VECTECH 威鐵克

Q Soldering Software

User Manual

Content

1. Interface Description

1.1 Summary

This chapter covers the following content:

- Settings and Operations
- Start/Exit
- Window and Interface Description

1.2 Settings and Operations

Before using this operating software, please ensure that the device has correctly installed the soldering software o perating system. For specific setting information, please refer to the soldering machine operation manual. If you h ave any questions about the setup and operation of the soldering system, please contact our company.

1.3 Start/Exit

The startup of the software must ensure that the soldering machine operation software is correctly installed on the user's computer, and that the computer is open and in use Window 10 operating system.

NOTE: Please check the computer system configuration to ensure it is a Windows 10 operating system.

1.3.1 Software startup steps

1. The following methods can be used to start the software:;

- Double click on the Window 10 desktop shortcut icon  .
- Click on Start in the bottom left corner of the **monitor**>**All Programs**>**Soldering**

When the software starts, it will automatically check whether the communication between the device and the software is normal.

NOTE: Users can operate according to the prompt dialog box. During the startup process, do not click the mouse or keyboard randomly, to avoid causing malfunctions.

2. After the software starts correctly, it will automatically enter the user login interface.

NOTE: If you encounter any unresolved issues during the software startup process, please contact our company directly.

1.3.2 Software exit steps

1. Save the current file;
2. Click on the exit icon in the upper right corner of the window.

NOTE: The device can only be powered off after the software exits.

1.4 Window and Interface Overview

This software includes six main interfaces, including main interface, process interface, visual interface, inspection interface, report interface, and user interface. Users can directly enter the corresponding interface by clicking the icon in the title bar. Some interfaces contain multi-level windows, such as the system settings window.

1.4.1 Main interface

After correctly logging into the software, the user will directly enter the main interface shown in Fig. main interface. Clicking on the title bar will directly enter the main interface. At the same time, when opening the software for the first time, it will also automatically enter the main interface. Only users with operator or above permissions can enter the main interface.

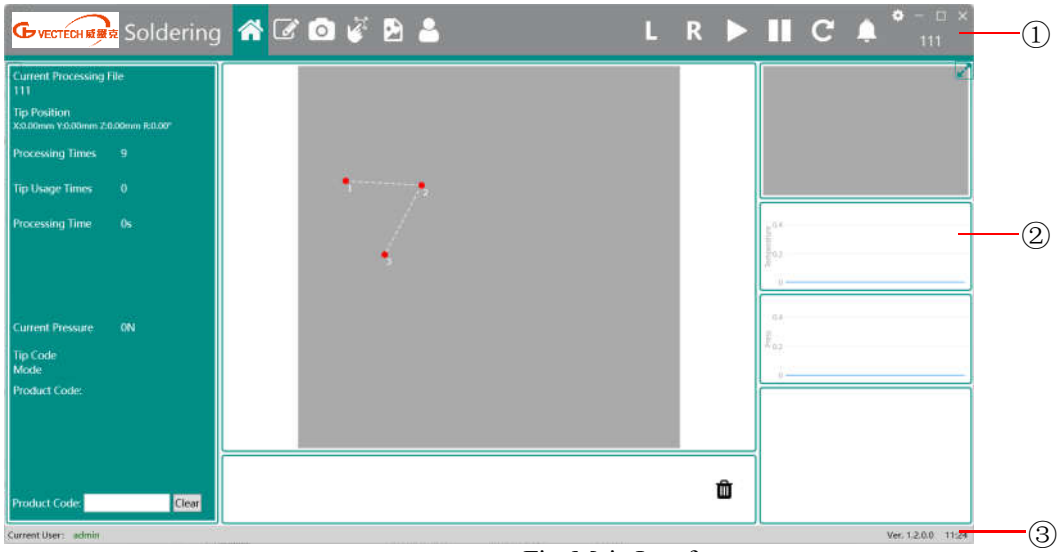


Fig. Main Interface

① Title line

No matter how other regions change, the title line remains displayed.

Table 2-4-1 Title Row Options

Item	Symbol	Description
1	Soldering	Display software type: Soldering machine operation software.

Item	Symbol	Description
2		Monitoring interface, green display indicates that this interface is open, relevant functions, refer to main interface.
3		Programming interface, including functions such as creating, editing, and setting soldering programs refer to Process Interface.
4		Visual interface, including functions such as creating, editing, and setting visual guides, Refer to Visual Interface.
5		Inspection interface, including daily inspection of soldering machine, temperature/pressure calibration, camera calibration and other functions, refer to Inspection Interface.
6		The report interface includes functions such as alarm logs, running files, image files, etc, Refer to Report Interface.
7		User interface, including functions such as user login, user management, password reset, etc., Refer to User Interface.
8		Run the program button to activate the currently selected machining program.
9		Pause program button to pause running before accepting the next command.
10		Reset button, all motion mechanisms return to the default origin.
11		Alarm indicator symbol. When a fault occurs, the red effect is displayed with a flashing symbol (flashing symbol indicates that the buzzer is turned on, otherwise it is in a shielded state), and it operates normally. The gray effect is displayed during operation.
12		System settings window, including communication configuration, processing & process parameters, and maintenance. For maintenance and other functions, refer to System Settings Window.
13		Display the currently selected program name.

② Operation area

- Function list hidden window

When the mouse is moved to the upper left corner of the operation area, a bidirectional arrow ()

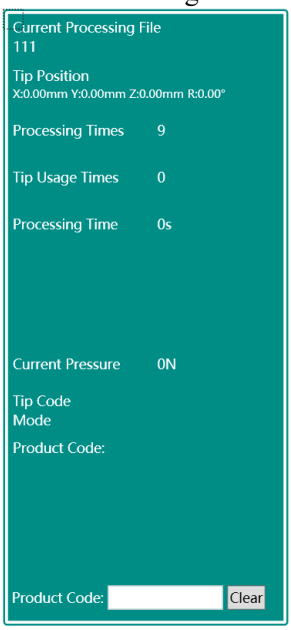
 will appear. Clicking the icon will bring up a hidden window for the function list, as shown in the following figure:

Image: Hidden window for function list

This window contains a total of eight movable items. Users can use the mouse to select and drag the items to be moved to the right area. Release the mouse and the item information will automatically appear in the placement box. Users can freely drag items to the right placement box, and can place up to seven items.

NOTE: The layout of the operation area has been set before the software leaves the factory, as shown in Figure **2-4-1 the** main interface. Users can customize it according to their needs arrange the layout in rows!

- Monitoring data



Display the relevant production information of the current processing file, and users can understand the production process by viewing the production information.

Current temperature: When the machine communicates with the heating controller, this is the real-time temperature of the soldering pen; When the machine is not communicating with the solder pen, the temperature of the solder pen when communication is disconnected is displayed here.

Processing frequency and nozzle usage frequency: Users with technician or above permissions can perform a reset operation on processing frequency and nozzle usage frequency. Clicking the number will automatically pop up a confirmation prompt box, as shown in Figure **2-4-2.** Click OK to reset the prompt box, and the prompt box will disappear; Click the cancel or x icon to cancel the reset operation and return to the main interface.

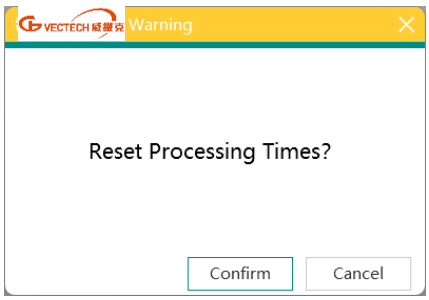
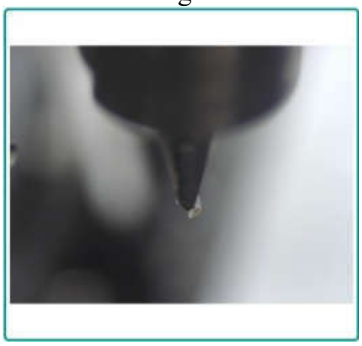


Figure 2-4-2 Prompt Box

NOTE: After resetting the data, it will not be traceable!

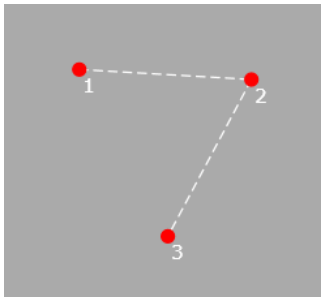
- Monitoring camera



Real time display of the captured image by the camera. This window displays real-time monitoring of the soldering process in video format and supports video storage function.

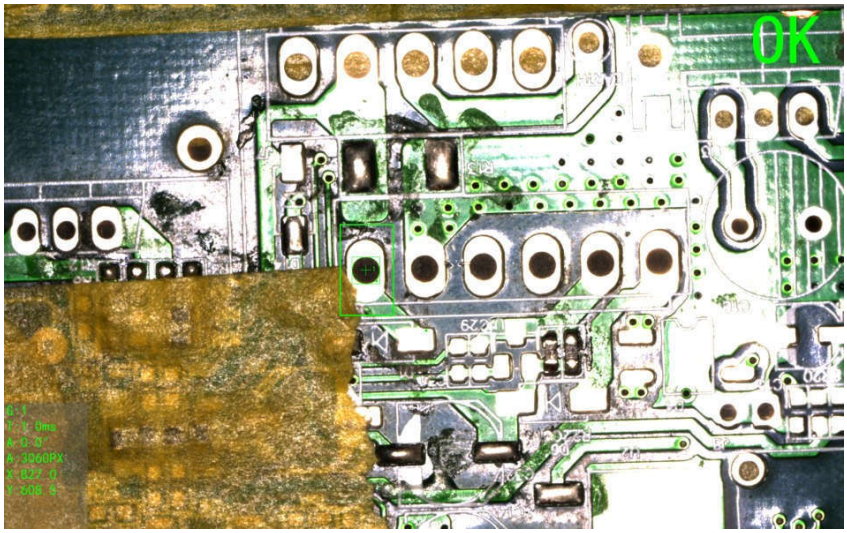
NOTE: When the device is equipped with a surveillance camera and the camera is turned on, this window is visible; otherwise, it is hidden mode Equation.

- Run Path



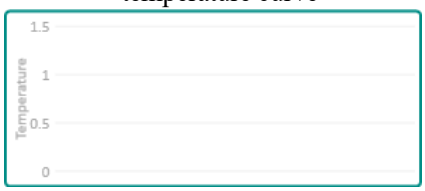
Simulate the trajectory of the solder pen, where the green symbol represents the solder pen, the number represents the soldering point processing sequence, the red dot represents the unsoldering points, and the yellow represents the completed processing soldering points; Mark point, visual point, and AOI point photography results are displayed in green if OK, and in red if NG; The dashed line represents the trajectory of the solder pen.

- Visual results



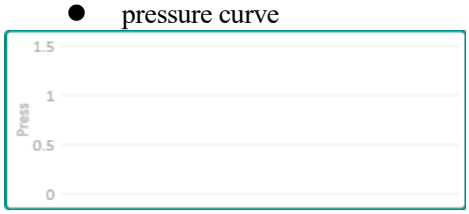
Real time display of visual detection results, with detection results displayed in the upper right corner and detected data during the detection process displayed in the lower left corner: G represents the target area, T represents the detection time, A represents the offset value of the angle during the recognition process, A represents the recognition area (pixels of the recognition area), X represents the X-axis direction pixels of the recognized template, and Y represents the Y-axis direction pixels of the recognized template.

- temperature curve



Real time display of the Soldering tip temperature during the processing, and users can understand the soldering temperature through the curve.

- pressure curve



Real time display of Soldering tip pressure during the processing, and users can understand the soldering pressure through the curve.

- Running logs

Display the process file processing steps in chronological order, making it easy for users to understand the equipment's operating status at any time.

- Latest alarm

The real-time display software has detected alarm information, and users can clear the alarm information by clicking the delete button on the right.

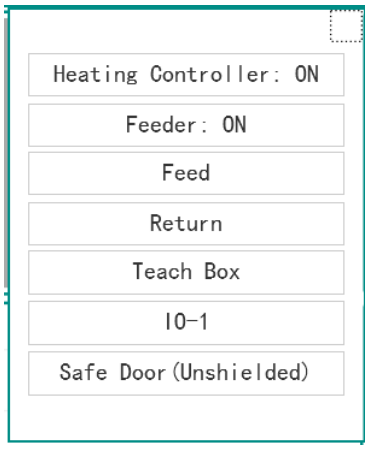
When an alarm occurs, this area will display the alarm code and content in a time list format, with a maximum of four displayed, with new alarm information displayed above. After the alarm is cleared, the alarm information will automatically disappear. The information after the alarm is cleared is displayed as a historical record in the historical alarm file.

TIP After confirm the alarm, if there is still alarm information displayed here, you need to click the reset button to confirm the alarm information.

- Operation function hidden window

Moving the mouse to the upper right corner of the operation area will bring up a bidirectional arrow (). Clicking on the icon will bring up a hidden window for the operation function, as shown in the following figure:

Image: Operation function hidden window



This is the button control mode. The button is a light touch type, and when the mouse passes by, the entire button will display a green effect. When you need to set an action, click the corresponding button to set it.

Temperature control/tin discharge: After the software is started, both temperature control and tin discharge are in a closed state, and need to be opened before applying the soldering program.

Send/Return Tin: Click the Send/Return Tin button once, and the default length for sending or returning tin is 2mm. Refer to the settings for sending/returning tin, and holding down the button will continue to

send or return tin.

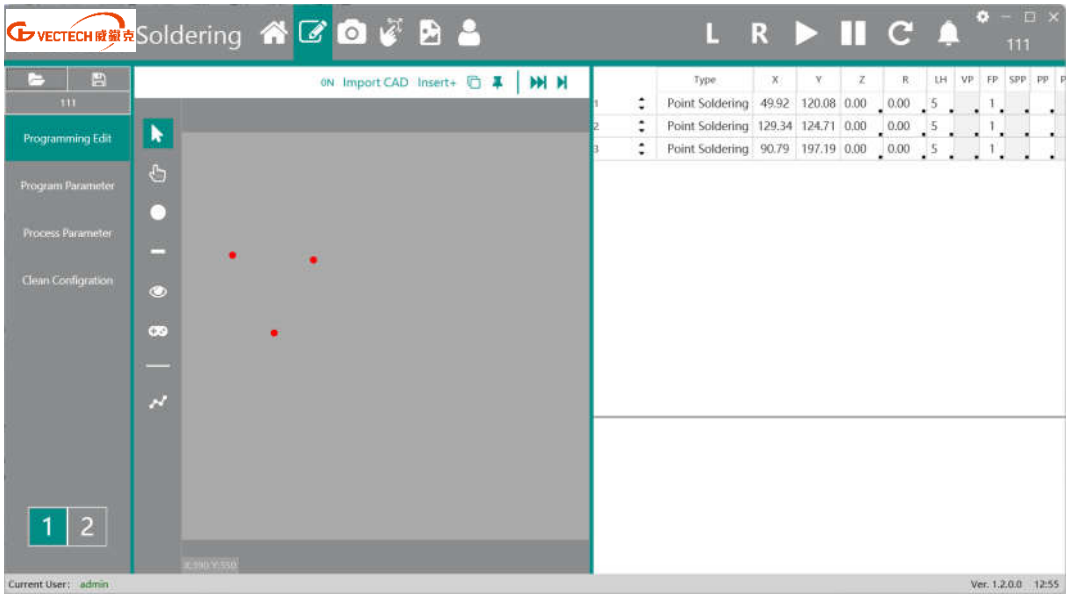
Teaching box: Click the teaching box button to quickly enter the camera manual window, and users can move the camera through the X, Y, Z, R buttons. IO control: Click the IO control button to quickly enter the motherboard IO window. Users can check whether their functions are enabled/disabled by clicking on the output port; Users can check the status of the input port and its functionality by referring to **4.3** Input/Output Settings. Security door (unshielded): Security door enable/disable button.

③ Display area

Display information such as the logged in user name, software version number, and current time.

1.4.2 Process interface

The process interface is used to edit soldering programs, which can only be accessed by users with equipment engineer or above permissions. Clicking on the title bar icon  directly enters the process interface, which includes multi-level editing windows and operation icons.



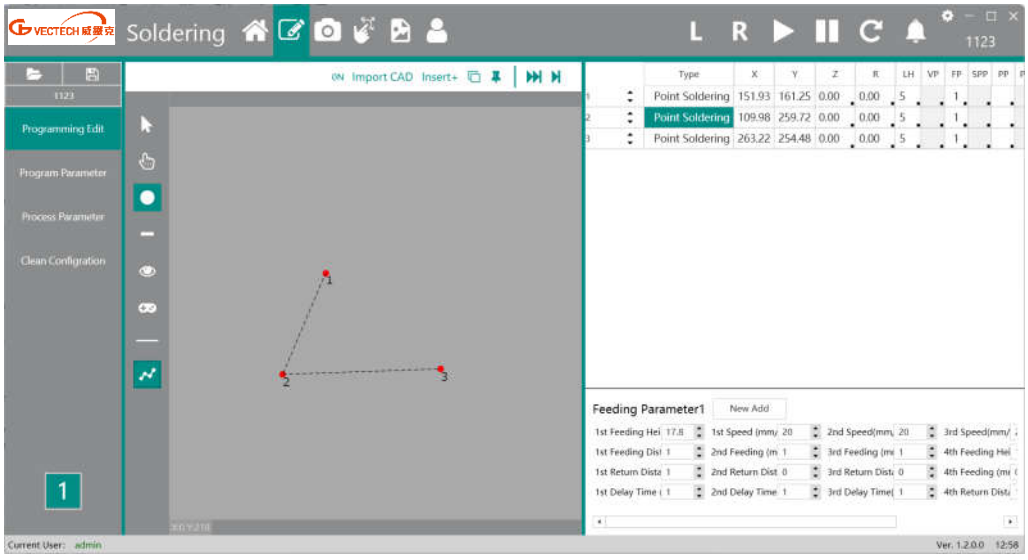
Icon function list:

Icon	Description
	Click on the icon to open the process file. The following icons can only be used when the process file is opened The following icons are not operable unless activated.
	Click the icon to save the modified content of the process file.
	Display the name of the currently opened process.

Icon	Description
	Display work area (1 represents single X-axis and single Y-axis devices; 2 represents dual Y Axis equipment;)
	Click "File Editing" to enter the process editing interface, where users can edit points soldering, drag soldering, visual soldering and other soldering types, refer to document editing.
	Click "File Parameters" to enter the process parameter interface. Users can edit the programming area, running speed, basic parameters, machining parameters, etc. through this interface. Please refer to file Parameter interface.
	Click on "Process Parameters" to enter the machining process parameter setting interface. Users can set parameters such as discharge, side point, pressure, downward pressure, shake soldering, trajectory, etc. through this interface. Refer to Process parameters.
	Click "Cleaning Configuration" to enter the nozzle cleaning settings interface, refer to Cleaning Configuration Set.

1.4.2.1 File editing

Click "File Editing" on the left side of the process interface to enter the process editing interface. When the mouse passes over the icon, the name of the icon will be automatically displayed and the icon will turn green.



1. Operation functional area

- 0N: Display real-time pressure values.
- Insert+: Insert above current point: Select a point and insert directly above it; After clicking, the icon changes to "below the current point". Users can directly insert it below the selected point.
- Cope to: Quickly copy the dual Y-axis program.
- Starting point coordinates: Starting point correction function.
- Simulated operation: Simulate the tin program.
- Single step motion: Simulate motion.

2. Insert Ribbon

Icon	Description
	Select the button, and after clicking the button, the user can select the set programming point (yellow) by holding down the left mouse button to box it. The color dots indicate that the point has been selected.
	Move the button, and after clicking the button, the user can select the programmed point by holding down the left mouse button. When selected, the point will turn yellow. Move the mouse to the programming point (arrow changes to move icon), and drag the mouse to move the point freely and release the mouse to complete the move.
	Soldering point button, click the soldering point button, mouse arrow changes to pencil shape, user clicks in the middle soldering points appear after the trajectory area, and the number next to the soldering point indicates the processing sequence of this soldering point.
	Drag soldering button, drag soldering must input two soldering points, the starting point and the ending point. Click the drag soldering button mouse Turn the arrow into a pencil shape, hold the mouse and move it to another point, then release the mouse to complete the drag weld endpoint.
	Visual point button, clicking the button will pop up a visual editing window, and users can set visual scanning points Multi functional visual recognition, MARK, and AOI, refer to visual localization.
	Teach the button for selecting points and insert the function of isolated soldering

Icon	Description
	points.
	Alternative features.
	Display the path button, click the button to display/disable the path function.

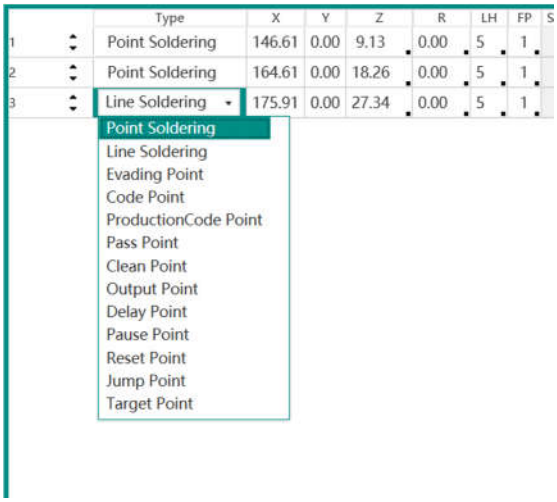
1. Image display area

Users can insert the required functions in this area, and the equipment processing process can also be displayed in real-time in this area.

2. Function List

Users can manually modify relevant processing parameters.

1.4.2.2 Soldering point description



Line Soldering: The linear soldering points are used to set the relevant position parameters for soldering along a straight-line trajectory, and control the soldering head to complete the soldering operation along a straight-line path.

Evading Point: The obstacle avoidance points are the position points set during the soldering process to enable the soldering head to avoid the obstacles around the workpiece, ensuring the safe and smooth progress of the soldering operation.

Code Point: The code points are related to the code recognition during the soldering process, and the code recognition is triggered at the set point.

Pass Point: The passing points are the non-critical operation position points passed by the soldering head during its movement. They are mainly used for path planning, enabling the soldering head to move to the target soldering position along the set route.

Clean Point: The cleaning position points instruct the soldering head to move to this position for

cleaning operations, such as removing the slag and impurities on the soldering head, to ensure the soldering quality.

Output Point: The output position points are related to the output signals of the soldering machine, such as the signal indicating the completion of soldering and the device status signal, etc., and are used for interaction with external devices or systems.

Cylinder Point: The cylinder position points are related to the actions of the cylinder on the soldering machine. At this position point, the cylinder can be controlled to perform actions such as extension and retraction at a specific position to assist the soldering process, such as clamping or releasing the workpiece.

Delay Point: At this position point, a certain time delay is set, which can be used to control the pause time during the soldering process. For example, after completing the soldering of one soldering point, there is a short pause before the next operation is carried out.

Pause Point: When the soldering machine runs to this position, it pauses the current operation, making it convenient for the operator to carry out inspections, adjustments, etc., and can continue running afterwards.

Reset Point: The reset position points make certain components of the soldering machine or the entire system return to the initial state. For example, the soldering head returns to the initial position, and the relevant parameters are restored to the default settings, etc.

Jump Point: When the soldering machine runs to this point, the program can jump to other specified program segments or positions according to the settings and continue to execute, which is used for flexibly planning the soldering process.

Target Point: The target position point is the target position for soldering, and the soldering head finally moves to this position to carry out the soldering operation.

Height Point: At this position point, height measurement is triggered to ensure that an appropriate distance is maintained between the soldering head and the workpiece, ensuring the soldering effect.

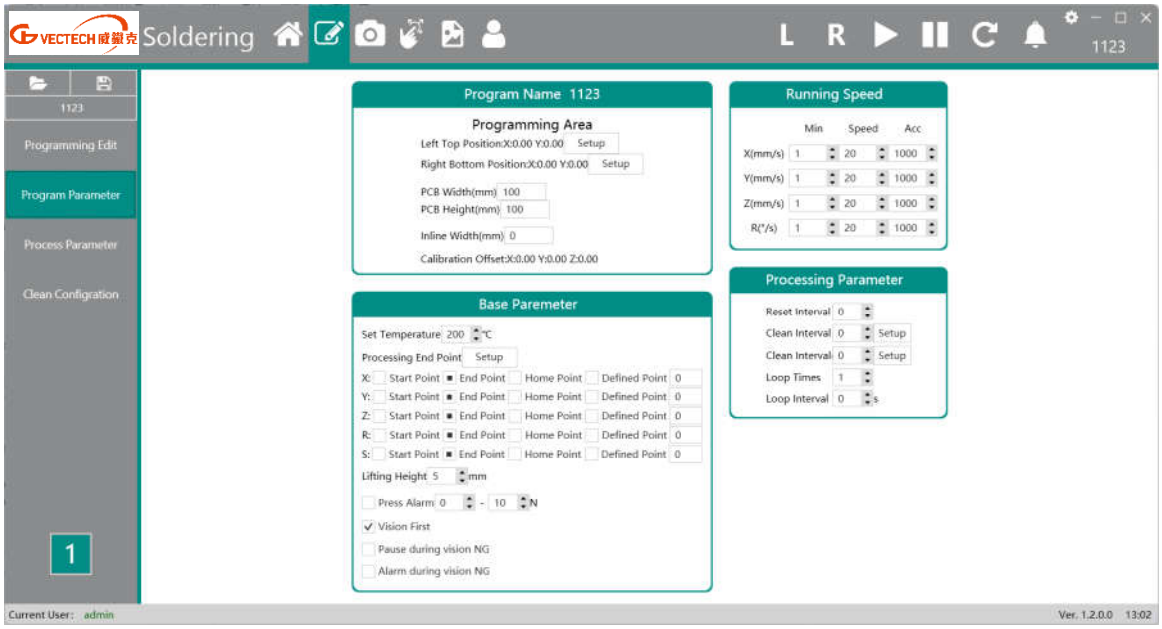
PCB PressHeight Point: The pressing height position point of the PCB is used to set the height position of the pressing mechanism when there is a pressing operation involved in PCB soldering, ensuring the accuracy of the pressing force and position.

PressHeight Point: At this position point, the height measurement for the pressing operation is triggered.

Rotation Point: The rotation position point controls the soldering head to perform a rotation action at this position to meet the soldering requirements at different angles.

NOTE：Some points are of non-standard configuration. Please refer to the actual software interface.

1.4.2.3 File parameter interface



Running speed: The speed and acceleration of the motion axis during the equipment processing. Set temperature: The temperature of the Soldering tip during the soldering process.

Processing end point: The stopping point of the motion axis after the current process is completed, which defaults to the execution of the reset program at the end of processing. Lifting height: The height at which the Soldering tip needs to be lifted before moving to the next processing point after completing the processing point. This height is used to prevent the Soldering tip from colliding with the fixture.

Pressure detection alarm: Selecting this function is effective, indicating that when the pressure detection device detects the pressure within the alarm range, it will automatically sound an alarm to remind the user that the pressure is not within its working range.

Visual priority: Enabling visual priority will first execute all visual related processing programs before enabling soldering programs. Reset every N times: Automatically execute the reset program after executing the machining program N times continuously.

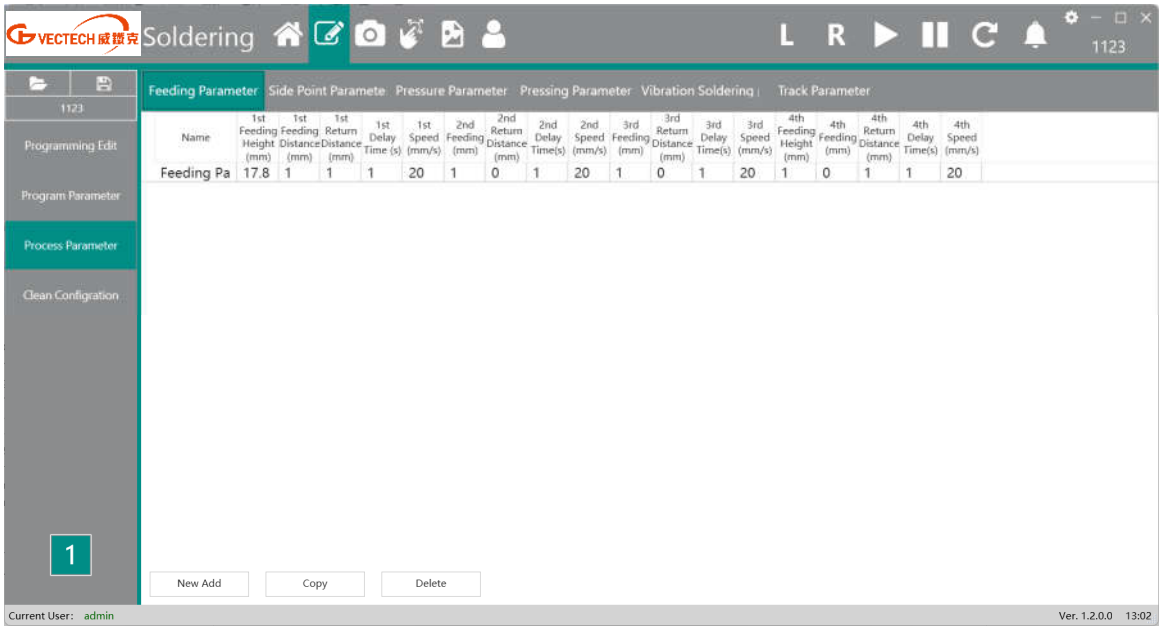
Every N cleaning cycles: After executing the machining program N times continuously, the cleaning program is automatically executed. Cycle count: The number of times a machining program is executed continuously.

Cycle interval: The time interval during continuous processing.

1.4.2.4 Process parameters

Click on "Process Parameters" on the left side of the process interface to enter the process parameter setting interface. Users can set parameters such as discharge, side point, pressure, downward pressure,

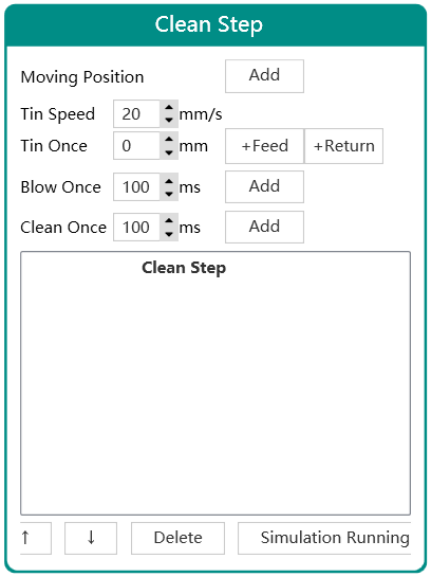
shake soldering, and trajectory.



Users can directly input corresponding parameters according to production process requirements and click the icon  to save.

1.4.2.5 Cleaning configuration

Click the "Cleaning Configuration" button on the left side of the process interface to enter the cleaning function setting interface. Users can set parameters such as the tin dispensing speed, blowing time, and cleaning time during the soldering process.

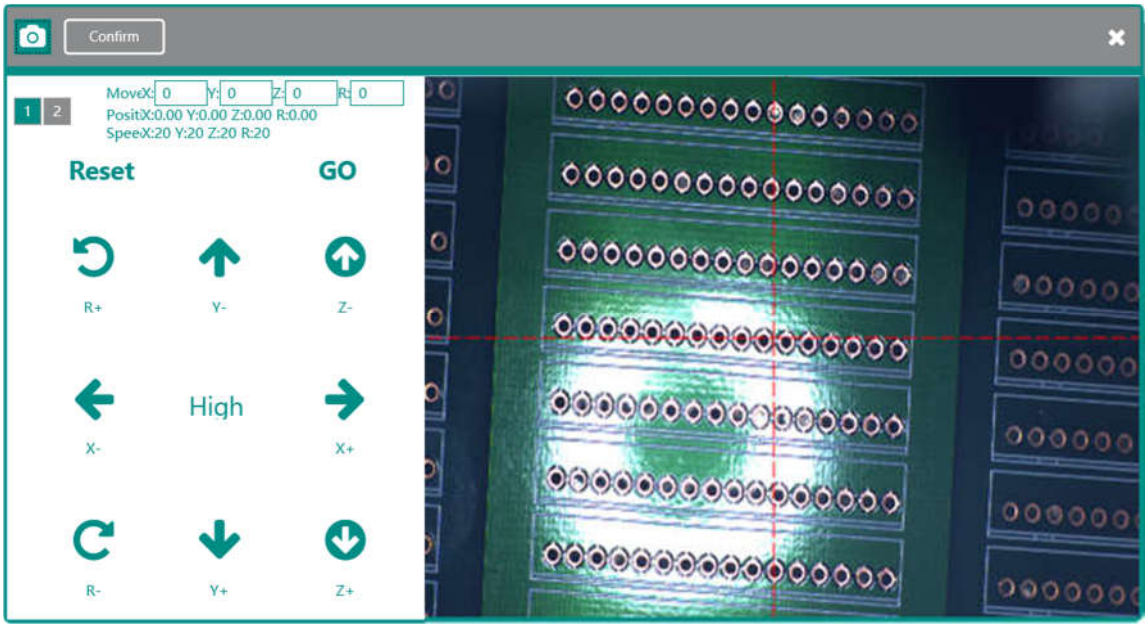


List of cleaning configuration button functions:

Icon	Description
Add	The "Add" button after clicking "Move Location" will automatically pop up a move window, and users can use it to move the Soldering tip to the cleaning position with the motion direction key, and click "OK" to disappear the window.
+Return	Click the "Return" button, and the tin wire will be soldered back once according to the set "Single Tin Return" length.
Add	1. After clicking "blow once", the corresponding "add" button will automatically copy the "blow once" function in the last column of the list; 2. After clicking "Clean Once", the corresponding "Add" button will automatically repeat in the last column of the list to create a "one-time cleaning" function.
↑	Option up button.
↓	Next button for the option.
Delete	Option deletion button.
Simulation Running	The equipment runs according to the cleaning program and is commonly used for debugging processes.
+Feed	Click the "+ Feed" button, and the tin wire will be tin fed once according to the set "Single Tin Discharge" length.

1.4.2.6 Camera moving window

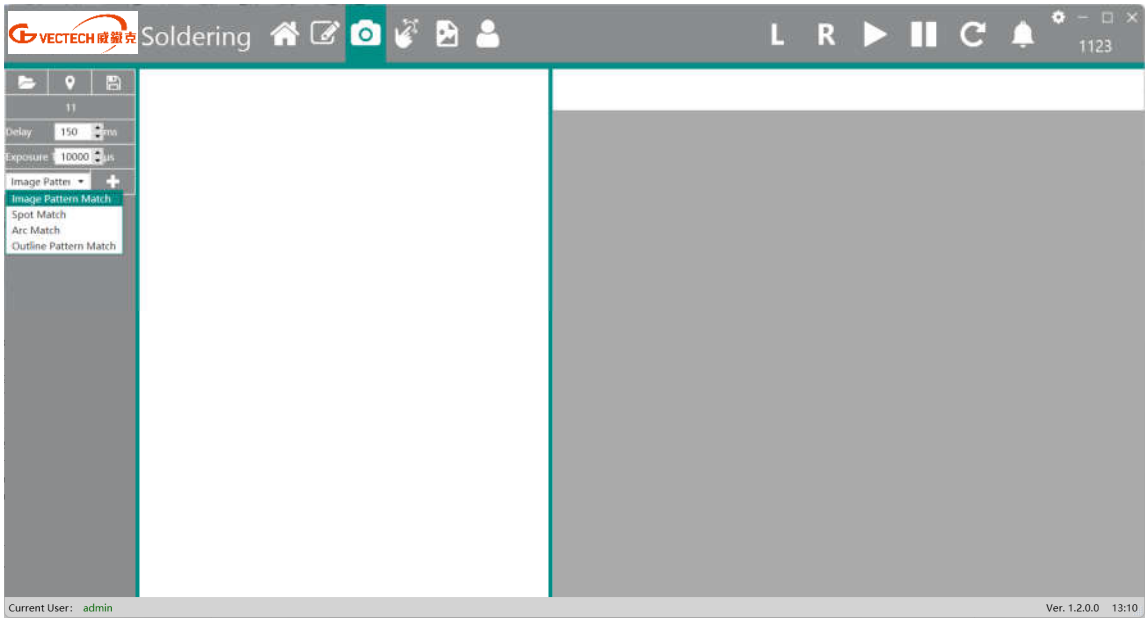
On the process interface, click the icon ( ) to enter the camera movement window, and click the camera icon ( ) in the upper left corner to open the right camera capture image area, as shown in the following figure:



After confirming that the remote control is connected (see interface configuration for remote control connection status), open the pop-up interface shown in the above figure. By moving the corresponding coordinates on the remote control, move the red cross center of the camera in the view to the specified coordinate position. For detailed operation steps, please refer to the remote control user manual.

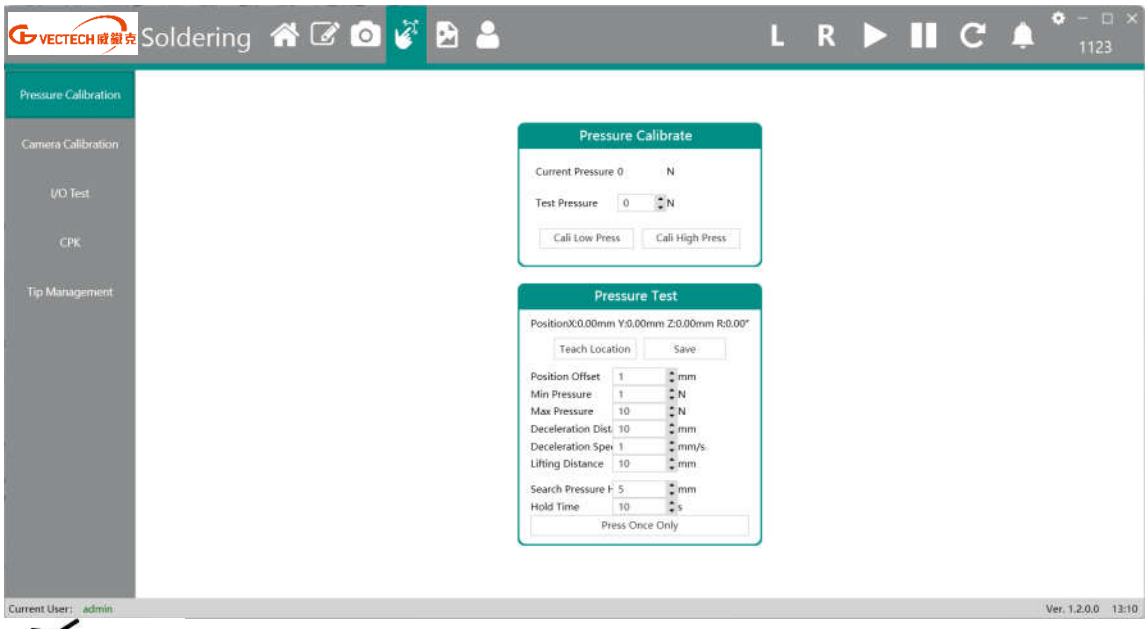
1.4.3 Visual interface

Click on the camera icon in the title bar to directly enter the visual interface, where users can edit image matching features such as spot recognition, shape matching, AOI, etc.



1.4.4 Inspection interface

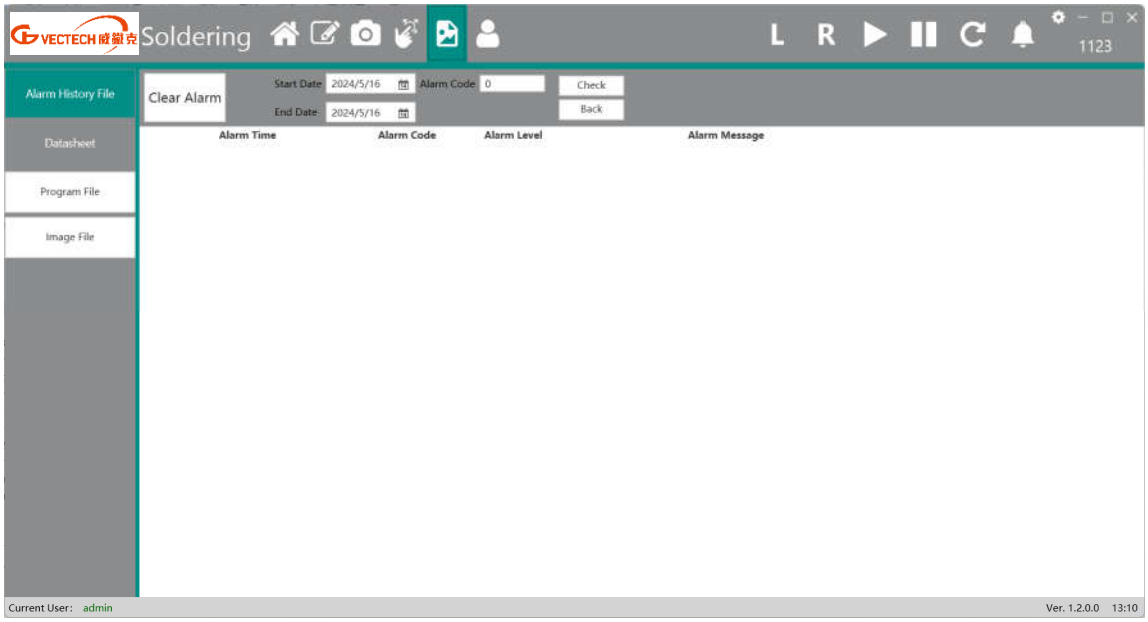
Click on the icon in the title bar to directly enter the inspection interface, which can be used for temperature calibration, pressure calibration, camera calibration and other functional operations.



NOTE Temperature calibration is only valid when installing a temperature calibrator, otherwise it is valid based on the temperature calibration of the soldering station.

1.4.5 Report interface

Click on the title bar icon to enter the report interface, where users can view alarm logs, run files, image files, and other content.



Users can view all logs through system configuration, with the following steps: right-click on the software shortcut icon>>click on properties>>select shortcut>>click on open file location>>select folder.

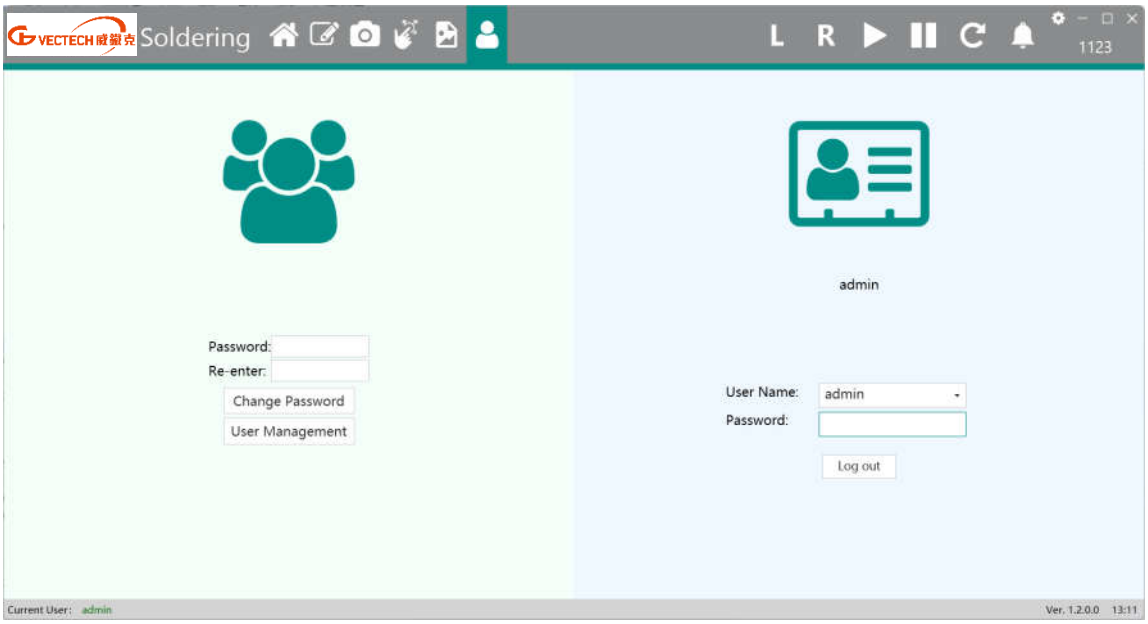
List of folder features:

Extension	Type	Description
. XML document	Visual folder	The Visual folder is used to view visual recognition parameters.
. XML document	Mould folder	The Mold folder is used to view machining process parameters.
. XML document	Workplan folder	The Workplan folder is used to view soldering parameters and configuration information.
. CSV document	Data folder	The Data folder is used to view soldering process, time, structure, scanning information, and other content.
. JPG	Vision folder	The Vision folder is used to save the images captured by the camera during the visual process Picture.
. txt	Alarm folder	The Alarm folder is used to store all alarm information in the software.
. txt	LogAlarm folder	The LogAlarm folder is used to view alarms or anomalies that have occurred on the device Regular content, displayed in list form.

1.4.6 User Menu

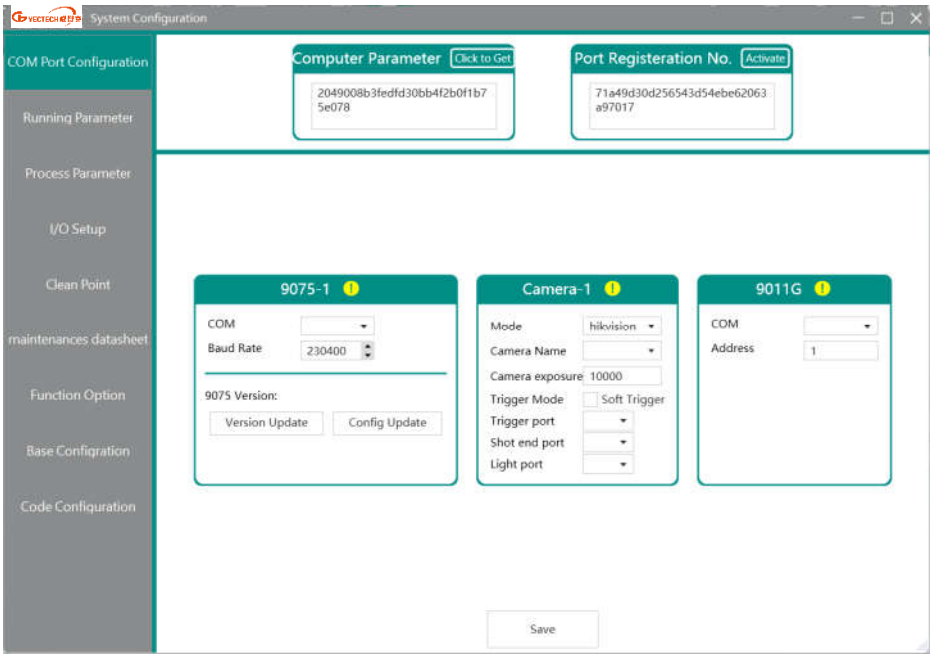
Click on the title bar icon  to enter the user interface, which is used for password modification and

equal permission allocation functions.



1.4.7 System settings window

Click on the icon in the upper right corner of the title bar to enter the system settings window. This window can be used to configure interfaces, operating parameters, process parameters, motherboard I/O settings, cleaning points, maintenance records, track parameters, PLC I/O settings, functional configuration, basic configuration, scanning settings, and other functions.



Click on the yellow circle to connect for communication, and after normal communication, the power plug icon will be displayed.

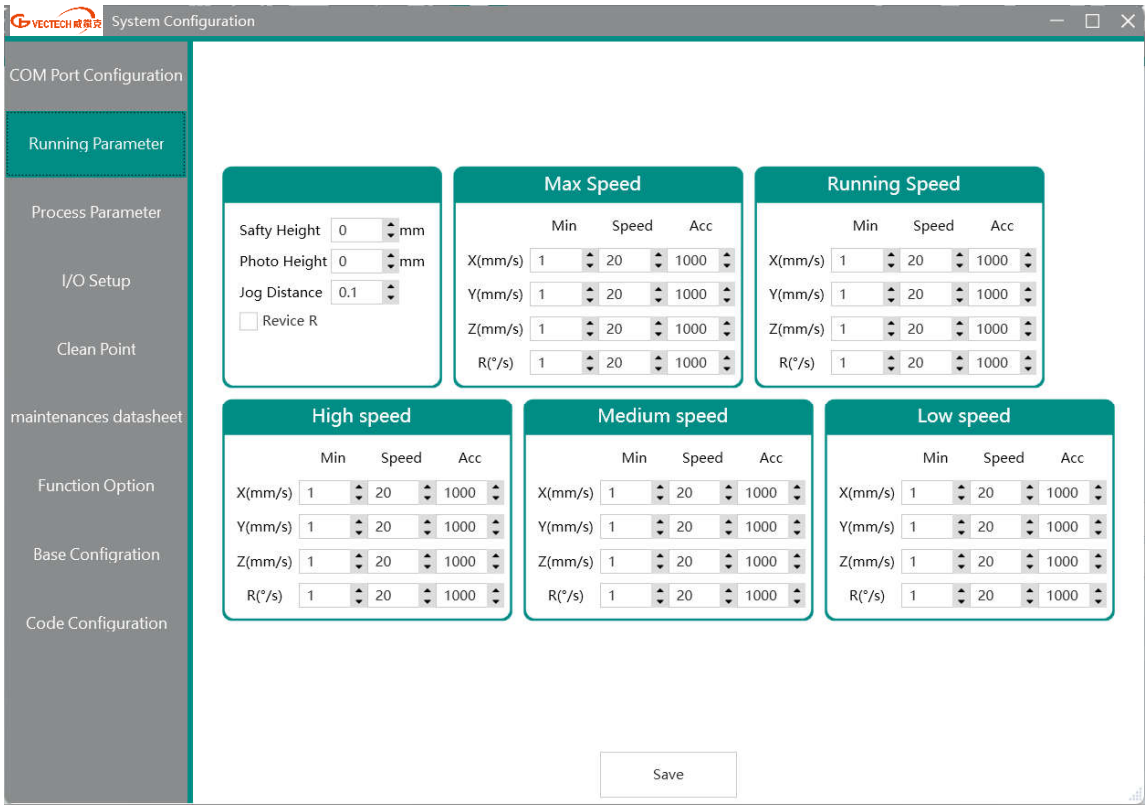
Computer parameters: Clicking to obtain will automatically display a serial number for the computer, which is the ID that identifies the device. Interface registration number: Clicking

activate will automatically display the interface serial number.

 : Indicates abnormal communication between the component and the device. Click the icon to make a communication connection.

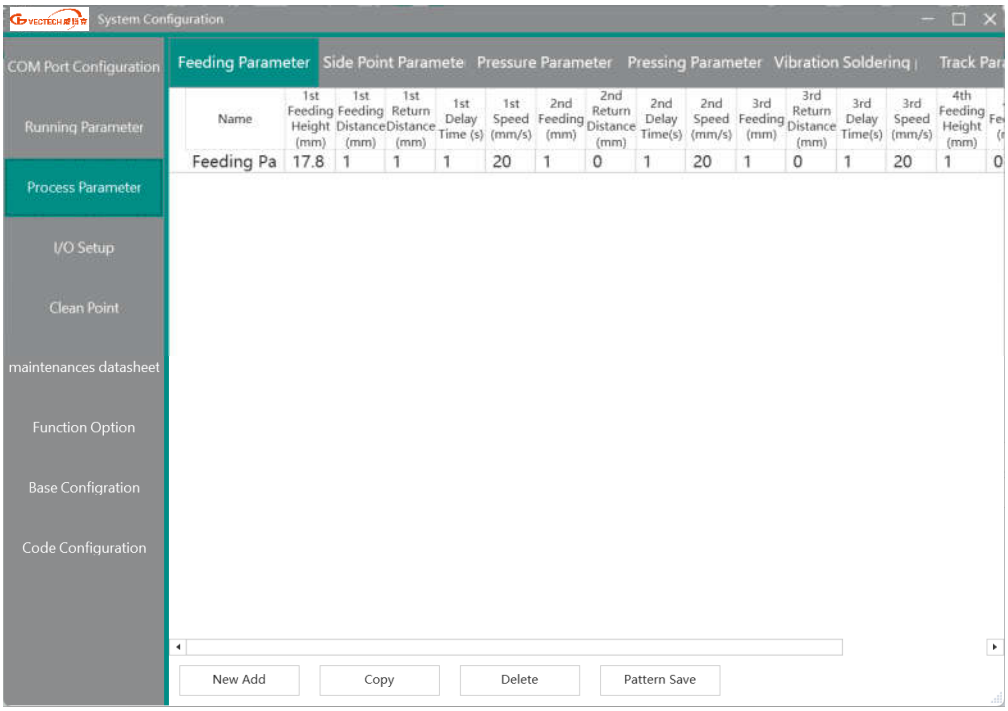
 : Indicates that the communication between the component and the device is normal.

1.4.7.1 Running parameters



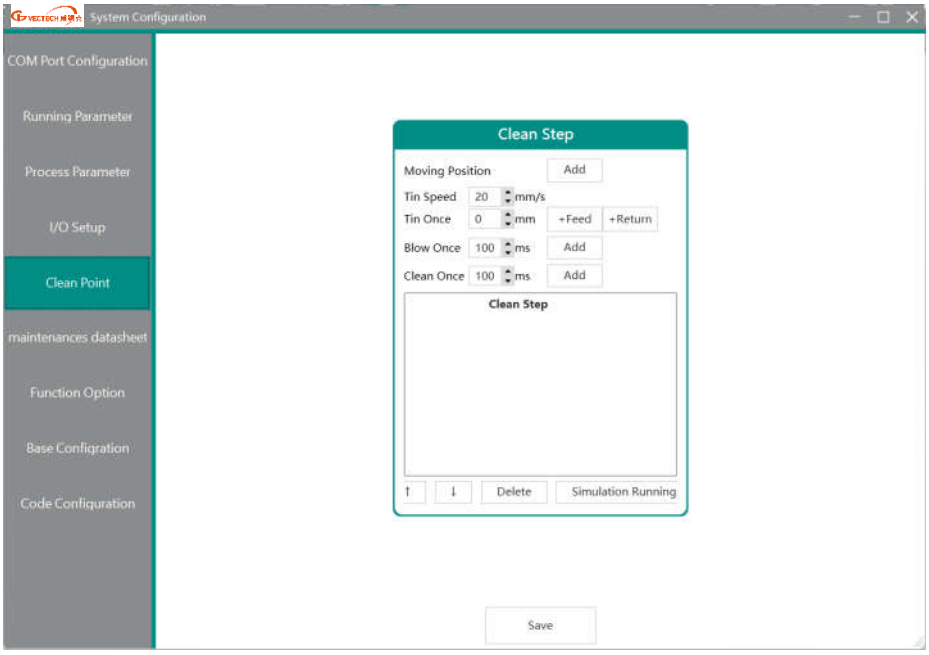
Users can directly input the relevant parameters during device operation through the keyboard, and click save to confirm the modification of the parameters.

1.4.7.2 Process parameters



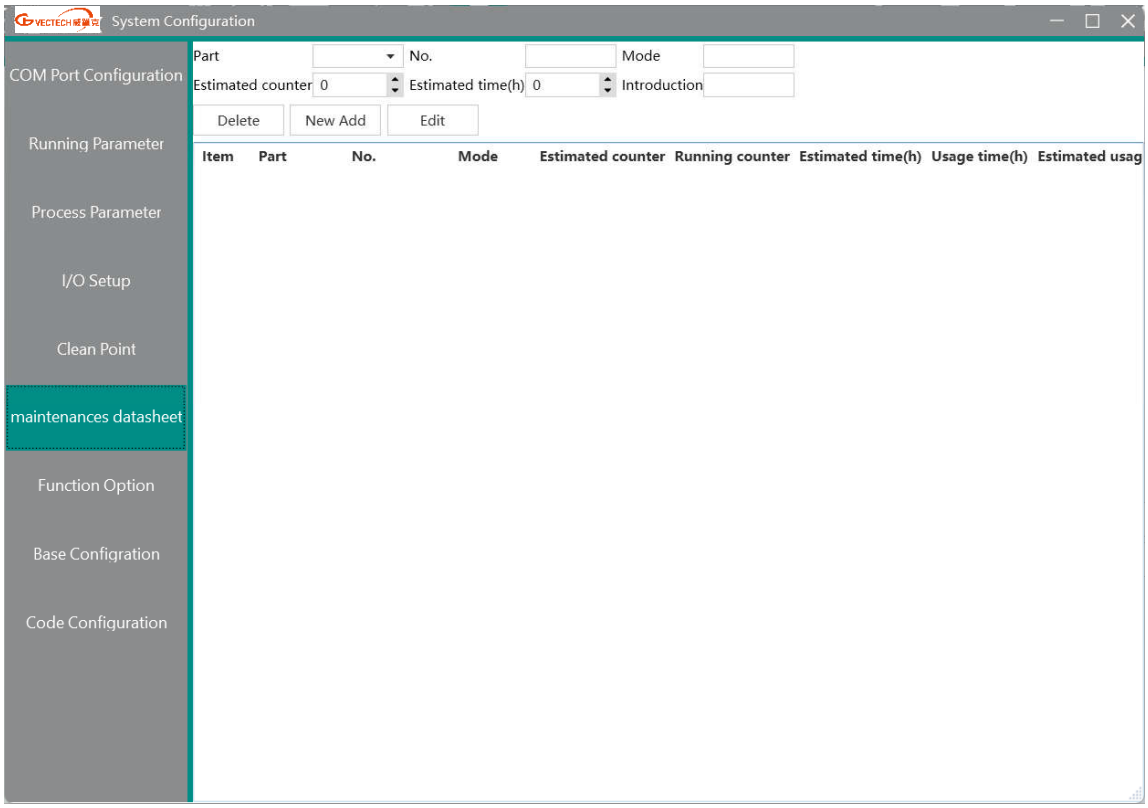
Used for setting parameters such as discharge, side point, pressure, downward pressure, shake soldering, trajectory, etc. Click on the template to save the modified parameters.

1.4.7.3 Clean parameters



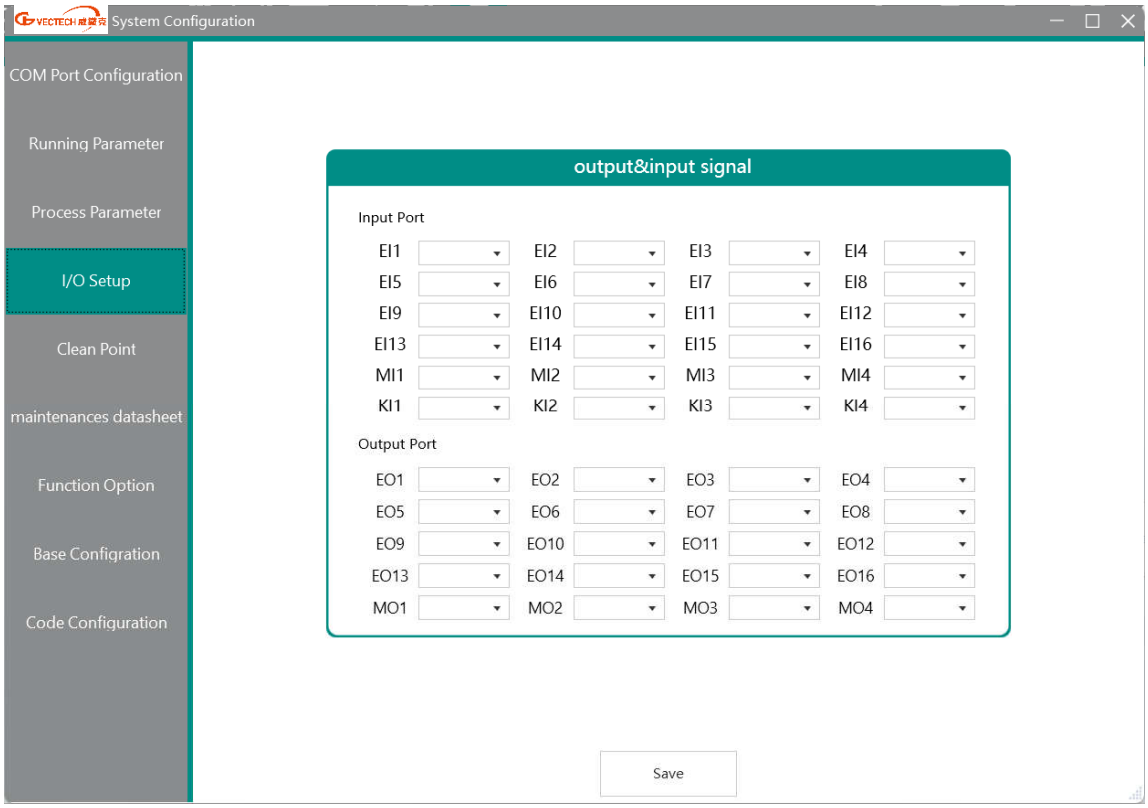
This interface is used for cleaning settings of the Soldering tip during the soldering process, refer to Cleaning Configuration.

1.4.7.4 Maintenance records



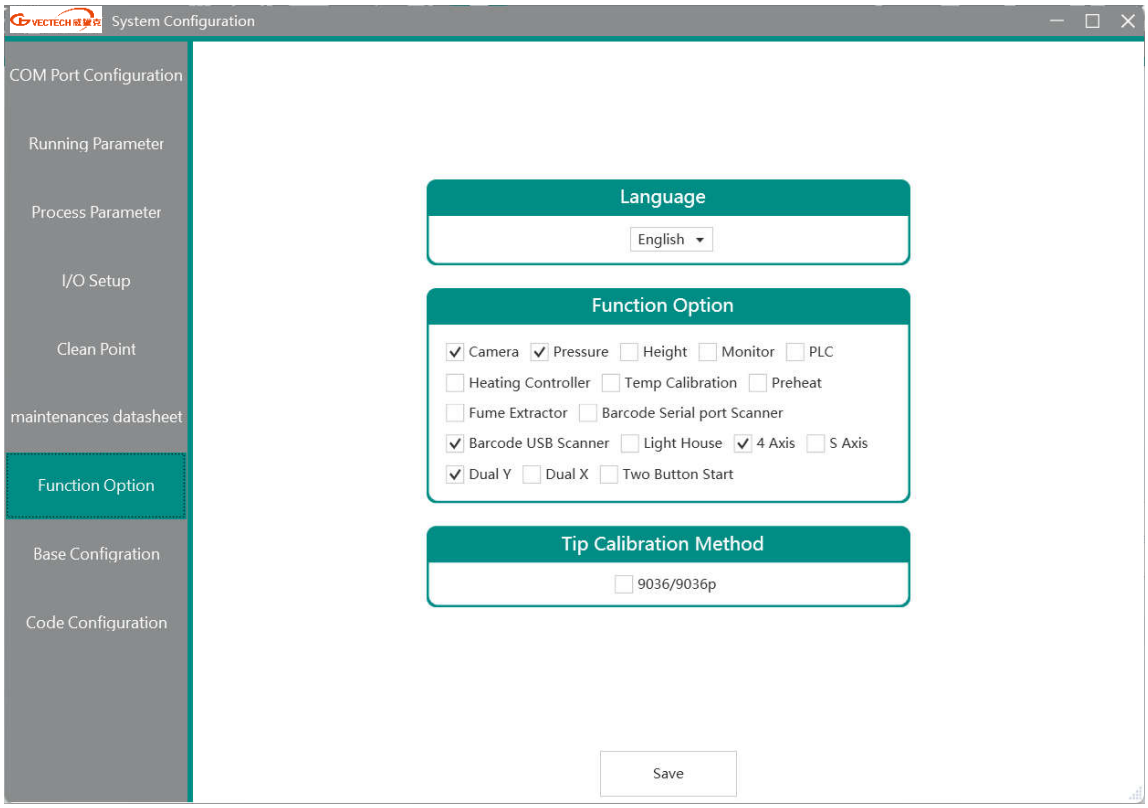
Set maintenance related information, users can set estimated total frequency, estimated total time, and other information based on the service life of the equipment.

1.4.7.5 Main Board I/O settings



Users can define the main board input and output port functions based on electrical drawings, and click save to save the parameters.

1.4.7.6 Functional configuration

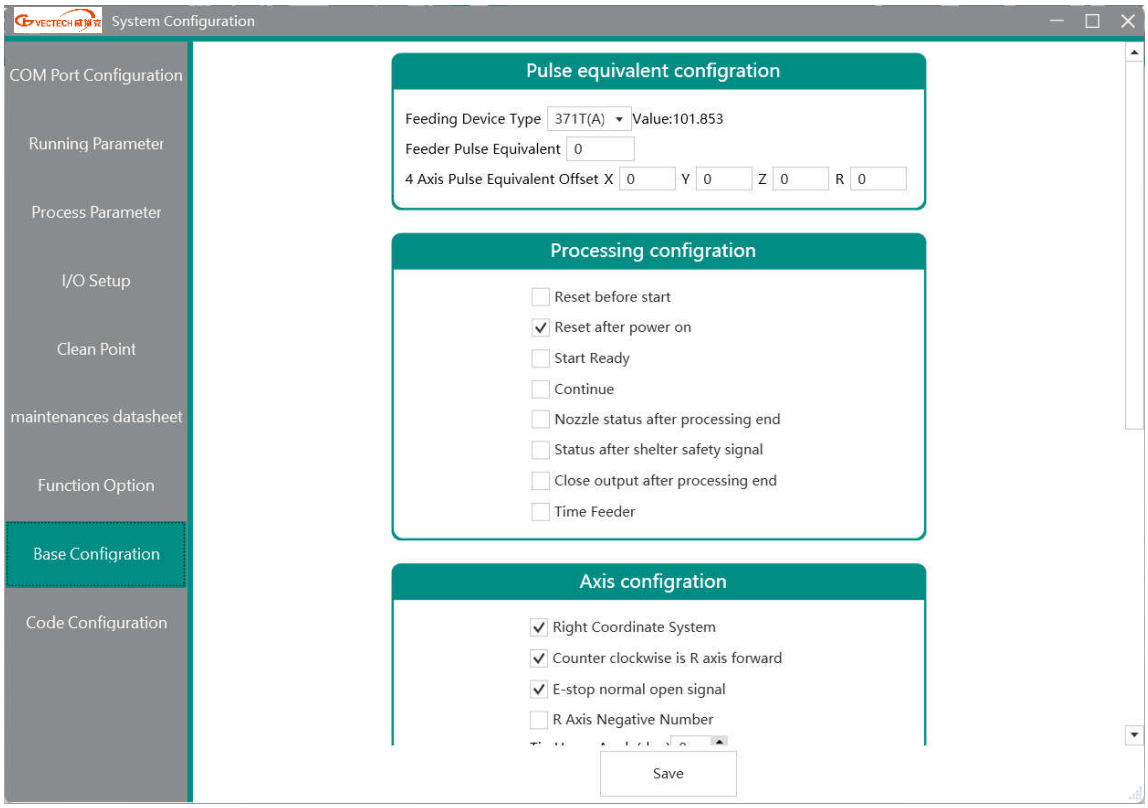


Language selection: This software supports both Chinese and English languages.

Functional configuration: Users can choose the corresponding configuration based on the device configuration type.

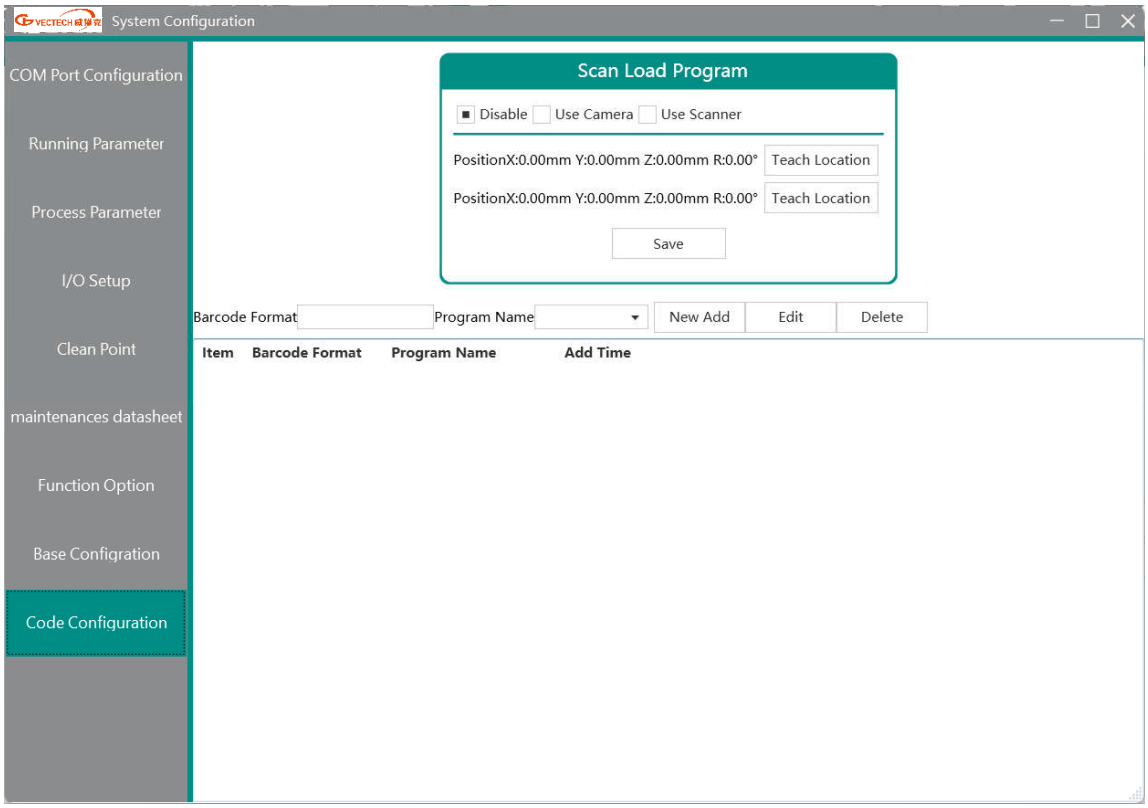
Soldering head calibration method: 9036 is the Soldering tip calibration device, and 9036P is the material head calibration device.

1.4.7.7 Basic configuration



The basic configuration window is used to configure parameters such as pulse equivalent configuration, machining process configuration, and shaft system configuration.

1.4.7.1 Scan Code Settings



This software supports three scanning and calling program modes: camera scanning, scanning gun scanning, and not using (indicating that the scanning and calling program function is not enabled). For detailed operation steps, refer toCamera Scanning.

QR code rule: Within the same process file, the corresponding scanning program can be called by entering the QR code.

2. System Configuration and Settings

2.1 User login

This software includes password protection function
and requires correct login to the software. Login steps:

1. Double click on the desktop shortcut  ;

➢ The software directly enters the user login interface shown in Figure **3-1**, as shown in the following figure.

Figure 3-1 User Login

2. Select the corresponding user name;

➢ The factory default username is admin and password is 1.

3. Enter the correct password in the password area;
4. Click Login.

➢ Successful login will automatically open the main interface, and a login success pop-up will appear in the lower right corner. Welcome **admin**! pop-up notification

➢ Login failure will result in an account or password error pop-up in the lower right corner of the login interface! Pop up, users need to re-enter their username or password.

2.2 Language selection

This software supports both Chinese and English languages, and users can select the desired language through the language selection drop-down list.

NOTE: The default language of the software at the factory is Chinese. After selecting the language, the software needs to be restarted to take effect. Language setting steps:

1. Click on the system settings in the upper right corner of the main interface;

2. Select function options on the system configuration interface;
3. Select the desired language in the language selection window.
4. Click Save.
5. Close and restart the software.

➢ The selected language is effective.

NOTE: Language selection can only be made after the user logs in correctly.

2.3 User level

This software includes password protection function, and different levels of users have different permissions. There are a total of five levels of users in this software.

- operator

View the monitoring page, login page - change password, system configuration - interface view, and system configuration.

- Process Engineer

  In addition to operator permissions, it also has the function of viewing the inspection interface.

- Equipment Engineer

  In addition to having the authority of a process engineer, it also has the ability to view and modify file pages, visual parameter pages, process pages, system configuration PLC I/O, system configuration PLC, system configuration cleaning points, and system configuration process parameter functions.

- System Engineer

  Has the ability to view and modify all interfaces except for user editing.

- administrators

  Browse and modify all interfaces and windows.

User management settings steps:

1. Click on the user icon in the title bar;
2. Click on User Management;
3. The user management window opens, as shown in the following figure.

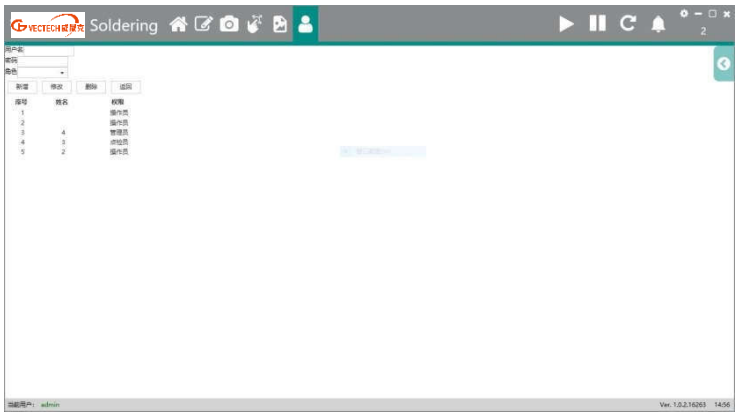


Figure 3-2 User Management Window

4. Click on the role and select the desired user level from the drop-down list. Enter the new user name and password;
5. Clicking on Add will automatically save the newly created user information.

- If no user information is selected, the new user information will automatically appear in the last column.
- If a user information is selected, the new user information will automatically appear in the first column.

6. If you need to modify relevant user information, click modify and enter the required user information;
7. Click confirm to save, click return to exit the current window.

NOTE: Only users with administrator privileges can perform the above operations.

2.4 Password Reset

Passwords support combinations of numbers and uppercase and lowercase English letters or can be used alone, and passwords can support up to 11 characters. Password setting steps:

1. Click on the user in the title bar;
2. Select the user name that needs to be modified;
3. Enter a new password in the new password area;
4. Click on Change Password.

- The bottom right corner will pop up successfully edited! Window, indicating successful password modification.

2.5 Operation permissions

Users can set different levels of users according to production needs. This software defaults to five user levels, as shown in the following figure.

- operator

View the monitoring page, login page - change password, system configuration - interface view, and system configuration.

- Process Engineer

In addition to operator permissions, it also has the function of viewing the inspection interface.

- Equipment Engineer

In addition to having the authority of a process engineer, it also has the ability to view and modify file pages, visual parameter pages, process pages, system configuration PLC I/O, system configuration PLC, system configuration cleaning points, and system configuration process parameter functions.

- System Engineer

Has the ability to view and modify all interfaces except for user editing.

- administrators

Browse and modify all interfaces and windows.

3. Settings before Operation

3.1 Communication settings

Different computer parameters correspond to independent interface registration numbers. If there are any issues, please contact our factory.

9075 connection requires the correct connection to the COM port. Setting the default baud rate to 230400 will display 9075 after the connection is completed Version information for.

Temperature control configuration: Correctly connect to COM port, default baud rate 115200, set address 20

Camera configuration: Select the corresponding model, the software will automatically read the camera configuration and display the model name of the camera. After completing the camera exposure setting, open the camera tutorial pop-up window to display different lighting effects

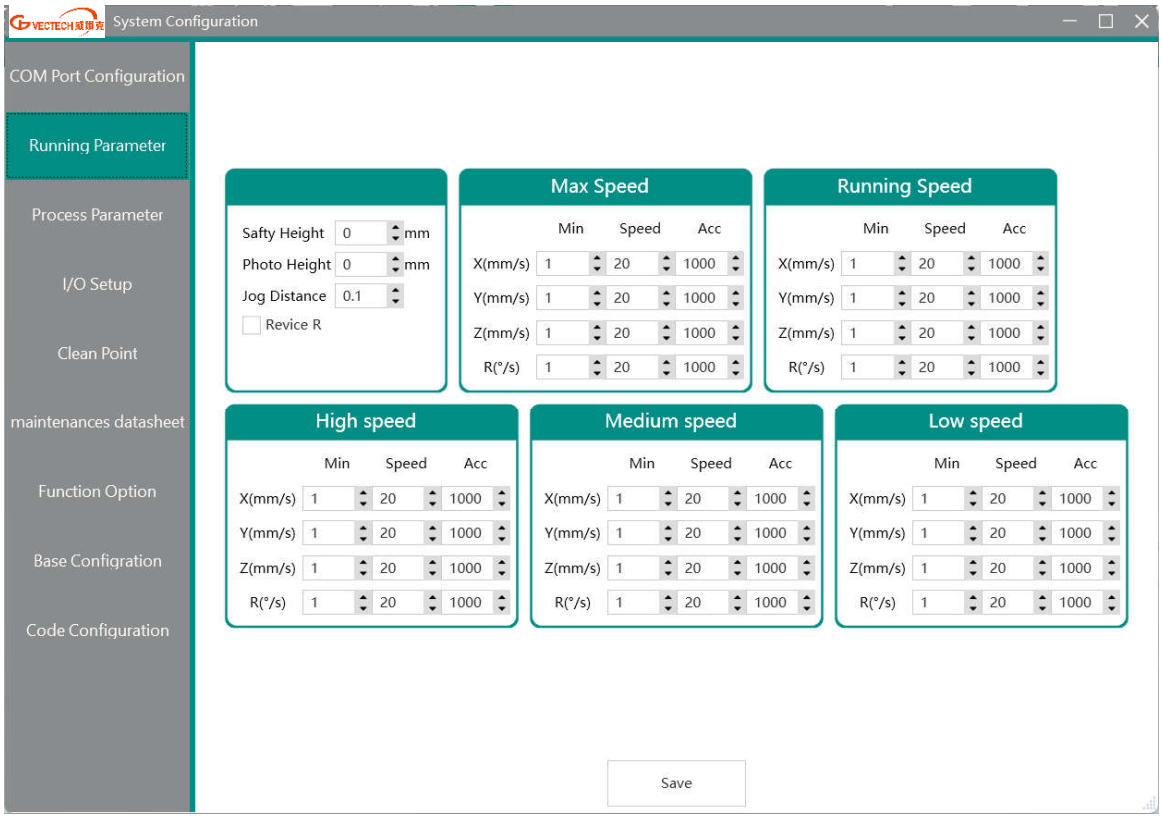
PLC communication: Confirm that the IP address port of the PLC is set to a certain value by default. Set the timeout connection delay and number of reconnections to 1. The default address is 0.

9011G remote control: Set the corresponding COM port address according to the remote control. Please refer to the remote control instructions for details.

Preheating: Set the corresponding COM port to set the default baud rate of 115200, and the default address is 1.

Height measurement: Set the correct COM port baud rate and the default connection is 230400. Click the "Execute Height Measurement" button to confirm the actual distance between the current height measurement instrument and the object being measured.

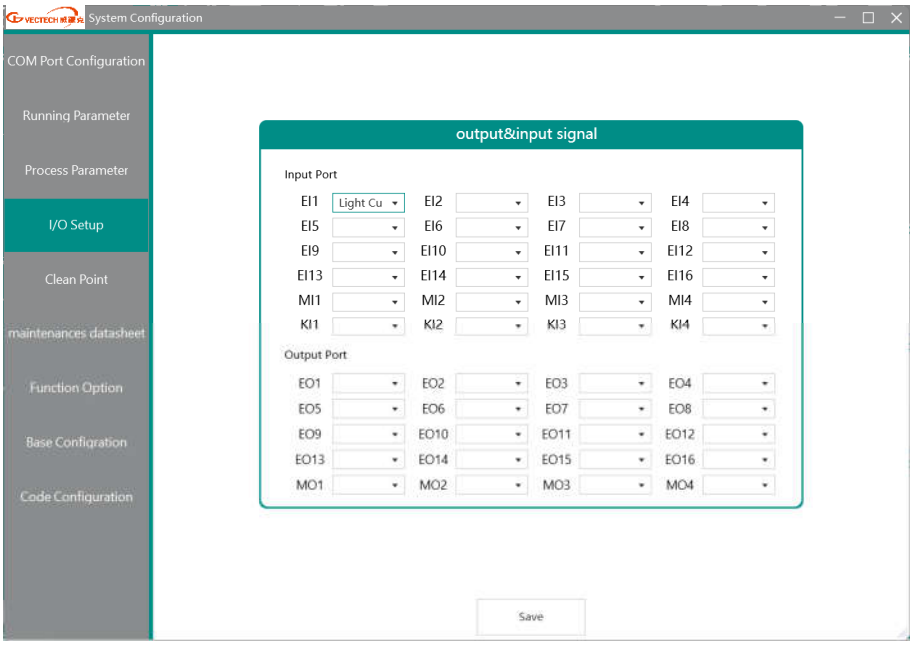
3.2 Running speed setting



Users can input the equipment's operating speed according to the soldering process requirements, including maximum speed, operating speed, high speed, medium speed, and low speed.

3.3 Input/output settings

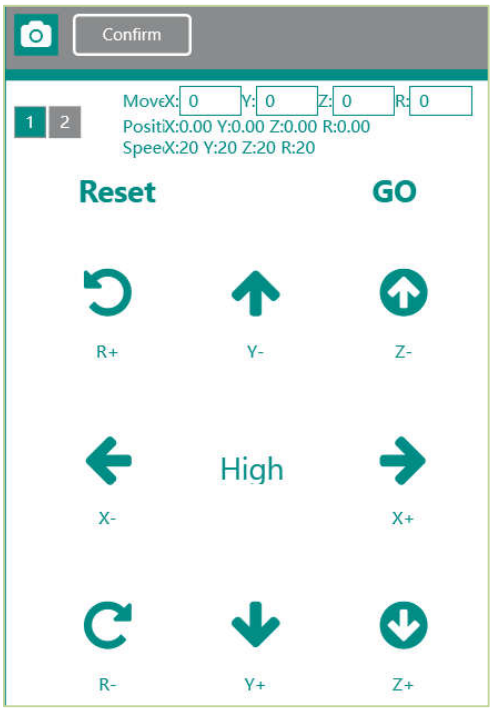
The I/O ports of the corresponding machine have been configured before leaving the factory, as shown in the following figure:


System Configuration
COM Port Configuration
Running Parameter
Process Parameter
I/O Setup
Clean Point
maintenances datasheet
Function Option
Base Configration
Code Configuration
output&input signal
Input Port
EI1 Light Cu
EI2
EI3
EI4
EI5
EI6
EI7
EI8
EI9
EI10
EI11
EI12
EI13
EI14
EI15
EI16
MI1
MI2
MI3
MI4
KI1
KI2
KI3
KI4
Output Port
EO1
EO2
EO3
EO4
EO5
EO6
EO7
EO8
EO9
EO10
EO11
EO12
EO13
EO14
EO15
EO16
MO1
MO2
MO3
MO4
Save

4. Program Beginning

4.1 Manual operation window

1. Open the icon on the process interface and the following window will pop up:



2.The icon represents the X- axis moving away from the origin direction (the axis will stop moving when it reaches the maximum stroke), and the icon represents the X-axis moving towards the origin direction (clicking the button will stop the axis when it is at the origin).

3.The icon represents the Y-axis moving away from the origin direction (the axis will stop moving when it reaches its maximum stroke), and the icon represents. Move the Y-axis towards the origin direction (clicking this button will stop the axis when it is at the origin).

4.The icon represents the Z-axis moving away from the origin direction (the axis will stop moving when it reaches the maximum stroke), and the icon represents the Z-axis moving towards the origin direction (clicking the button will stop the axis when it is at the origin).

5.The icon represents the counterclockwise movement of the R-axis away from the origin (the axis will stop moving when it reaches its maximum stroke), the icon represents the clockwise movement of the R-axis away from the origin (the axis will stop moving when it reaches its maximum

stroke).

6.Click icon GO to confirm the points to be soldered and click on the icon Confirm to confirm the corresponding points.

4.2 Soldering tip cleaning settings

Click "Add" after "Move Position" in the cleaning configuration window to pop up a teaching pop-up window (for reference). Move the soldering tip to the blowing position, set the cleaning time for "One Blow", and then click "Add". Similarly, add a clean location by clicking on the move position and adding it to the desired coordinate position. Set the parameters for cleaning once and click "Add". In certain situations, such as on assembly line machines, in order to extend the lifespan of the soldering tip, a certain amount of tin wire is set up after cleaning to maintain the tin surface on the soldering tip. The wettability of the tin can be added by simply setting the tin dispensing speed and clicking the icon for a single tin dispensing volume. The various movements within the cleaning action

To delete, you can select the corresponding action with the mouse and click the icon to move it up or down. If the cleaning action is set incorrectly, select the wrong cleaning action step with the mouse and click the "Delete" button to delete it. After confirming the set cleaning action, click "Simulate Run" and the machine will perform various actions within the cleaning action for simulation.

(Note: After the cleaning point settings in the system settings are completed, the cleaning points in the newly added process will default to this setting.)

4.3 File save address

1.Project directory/Visual: The location where visual parameters are saved after editing

2.Project directory/Mold: Location of process parameter template files

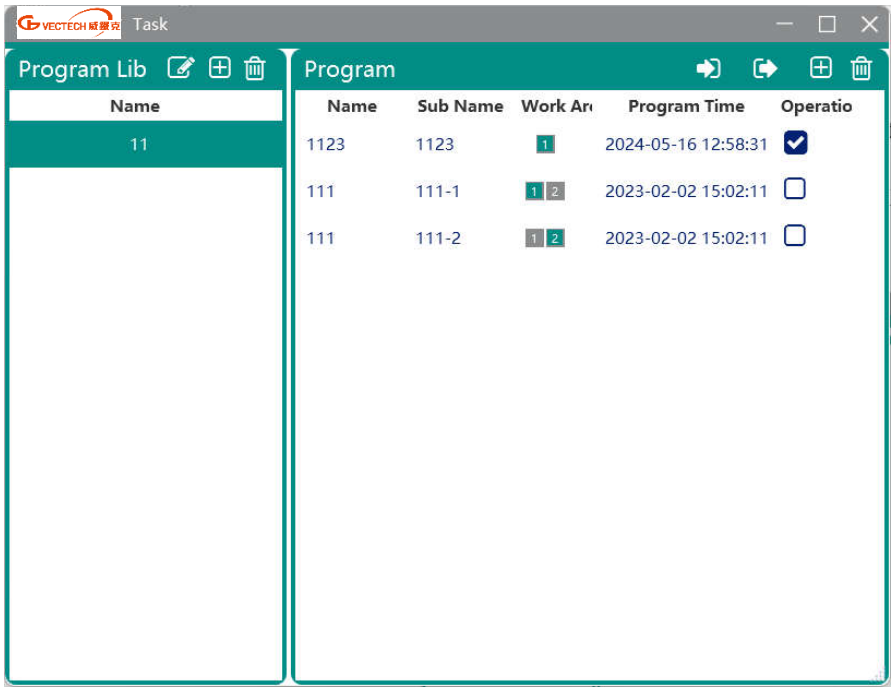
3.Project directory/WorkPlan: Process data file location

4.Project directory/Data: Soldering log file

5.Project directory/Vision: Visual image files

6.Project directory/Alert: Alarm information

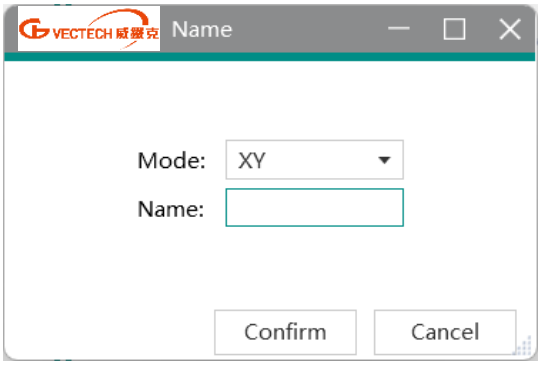
4.4 File (process) creation



There are two ways to enter the process library window: ① Click on the process name in the upper right corner of the title line (2); ② In the process interface, click the load ( ) button to enter the process library editing interface, as shown in the following figure:

Steps for creating a new process file:

① Click the New () button in the left process library window, and the following window will pop up.



② Enter the name of the process library, click OK, and the window will disappear.

➢ The process library name will automatically be displayed in the left window.

③ Select the process library where you want to create a new file.

④  Click the File New button in the window on the right, and the following window will pop up.

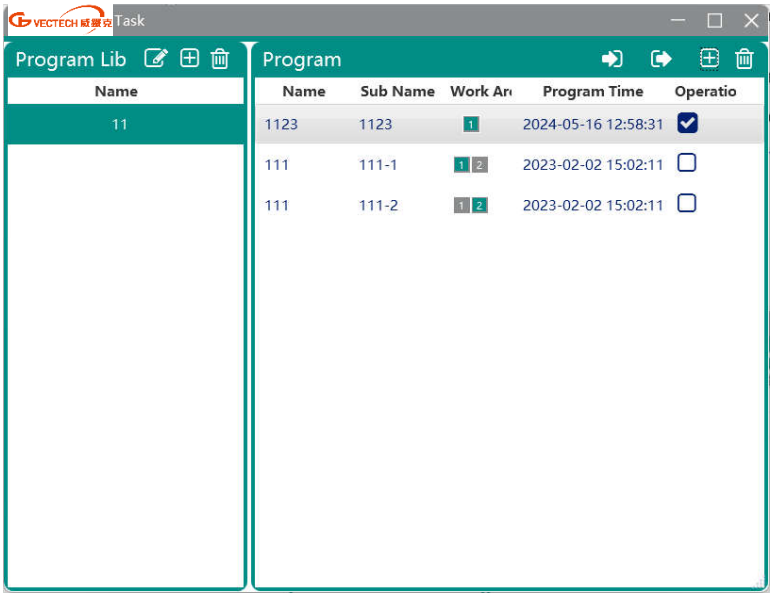
⑤ Enter the name of the new file, click OK, and the window will disappear.

➢ The process file name will automatically be displayed in the right window.

After creating the process file, users can refer to Chapter 5 Advanced Programming and Editing Process Files.

4.5 File (process) modification

① Open the process window and the following window will pop up.



② Select the process library name.

③ Click the edit () button in the process library window.

④ Modify the process library name and other content, click OK to save, and the window will disappear.

⑤ Double click on the process library name, and the process file name will appear on the right.

⑥ Select the process file.

⑦ Click the edit () button in the process window.

⑧ Modify the name, programming area, and other information, click OK to save, and the window will disappear.

4.6 File (process) deletion

① Select the process library name.

② Click the delete () button in the process library window.

③ A dialog box pops up asking whether to delete. Users can click OK to delete according to the prompts, and then click Back to directly return to the process window.

④ Select the process name.

⑤ Click the delete () button in the process window.

⑥ A dialog box pops up asking whether to delete. Users can click OK to delete according to the prompts, and then click Back to directly return to the process window.

The deleted process library/file will not be recoverable.

5. Advanced Program Beginning

5.1 PC User Preference

User preferences are located on the PC, you may change these preferences at any time.

NOTE : Changing a preference establishes a new default setting. And the new setting will be in effect until the preference is changed again.

5.1.1 Language

This feature lets you select the language.

NOTE: The default language is Chinese. In order to select another language, the corresponding language file must be installed.

To set up language:

1. Click on **System Configuration** iron () in the right top corner of **Main** menu.
- **System Window** opens.
2. Select and click on **Function Option**.
- **Function Option Window** opens.
3. In the **Language** field, click on the small triangle on the right.
4. Click on desired language.
5. Click on **Save** button to confirm.
- A prompt (Save success, and restart system to take effect!) appears.
6. Click on **Confirm** and restart the **Q Soldering**.
- **Q Soldering** is now in the selected language.

5.1.2 User Logging

The software is password-protected, you should login it before operating.

To set up logging:

1. Double click on **Q soldering** iron () on the desktop.
- **User Menu** opens.
2. In the **User Name** section, scroll down the list and click on the desired name.
- The factory default name is **Admin**.
3. In the **Password** section, enter the right password.
- The factory default password is **1**.

4. Click on **Log in** to confirm.

➢ A prompt “Success (Welcome) admin!” appears on the right corner and the **Home Menu** opens.

NOTE: Be sure to login otherwise the software should not be operated.

5.1.3 Change Password

Only access the operation level, the password can be changed.

Setup a new password procedure:

1) Click on  key in the **Title Bar**.

➢ The **User Menu** opens.

2) Type in the new password in the **Password** field.

3) Retype the new password in the **Re-enter** field.

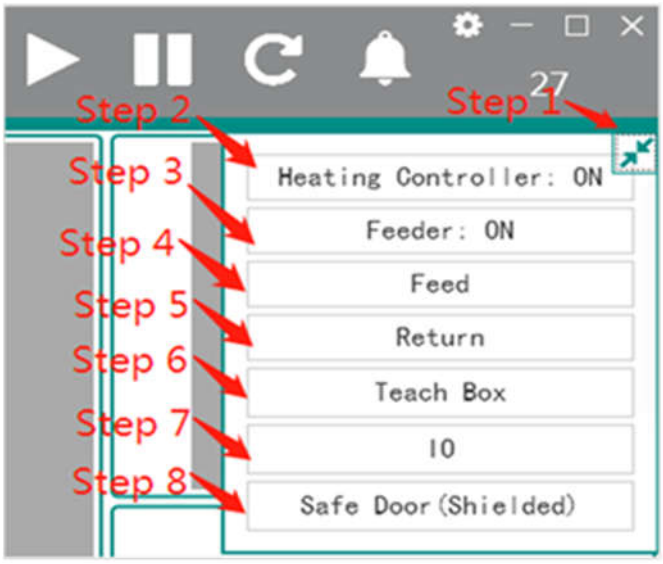
4) Click on **Change Password** key to confirm.

➢ A prompt “Edit Successfully!” opens on the right corner of menu.

NOTE : The password is changed successfully after the same new password is entered both times.

5.2 Beginning Programming

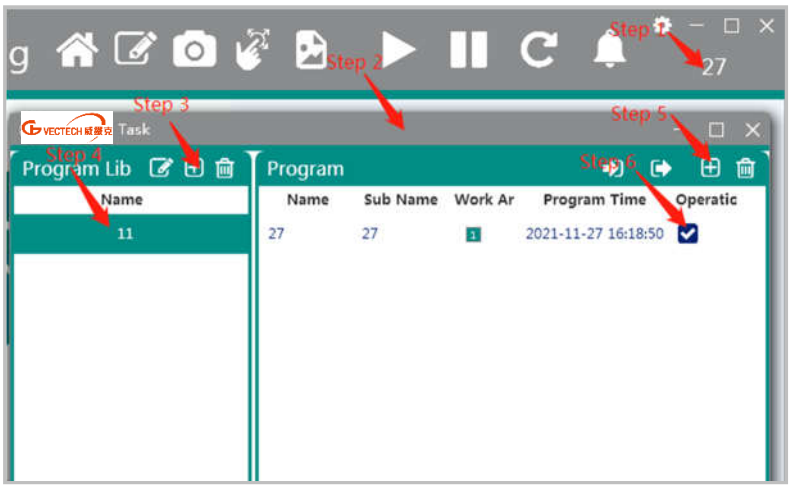
5.2.1 Entering Shortcut Window



Steps	Description	Remark
1	Move the cursor to the right corner and a **Two Opposing Directional Arrows** ( ) appears. Click on the arrows symbol, the shortcutting window opens.	The shortcutting window can be operated in each

Steps	Description	Remark
2	Press **Heating Controller** key to power on/off it.	menu except windows.
3	Press **Feeder** key to turn on/off wire feeder device.	
4	Click on **Feed** key to feed the solder wire, press and hold it, the solder wire will be fed continuously.	
5	Click on **Return** key to back the solder wire, press and hold it, the solder wire will be back continued.	
6	Press **Teach Box** to view the **Position Control** window where all axes can be moved by manually.	
7	Press **IO** to view the **IO Control** window where the **Main Board** ports can be checked and operated.	
8	Press **Safe Door** key to enable / disable safety door function.	

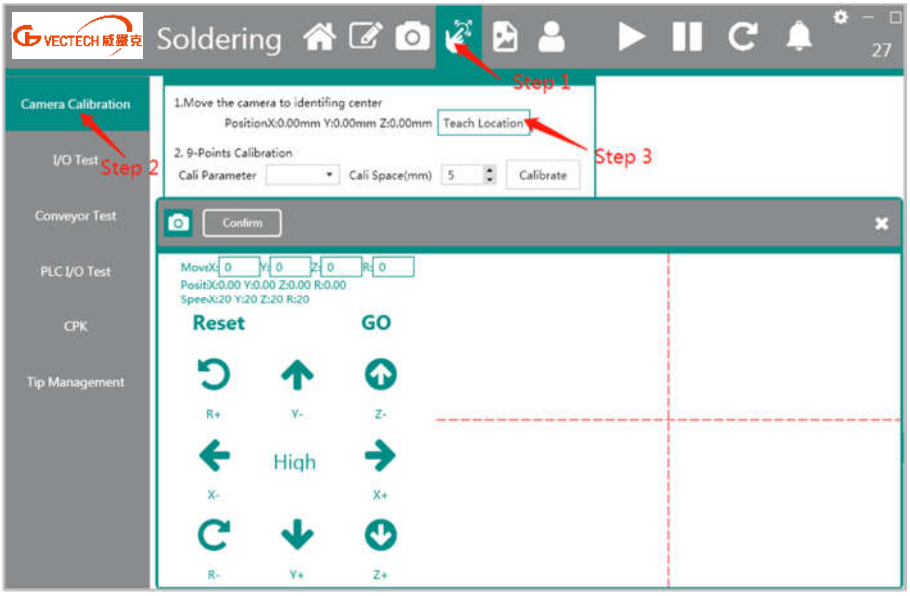
5.2.2 Creating New Program File



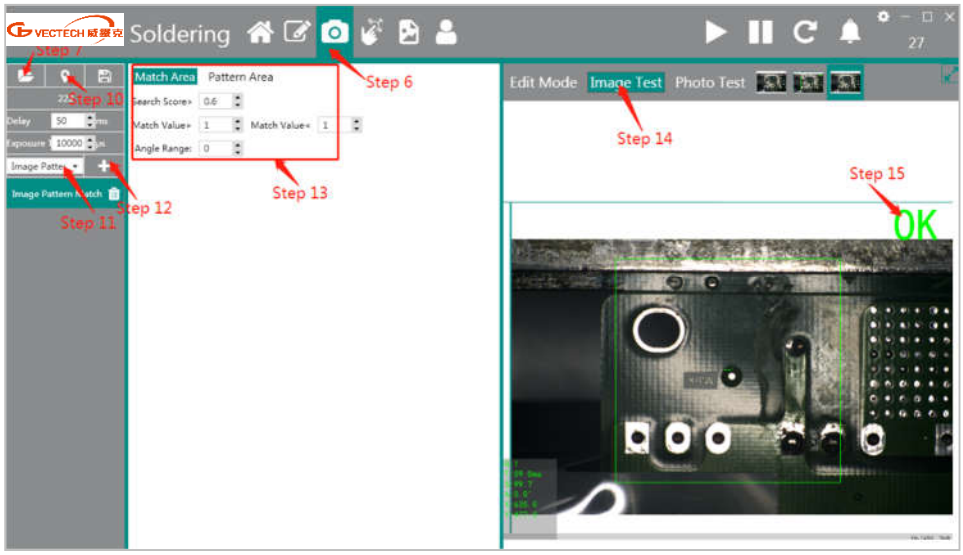
Steps	Description	Remark
1	Move the cursor to the right top corner of title bar, and the **Task** frame will become green.	The Library and Program names can not be repeated.
2	Click on **Task** to view the **Task** window. It includes two parts, left is Program Library and the right is Program.	
3	Click on  on in **Library** to create a new program library.	
4	Select the new program library and the name will become green.	
5	Click on  on in **Program** to create a new program.	

Steps	Description	Remark
6	Click on square under **Operation** and the grogram will be selected.	
7	Click on × icon to close the Task window. If there's a prompt "Adjust conveyor width?", press Cancel.	

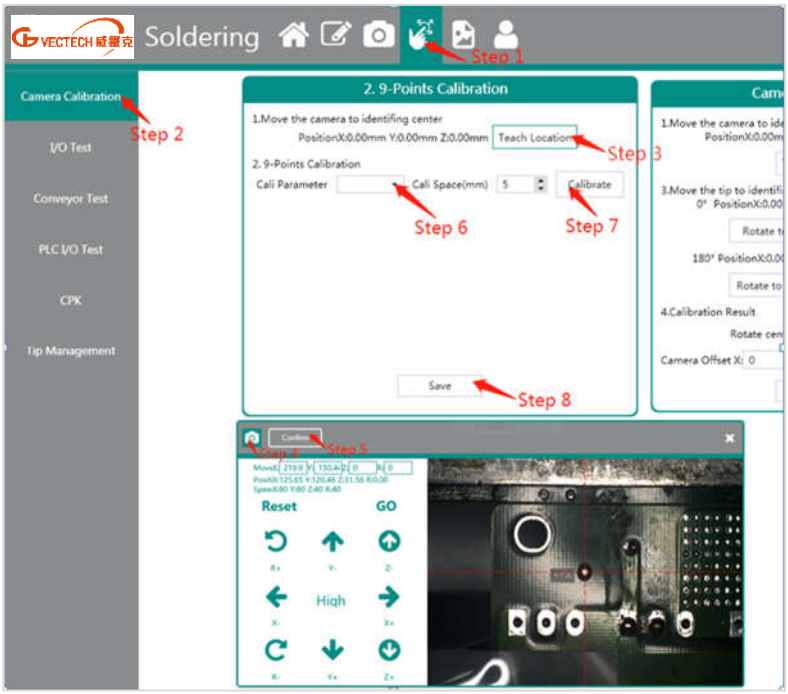
5.2.3 Teaching a Model Mark



Steps	Description	Remark
1	In the **Title Bar**, click on icon to view the **Daily Check** menu.	Load a board before starting a model Mark.
2	In the left part, click on the **Camera Calibration** to view the **Calibration** window.	The window includes three parts: 9-Points Calibration, Camera Calibration 1, Camera Calibration 2.
3	Click on the **Teach Location** to enter **Position Control** window.	
4	Using the **Position Control** to move the camera to the **Mark** position and center the crosshairs on the Mark.	The Mark is a Mark.
5	Click on **Confirm** and **Position Control** window will be closed.	

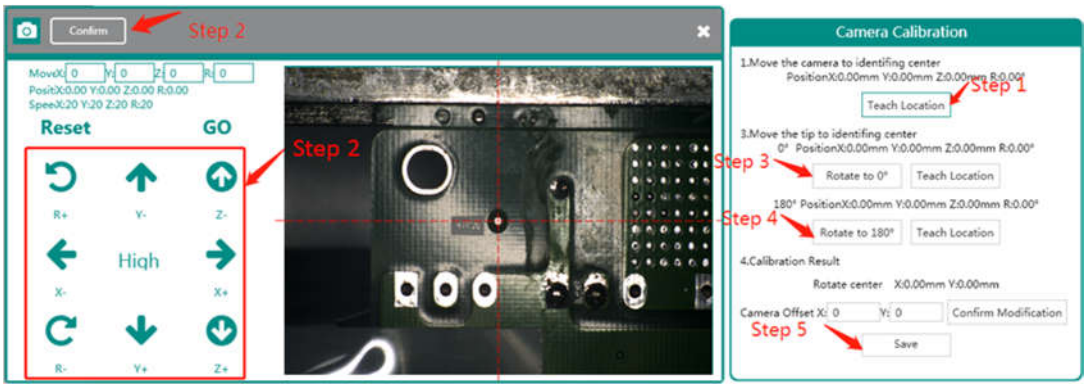


Steps	Description	Remark
6	In the **Title Bar**, click on on to view the Vision menu.	Operation steps refer to Creating a new program file.
7	Click on **Load** to create a new Vison file. Select **9-Points Calibration Identify**.	
8	Enter a new name and click on **Confirm**, the file name can be seen in **Vision Parameter**.	
9	Double click on new vision file name to open.	
10	Click on **Take Photo** and a captured picture will appear in the right part. Press **Confirm** key in the **Position Control** window.	
11	Select **Image Pattern Match**.	
12	Click on cross icon on the right of **Image Pattern Match**, and the **Area Parameter** can be seen.	
13	Adjust the **Search Score**, **Match Value**, **Angle Range** if necessary.	
14	Click on the **Image Test**, and the Mark finder result **OK/NG** appear in the right corner.	
15	Click on save.	



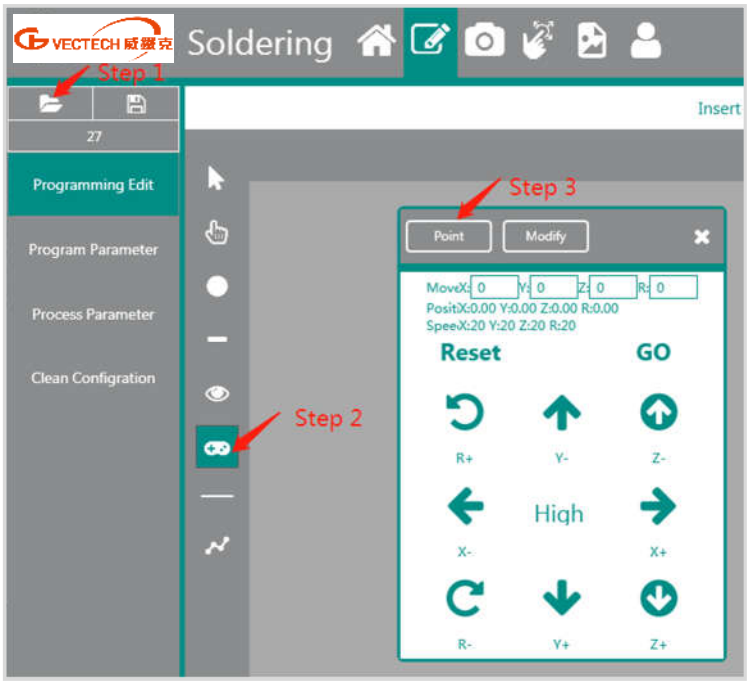
Steps	Description	Remark
1	In the **Title Bar**, click on  to view the **Daily Check** menu.	Teach a mode Mark before camera calibration.
2	In the left part, click on **Camera Calibration** to view the **Calibration** window.	
3	Click on **Teach Location** to enter **Position Control** window.	
4	Click on  icon to open video and check if the camera cross is in **Mark** center.	
5	Click on **Confirm** key.	
6	Select the vision file by clicking on right triangle.	
7	Click on the **Calibrate** and the camera will capture nine times continuously.	
8	A calibration result prompt will appear in the right corner of menu. If error, check and modify the Mark parameters to recalibrate.	If there is a prompt "Calibration error", refer to Step 13 "Teaching a mode Mark".
	If success, click on the Save.	

5.2.4 Calibrating the Tip

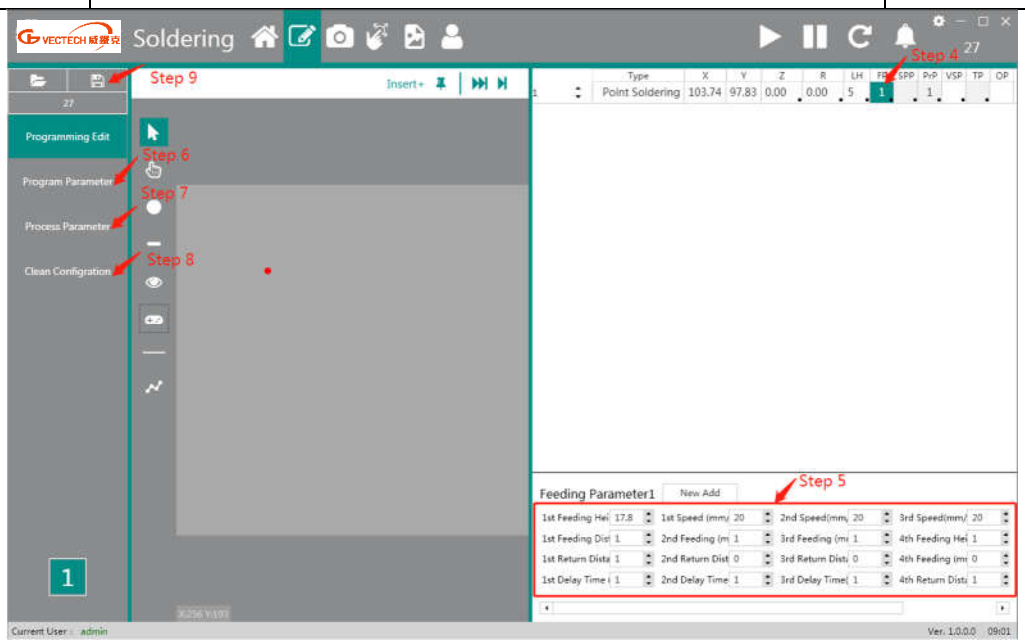


Steps	Description	Remark
1	Click on **Teach Location** to enter **Position Control** window.	Camera needs to be calibrated before tip calibration.
2	Move the tip to the center of **Mark** position and click on **Confirm** to save.	
3	Click on the **Rotate to 0°** to move the soldering head to 0° position, then click on the **Teach Location** and move the tip to Mark center position by **Position Control** window.	
4	Click on the **Rotate to 180°** to move the soldering head to 180° position, then click on the **Teach Location** and move the tip to Mark center by **Position Control** window.	
5	Click on **Save**.	

5.2.5 Creating a Soldering Point

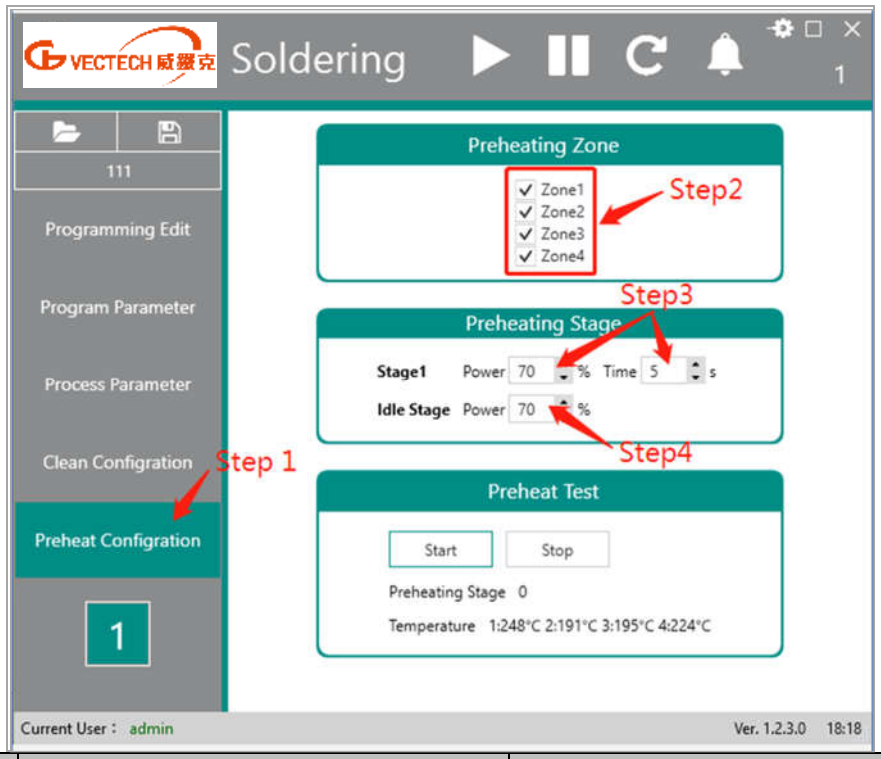


Steps	Description	Remark
1	Load a program file by clicking on  n.	**The loading file steps refer to Creating a new file.**
2	Click on **Teach Point** to enter **Position Control** window.	
3	Move the tip to the required soldering position, and click on **Point** to save.	



Steps	Description	Remark
4	Click on **FP** column box below and the **Feeding Parameter 1** can be edited.	The default parameters is Feeding Parameter 1
5	Enter the **Feeding Height, Distance, Delay Time** and **Speed** etc.	Enter the Feeding Parameters according to soldering requirement.
6	Click on the **Program Parameter** to set soldering temperature, running speed etc.	
7	Click on the **Process Parameter** to set feeding parameters etc.	
8	Click on the **Clean Configuration** to set cleaning position, time etc.	
9	Click on **Save** to confirm.	

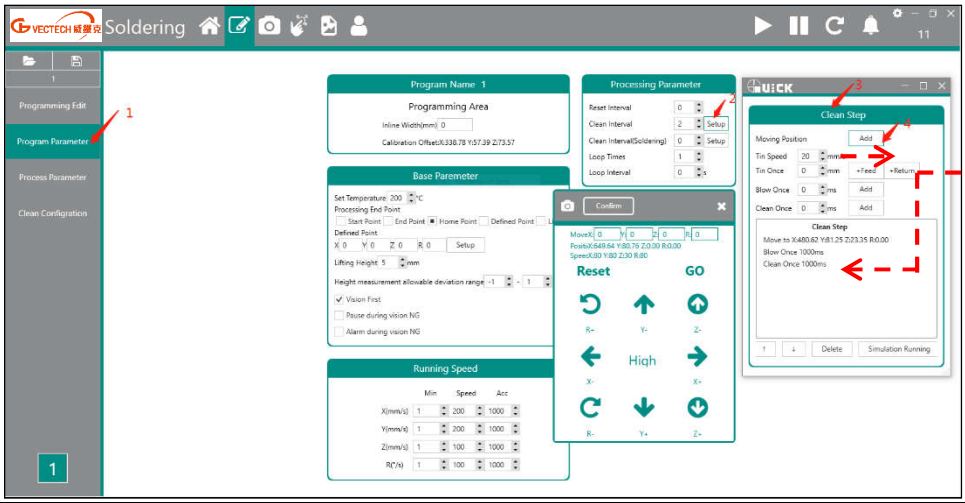
5.2.6 Setting Preheater Parameters



Steps	Description	Remark
1	Click on **Preheat Configuration** to view.	Setting preheater parameters after creating a soldering point.

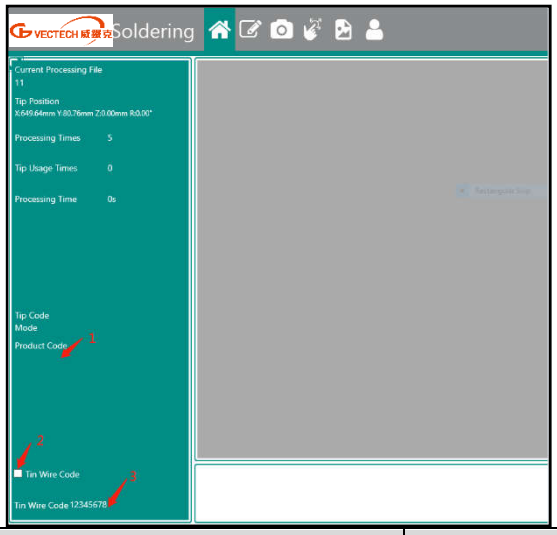
2	Select the required preheating zone.	/
3	Enter the **Power** of the **Stage 1** and **Time**.	**Power** is the percentage of rated power consumption. Time is how long the heater tube heats during the **Power** of the **Stage** 1.
4	Enter the **Power** of the **Idle Stage**.	The parameters can be saved automatically.

5.2.7 Clean Setup



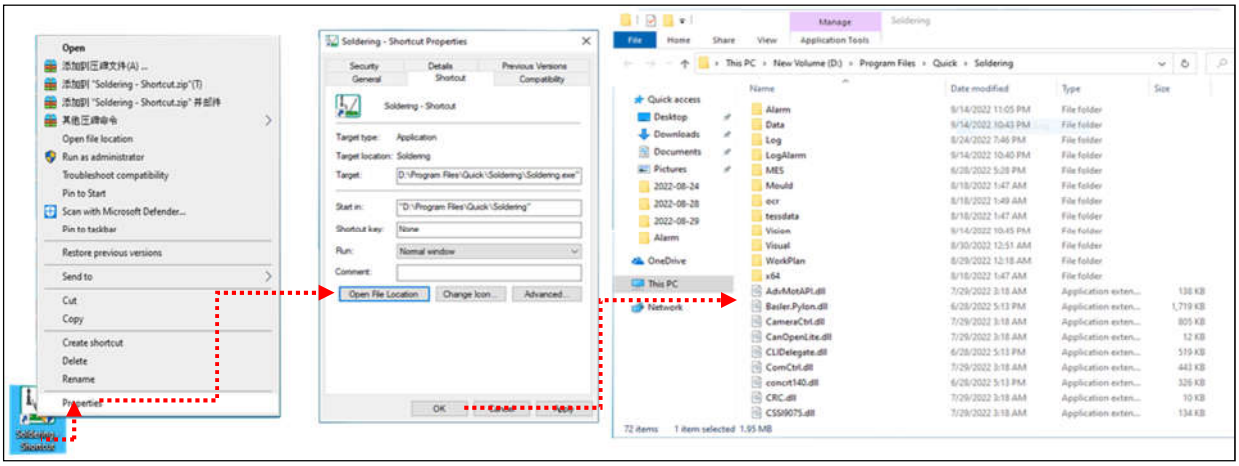
Steps	Description	Remark
1	In the **Programming** menu, open a required file and click on **Program Parameter** to set cleaning parameters.	**Clean Interval** is used to determine the amount of processing program when the tip will clean automatically. **Clean Interval (Soldering)** is used to determine the amount of soldering points when the tip will clean automatically.
2	In the **Processing Parameter** window, click on **Setup** to enter into **Clean Step** window where all cleaning parameters can be set.	
3	Set **Tin Speed**, **Blow Once**, **Clean Once** parameters.	
4	Click on **Add** to enter into **JOG** window from which all axes can be moved by hands, move the tip to cleaning positon.	

5.2.8 Scanner Setup



Steps	Description	Remark
1	Move the scanner to enable the product code and the product code is shown under the **Product Code** of **Main** menu.	If the product code needs activate, the **Tin Wire Code** should not be selected.
2	Select the **Tin Wire Code**.	
3	Move the scanner to enable the tin wire code, and the code will show behind the **Tin Wire Code** position.	

5.2.9 Reading Data Files



Steps	Description	Remark
1	Right-click on shortcut icon ( )	
2	Select **Properties** to view Soldering –Shortcut Properties window.	

Steps	Description	Remark
3	In the Shortcut item, click on **Open File Location** to enter Data File menu where you can read all data files. And data files detailed information refers to table below.	

Table: Standard File Name Conventions

File Extension	File Type	Desription
.XML文档	Visual File	Visual file stores fiducials modes information.
.XML文档	Mould File	Mould file stores processing parameters information.
.XML文档	Workplan File	Workplan file stores specific information about soldering paramters and configuration.
.CSV文档	Data File	Data file is a diary of program where you can check soldering process, time, result, product statistic, codes etc. information.
.JPG	Vision File	Vision file stores the images that the camera has captured during vision process.
.txt	Alarm File	Alarm file stores all information of software about the fault and error messages.
.txt	LogAlarm File	LogAlarm file is a diary of alarm history from which you can check occured alarm messages.

Note: If you have any problem, please contact us for supporting.

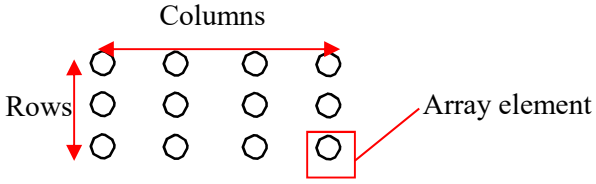
5.3 Advanced Programming

5.3.1 Creating an array

An array pattern is a series of soldering parameters in a programmed number of rows and columns. The array can either be made up of rows and columns of points, or rows and columns of multi-point patterns. Only one point or one pattern needs to be created and by using the **Array** functions.

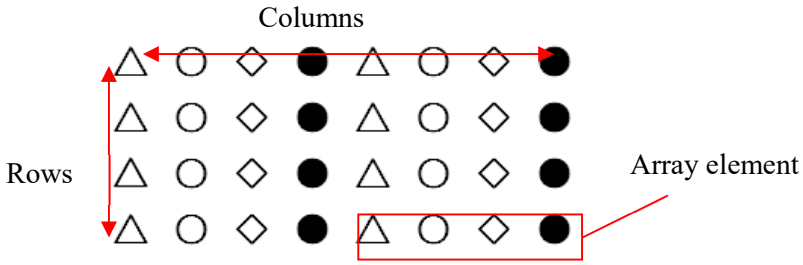
One point

This array is made up of rows and columns of one points, see the following picture:



One pattern

This array is made up of rows and columns of multi-point patterns, see following picture



To create an array:

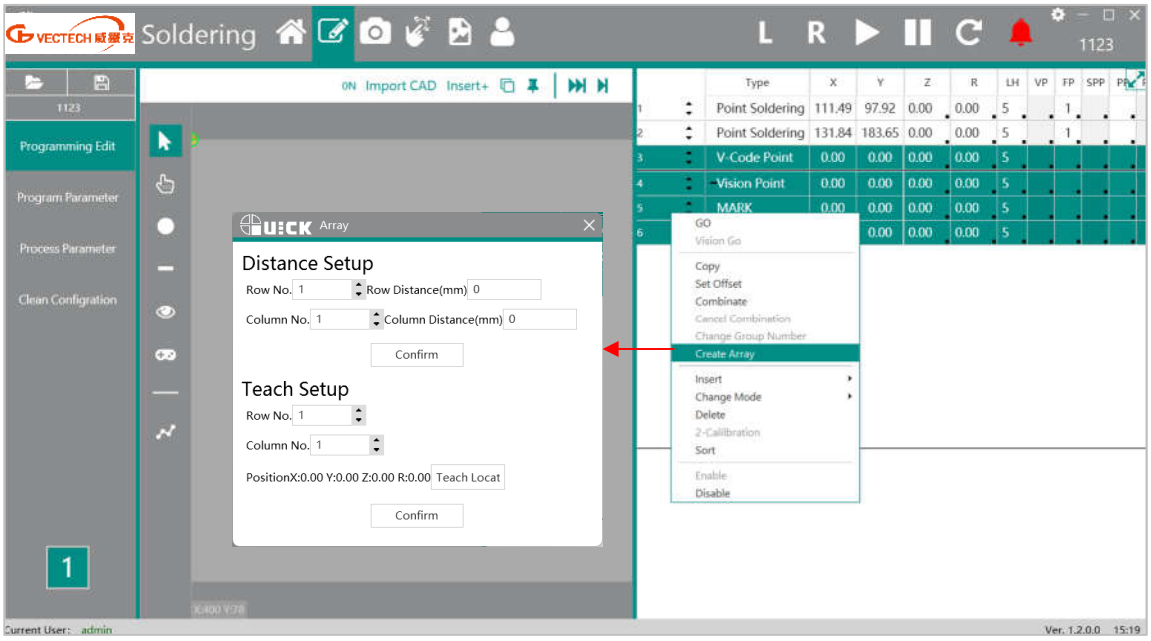
1) Select array element from the **Edit** menu.
2) Right- click on the selected area.

➢ One dialog opens

3) Move the cursor to **Create Array** and click on it.

➢ Array dialog openes.

4) Type in the **Row No. & Column No**.
5) Type in the **Row & Colum Distances**.
6) Click on **Confirm** to save.



Note: If you have any problem during operation, please contact us for supporting!