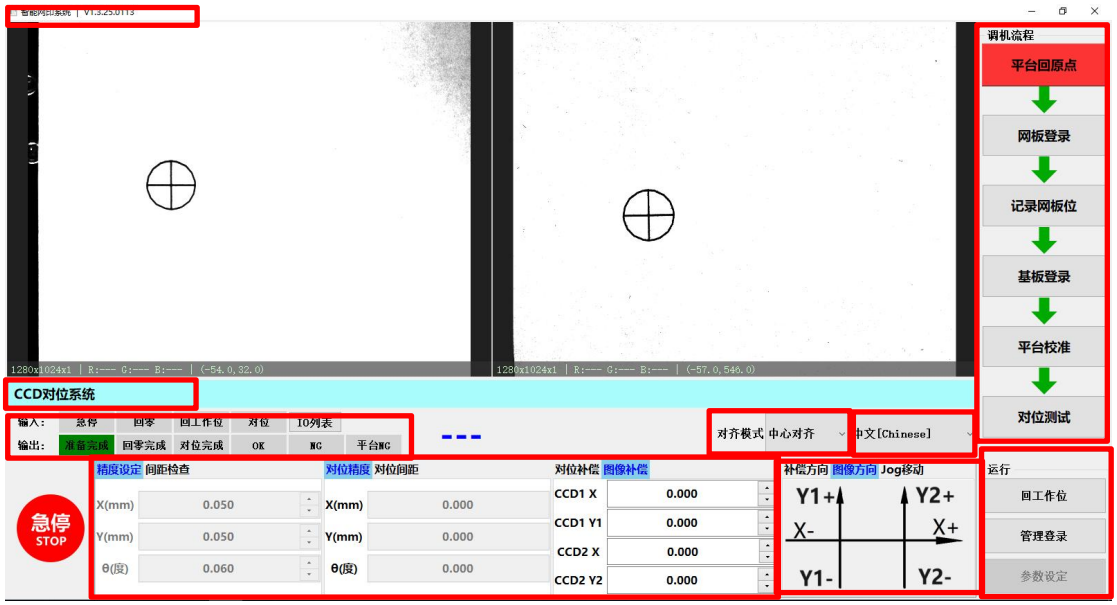
# 一、Main Interface




**1.Title and Version Information**.

**2.Toolbar**.

a) Return to Work Position.

b) Management Login.

c) Parameter Setting.

**3.Parameter Setting**.

a) Precision Setting: Set alignment precision.

b) Spacing Setting: Set the maximum allowed offset between a single camera and the screen frame position to prevent product distortion.

c) Actual Alignment Precision: The actual achieved alignment precision.

d) Actual Alignment Spacing: The actual alignment distortion.

e) Alignment Compensation: Set alignment compensation, refer to Compensation Direction on the right.

f) Image Compensation: Set image compensation, based on single camera compensation.

**4.Compensation Direction**.

**5.Operation Log**.

**6.Display I/O Connection Status**.

**7.Alignment Mode**.

a) Center Alignment: Align based on the center.

b) CCD1 Alignment: Align based on camera 1.

c) CCD2 Alignment: Align based on camera 2.

**8.Change Language**.

**9.Machine Setup Procedure**.

a) Platform Return to Home: Returns the platform to its home position.

b) Screen Frame Registration: Create a screen frame template.

c) Record Screen Frame Position: Record the screen frame reference position.

d) Substrate Registration: Create a substrate template.

e) Platform Calibration: Perform calibration.

f) Alignment Test: Perform an alignment test.

## 二、 Toolbar

1.User Management


Click the [Management] button, select the user to log in, enter the password, or log out the current user. Default operator login, administrator password is 649898.

2.Parameter Setting


This is the platform parameter setting. Generally, avoid modifying these parameters.

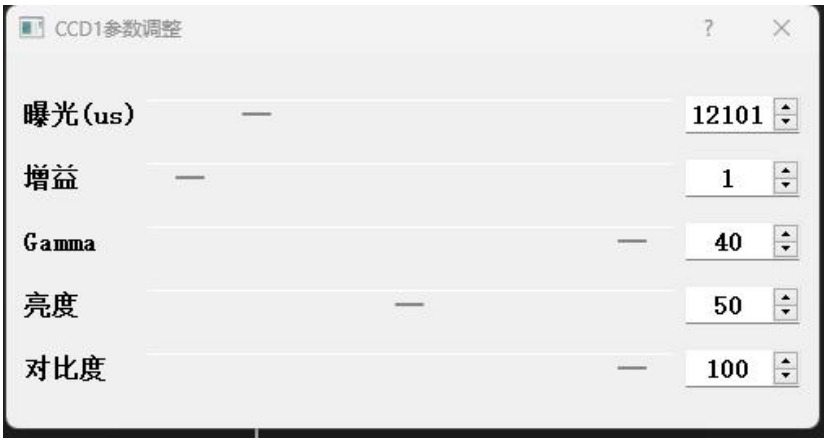
3.Return to Work Position


Returns the platform to its home position.

4.Exposure Setting


Right-click in the image area to bring up this page.


Click [Camera Parameters]




Then modify the exposure value.

5.Light Source Setting

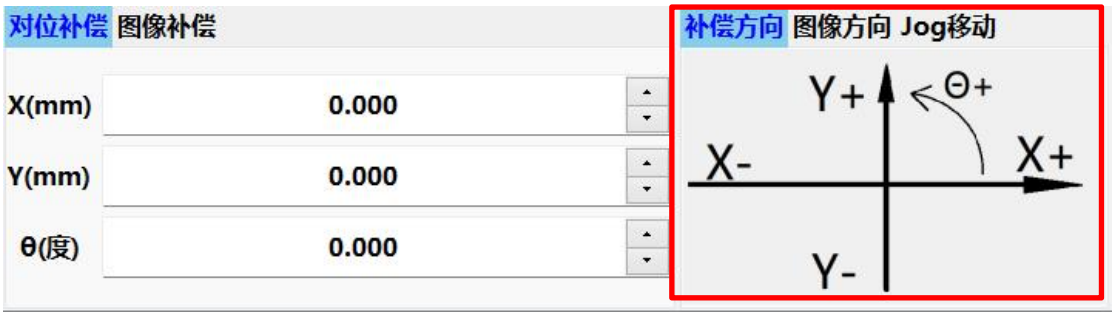

Right-click in the image area to bring up this page.


Click [Light Source Adjustment]


Then slide to adjust the light source brightness

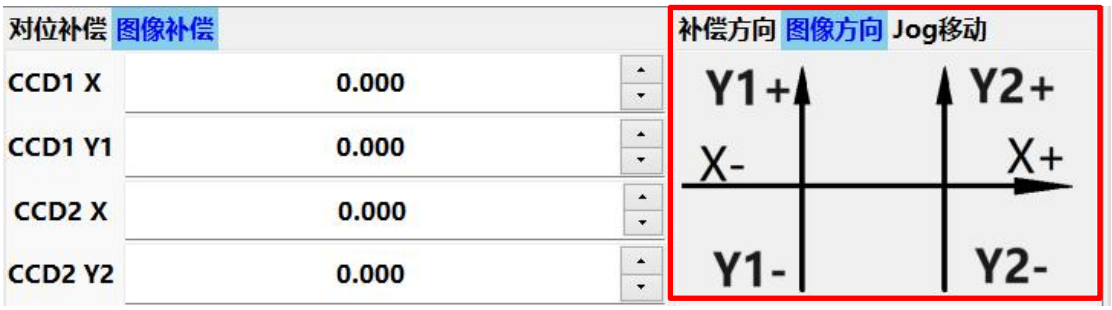
# 三、Compensation Direction

## 1.Alignment Compensation




Compensate according to this direction.

## 2.Image Compensation




Compensate according to this direction.

### 3.Axis Movement


Here, set the amount of movement (mm) and rotation (degrees) for each click of [Up] [Down] [Left] [Right] [Rotate Left] [Rotate Right].

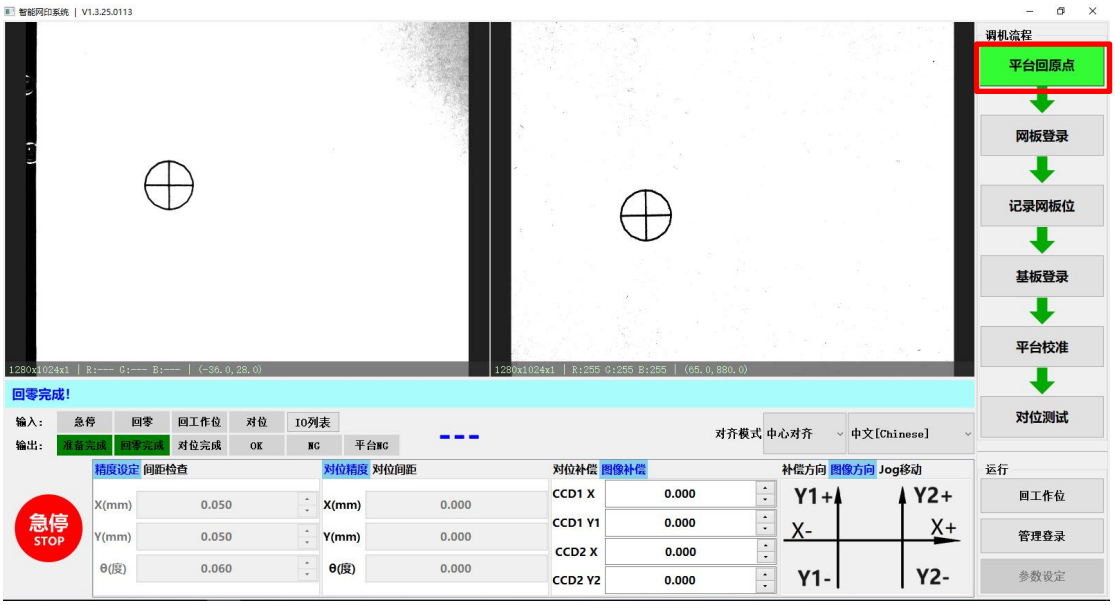
1.Observe the platform. When clicking [Up], if the platform moves down, it indicates reverse movement. Check for incorrect wiring or modified platform parameters.

2.Observe the image. When clicking [Up], if the image moves down, it indicates reverse movement. Check if platform parameters have been modified.

When clicking [Up], if the platform moves up and the image also moves up, it is correct.

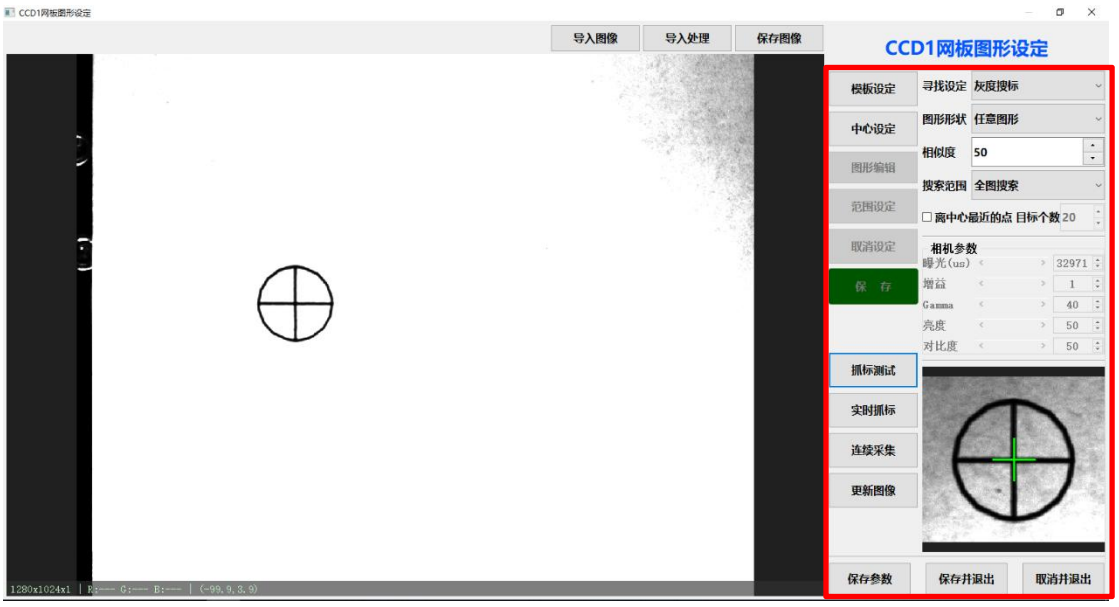
# 四、Machine Setup Procedure

1. Platform Return to Home




Click [Platform Return to Home]. After homing is complete, click [Screen Frame Registration].

2. Screen Frame Registration




This page will appear.

Find Setting: Use operators to find objects.

Graphic Shape: Shape of the search area.

Similarity: Higher similarity means more precision.

Search Range: Search area, either full image or a defined range.

Image Editing: Create a template.

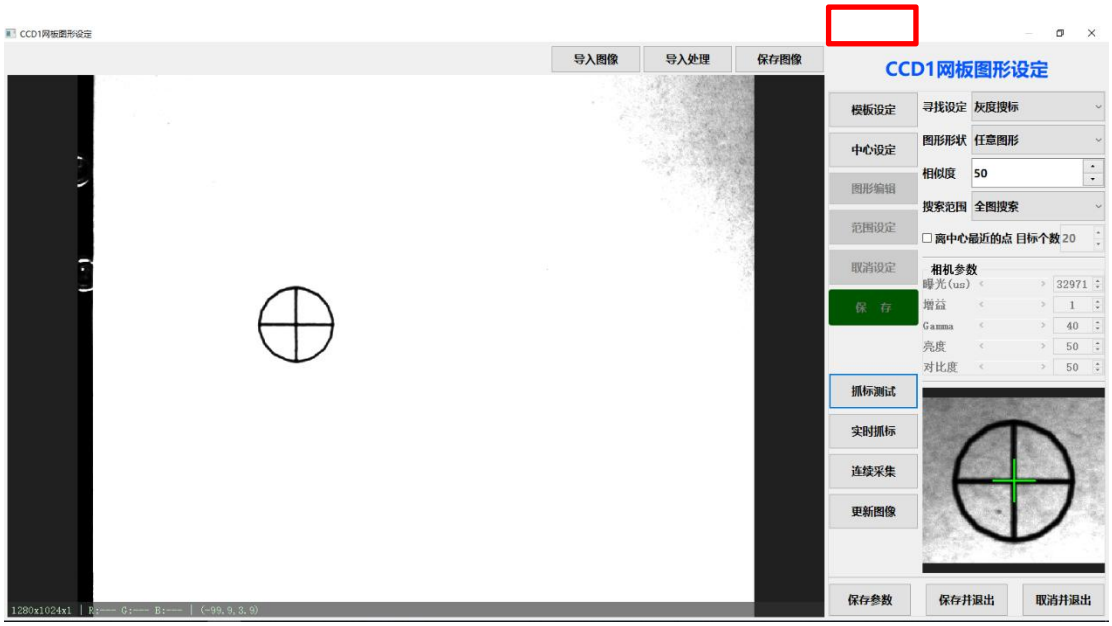
Range Setting: Adjust the search range.

Mark Capture Test: Uses the current image to test mark capture, checking for misalignment.

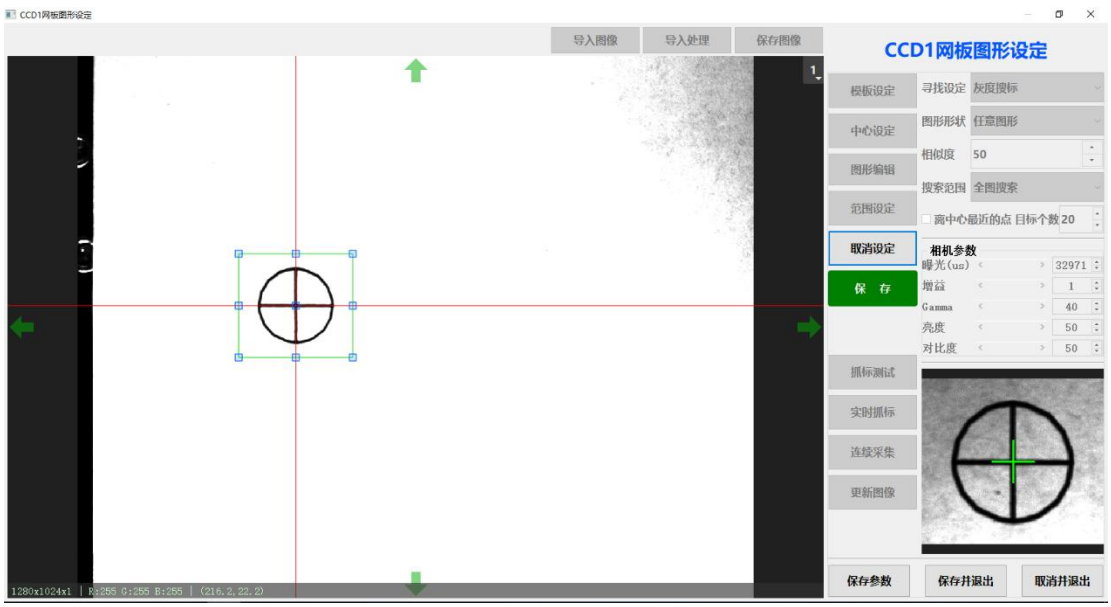
Real-time Mark Capture: Continuously captures images and performs mark capture.

Continuous Capture: Continuously captures images without performing mark capture.

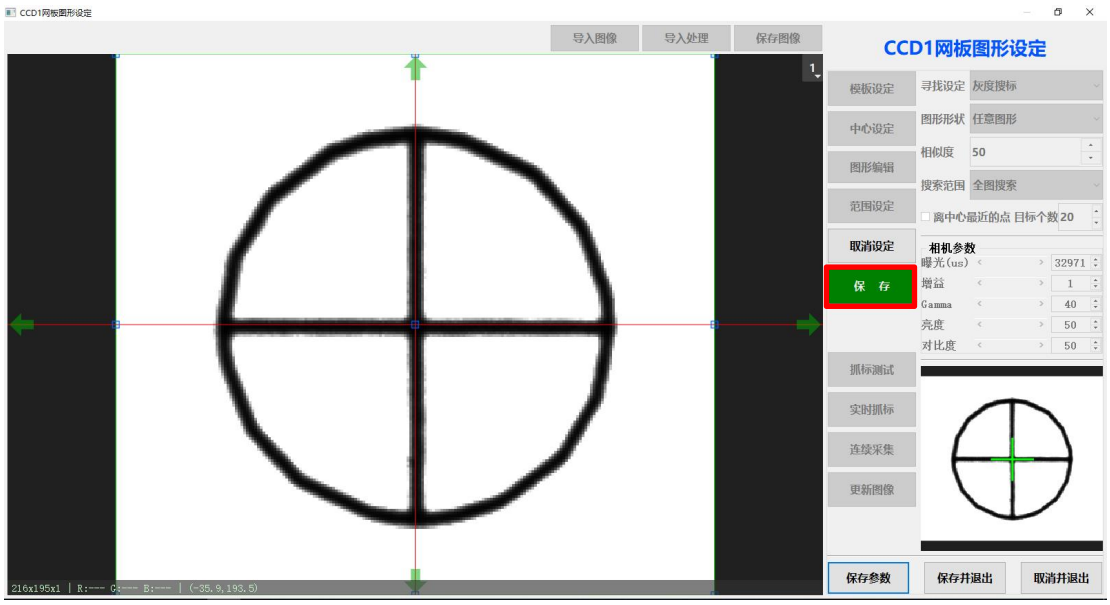
Update Image: Captures a new image.



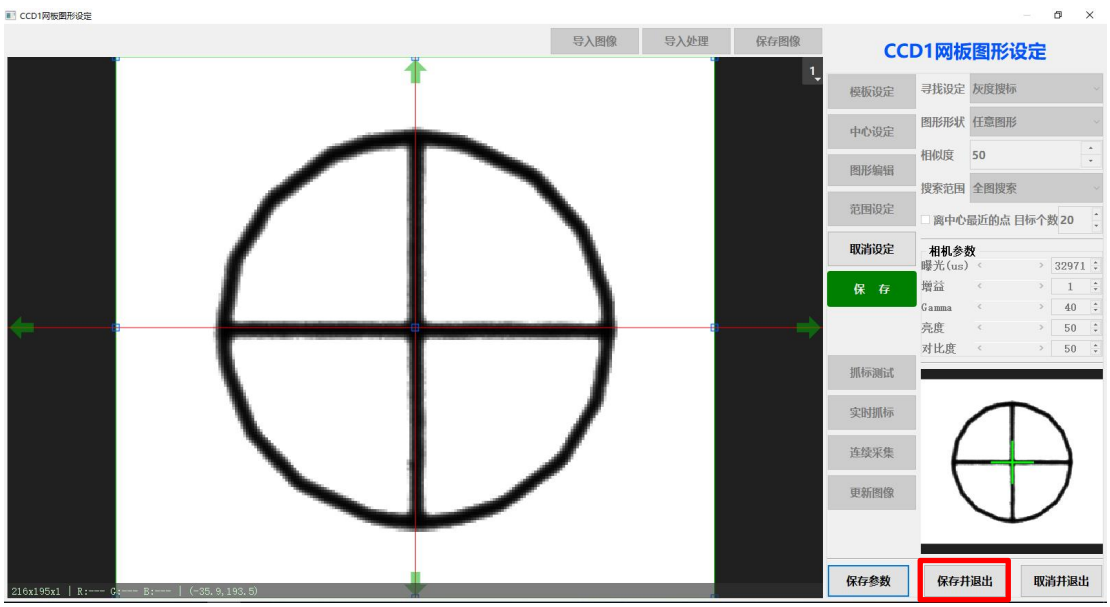

Click [Template Setting]




Frame the search area around the fiducial mark, then click Save.



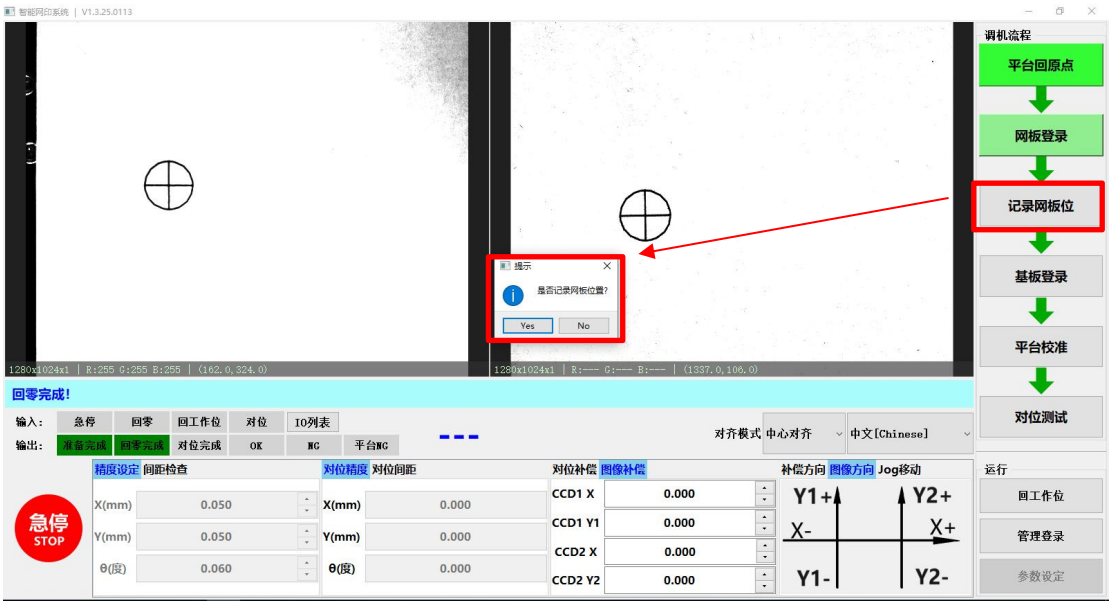

Then align the red crosshair with the center of the circle, and click Save.




Then click [Save and Exit].

After saving, the CCD2 screen frame registration will automatically pop up. Repeat the steps.

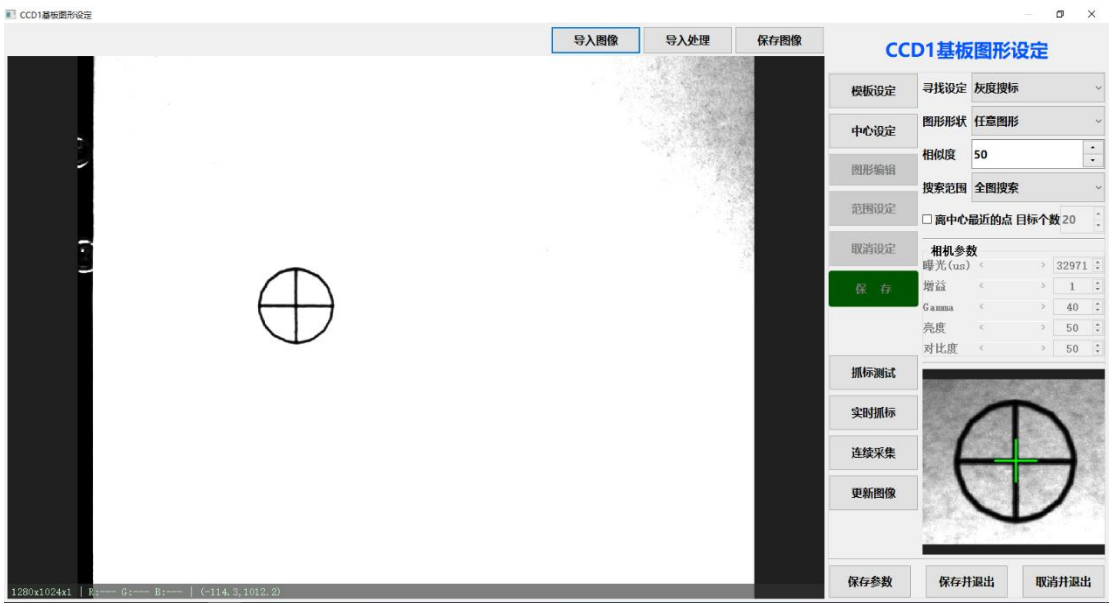
3. Record Screen Frame Position




Click [Record Screen Frame Position]. A prompt will appear.

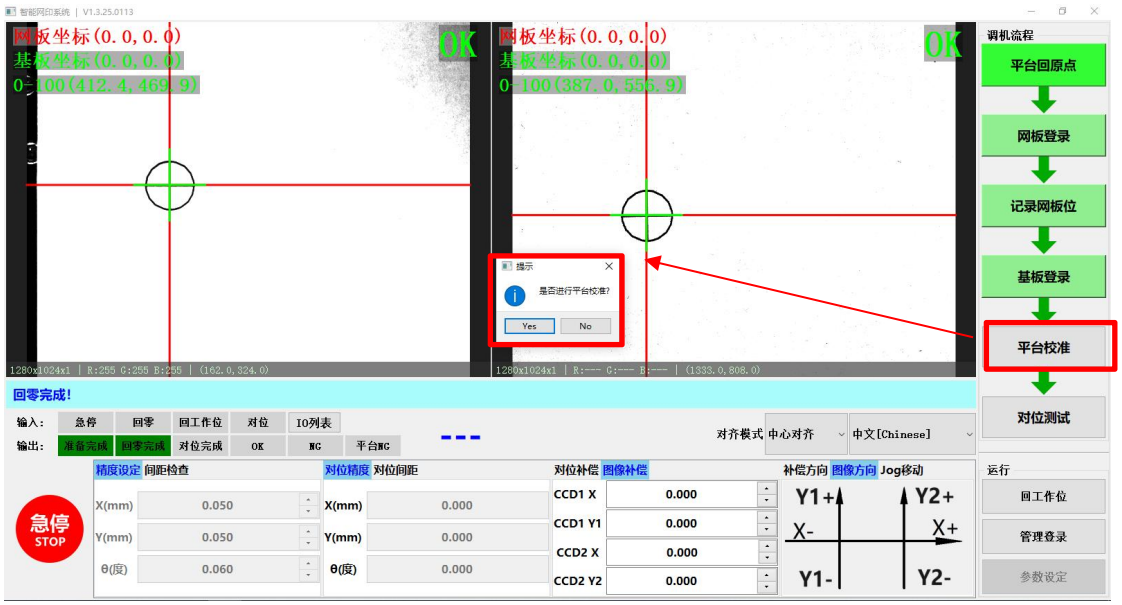

Click [Yes] to save the current position.

4. Substrate Registration




Similar to Screen Frame Registration, create a new template.

5. Platform Calibration

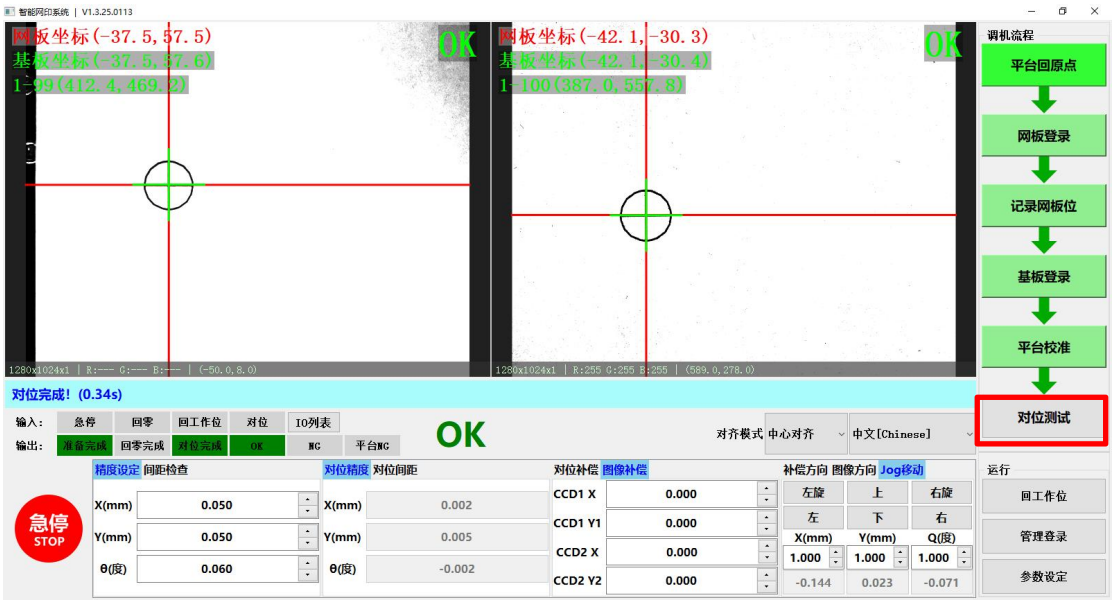



Click [Record Screen Frame Position]. A prompt will appear.


Click [Yes] to perform calibration.

If during calibration, marks are found inaccurately, not found, or precision does not meet the set value, return to home and re-create the templates.

## 6. Alignment Test




Click [Alignment Test] to perform alignment.

If alignment is inaccurate or deviation is large, return to home and re-create the templates.