WEIHONG

维宏股份 创业板:300508

Weihong Automatic Rhinestone Adhesion Machine

Users' Manual

SPECIALIZED CONCENTRATED FOCUSED

Contents

Operating Gamepad

Weihong Automatic Rhinestone Adhesion Machine can be controlled by gamepad, which is easy to operate.

Schematic diagrams of the gamepad are as follows:

See table below for functions of gamepad keys. Note that the same gamepad key may have different functions in different operational interfaces.

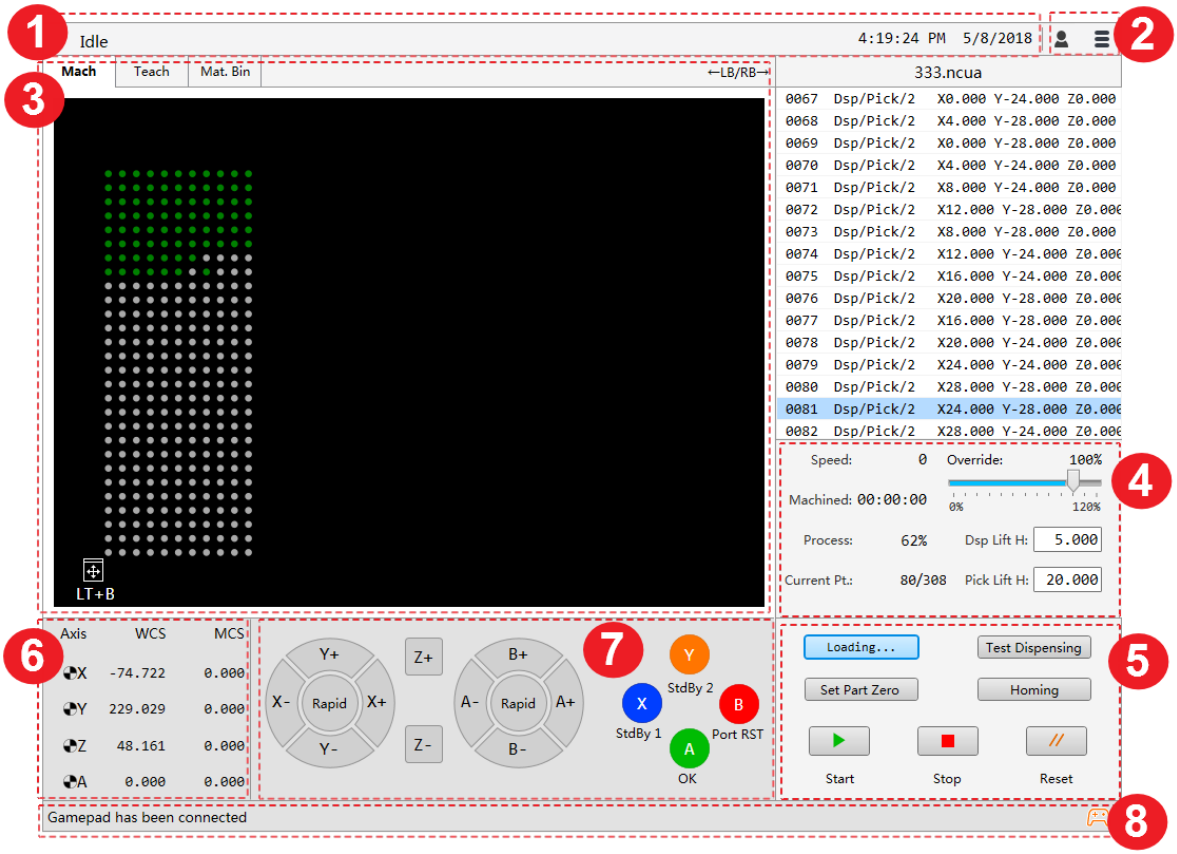
Functions of Gamepad Keys

Key	Function
RT→X→Y→B→A	Used to lock/unlock the gamepad. After the gamepad is in idle for a certain time, it will be locked automatically. You can press these keys in order to unlock the gamepad. The idle time is controlled by parameter **Time for Locking Handle in Idle**. Press these keys in order again, you can lock the gamepad again. When the gamepad is locked, you cannot use it to control the machine.
LB	Used to switch to left pages.
RB	Used to switch to right pages.
Direction Key	Used to move the focus.
LT+B	Used to switch workpiece view(single workpiece or all workpieces).
LT+Left/Right Direction Key	Used to adjust machining override.
LT+(B+)	Used to move Z-axis towards positive direction.
	Used to move Z-axis towards

LT+(B-)	negative direction.
Rapid	Used to move each axis at rapid jog feedrate. Its value is controlled by parameter **Rapid JOG Feedrate**.
LT+Up/Down Direction Key	Used to switch teach point by workpiece in Teach interface.

Interface Overview

Main interface of Weihong Automatic Rhinestone Adhesion Machine is as follows:



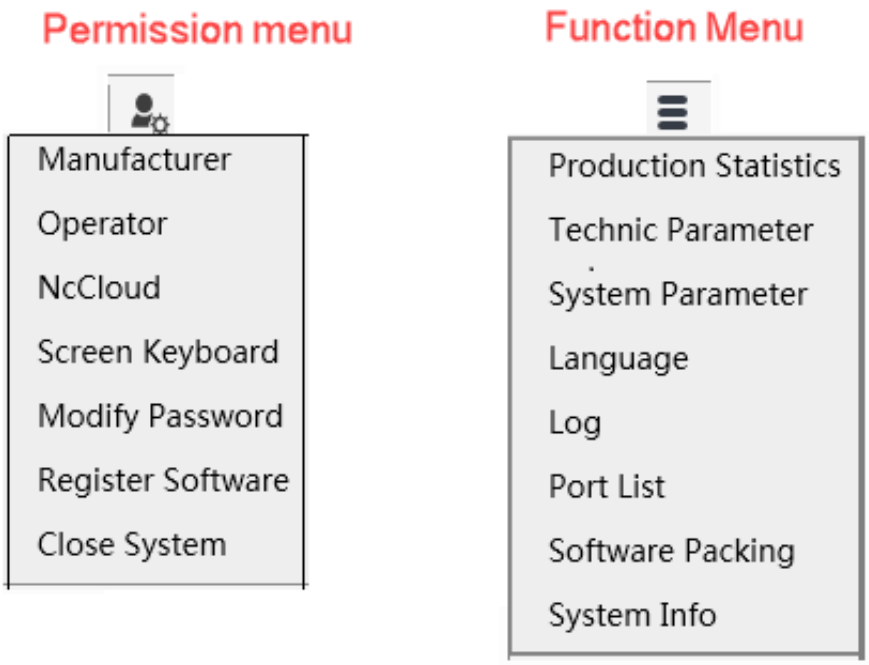
About the Main Interface

No.	Name	Description
①	Information Bar	It shows current status of the system, such as Idle, Running, E-stop, Alarm, etc.
②	Menu	It includes permission menu and function menu. Please refer to Shortcut Menu for details.
③	Function Window	It includes Mach, Teach and Mat. Bin interfaces, which separately shows machining track, teaching preview and schematic diagram for material bin.

④	Display Area for Machining Speed	It shows the current speed and override, which can be adjusted.
⑤	Control Area for Machining	It includes buttons that control machining, such as Start, Stop and Reset.
⑥	Coordinate Display Area	It shows the current workpiece coordinate and machine coordinate in real time.
⑦	Operating Keys	It corresponds to keys in gamepad. Please refer to Function of Gamepad Key for details.
⑧	Information Bar for Gamepad	It shows the current connection status of the gamepad and prompt message of gamepad keys.

Shortcut Menu

It includes permission menu and function menu, as shown in the following:



Quick Start

Through this part, you can quickly know about how to use Weihong Automatic Rhinestone Adhesion Machine.

Machining processes of the system include the following:

Returning to Machine Origin

Before starting machining, returning to the machine origin is required to ensure the accuracy of position.

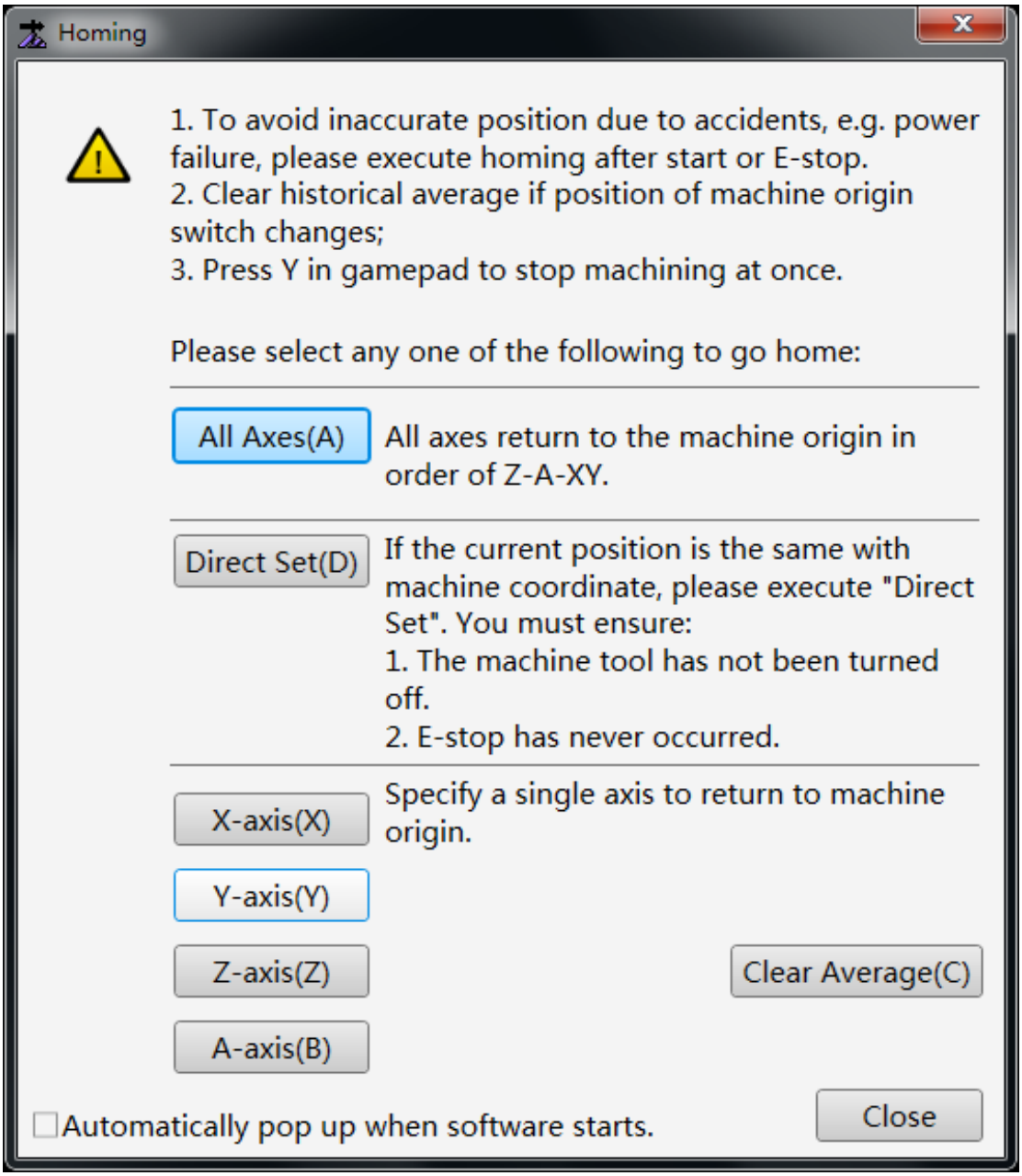
The system will automatically return to the machine origin by default. During machining, if exceptions occur, such as E-stop, you need to manually return to the machine origin to adjust position.

Steps

To manually return to machine origin, do the following:

1. In the Mach interface, click Homing.

   The dialog box Homing pops up:



2. Select one of the following way to return axes to the machine origin.
    - **Recommended:** All Axes: all axes return to the machine origin in the order of Z-axis, A-axis and XY axes.
    - Direct Set: set returning to machine origin directly. If the current position is the same with the machine coordinate, this way is recommended.
    - Specified Axis: specify certain axis (axes) to return to the machine origin.

Note:

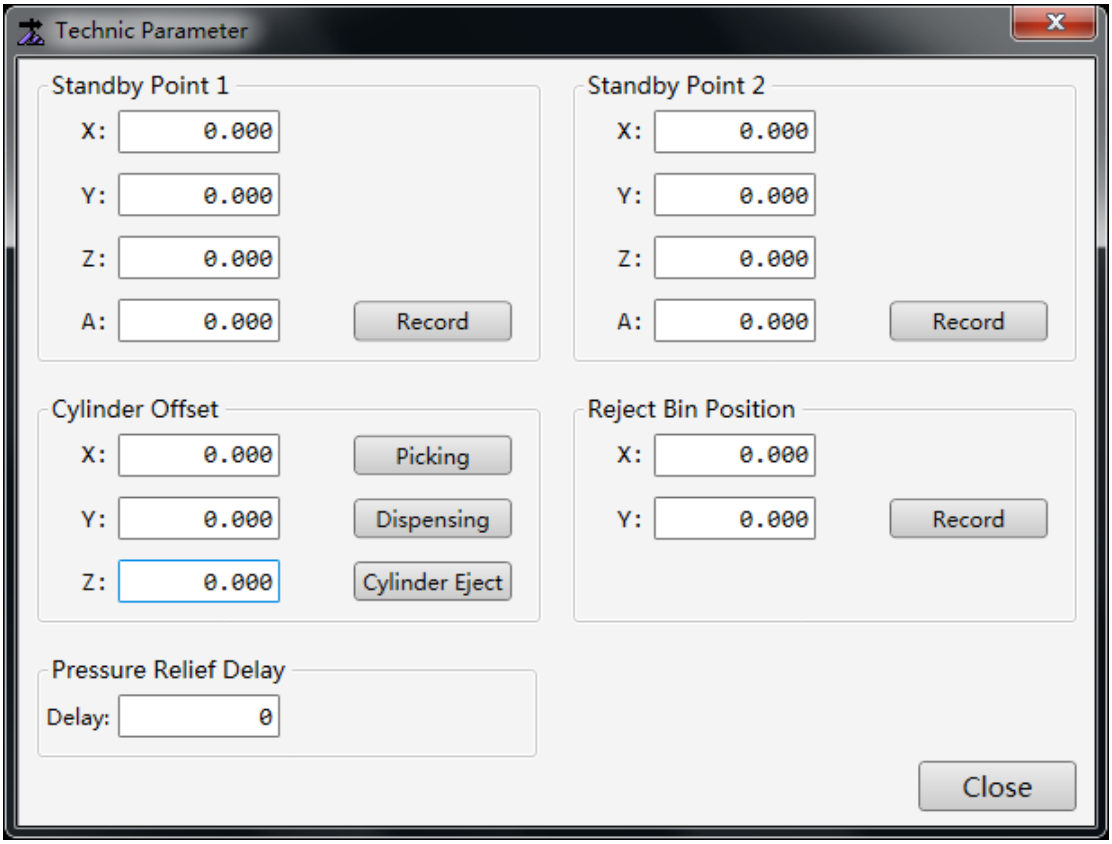
- If the position of machine origin switch changes, clearing historical average is required before returning to the machine origin.
- Pressing `Y` in gamepad can stop the machine immediately without closing the dialog box.

Setting Technic Parameter

Steps

1. Click icon ☰ at the upper right > `Technic Parameter`.

   The dialog box `Technic Parameter` pops up:



2. Select one of the following to set standby point and position of the reject bin:
   - Directly enter coordinate values in the input box.
   - **Recommended**: move each axis to the target position and click `record` to set the current position as the

standby position or position of reject bin.

Please refer to Parameter Definition for parameter definitions.

3. Select one of the following to set cylinder offset:
   - Directly input coordinate values in the input box.
   - **Recommended 1**: click Picking > Cylinder Eject > Dispensing > Cylinder Eject.
   - **Recommended 2**: click Cylinder Eject > Dispensing > Cylinder Eject > Picking.
4. Switch to Mach interface to set dispensing lift height and picking lift height.
5. Set parameter **Safety Height**.

   Please refer to Modifying Parameter for details.

Parameter Definition

Standby Point

The standby position of the machine after machining ends. Two standby points are available.

Cylinder Offset

The distance between the dispensing cylinder and the picking cylinder.

Reject Bin Position

It is used to recycle waste rhinestones.

When the system resumes machining, throw the rhinestone on the suction nozzle into reject bin. Because after the machine stops, anything can happen so that you cannot ensure the rhinestone is always the correct one.

Pressure Relief Delay

Time for pressure relief after dispensing ends.

Dsp Lift H

The lift height that the glue dispensing needle

corresponds to the target point during dispensing.

Pick Lift H

The maximum lift height of the higher point between the picking point and target point that suction nozzle corresponds to material bin during picking/unloading rhinestones.

Safety Height

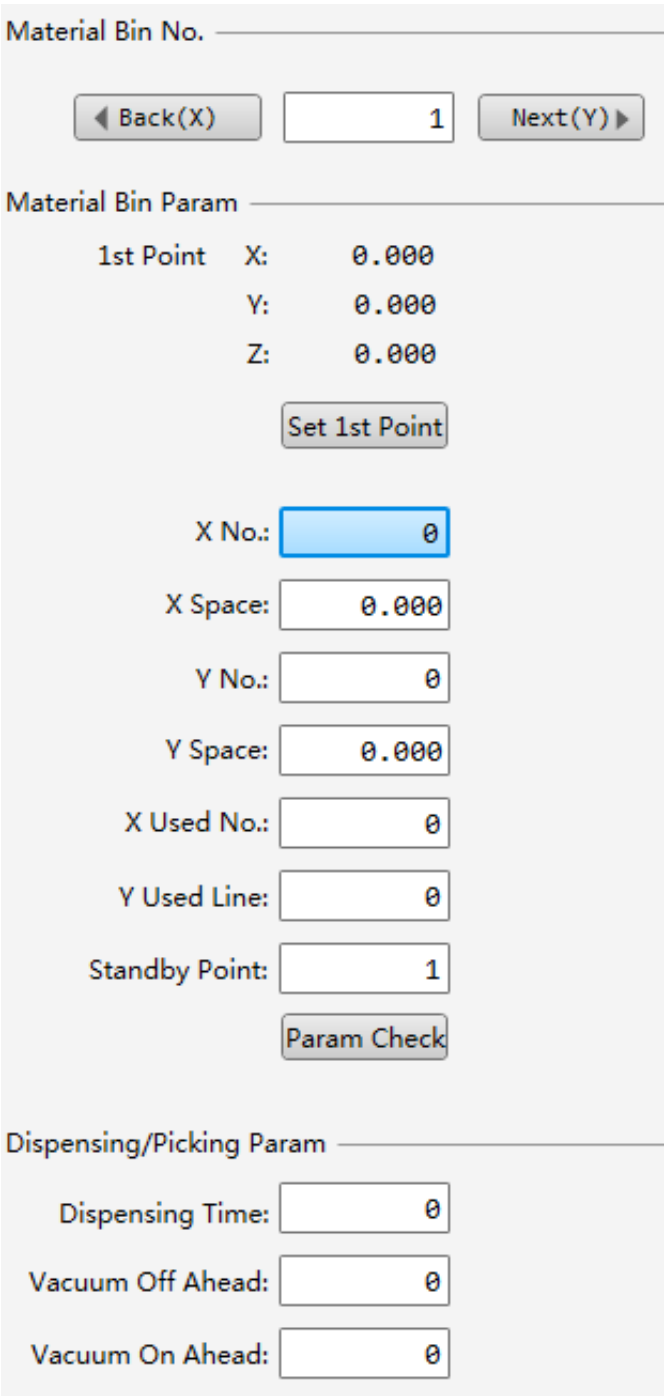
The moving height of Z-axis in cases: during the first dispensing and positioning, when Z-axis moves to reject bin position, and after breakpoint resume.

Managing Material Bin

Steps

1. Switch to Mat. Bin interface, and set following parameters: number of material bin, parameters related to material bin, and parameters related to dispensing/picking.

   See following figure for the interface:



2. Click Position, the machine moves to the set position of the first point of material bin.

> **Note:**
>
> When material bin is full, the system will remind you to change it and the machine will move to the specified standby point.

Parameter Definition

Material Bin No.

20 material bins are available.

1st Point

The position of the first rhinestone in picking material.

X No.

Quantity of rhinestone in X direction.

Y No.

Quantity of rhinestone in Y direction.

X Space

The horizontal space between centers of two adjacent holes.

Y Space

The vertical space between centers of two adjacent holes..

X Used No.

Quantity of used rhinestone in X direction.

Y Used Line

The used lines of material bin in Y direction.

Dispensing Time

Time for opening dispensing solenoid valve. Unit: ms.

Vacuum On Ahead

Time for opening vacuum solenoid valve in advance during picking material. Unit: ms.

Vacuum Off Ahead

Time for closing vacuum solenoid valve in advance during reloading material. Unit: ms.

Executing Teaching

Steps

Before you start: switch to Mach interface and click Set Part Zero to set the first point of workpiece. It is recommended to set the **First Point** as the first point of teaching.

Do followings to conduct teaching.

1. Switch to Teach interface.
2. Click New to create a new teaching file.

   Please refer to Teaching Operation for details.

   Note:

   - If no file has been loaded, it will create new teaching file in Teach interface.
   - If file has already been loaded, it will remove the current file and create a new teaching file in Teach interface.
3. Click Array to set array. Please refer to Array for details.
4. Click Save > OK after naming the file. The file will be saved under specified path.
5. To start test run, select one of the following:
   - TestSelect: press START in gamepad. The system will start test run from the current line to the end of file.
   - TestAll: press BACK in gamepad. The system will start test run from the beginning to the end of file.

   Please refer to Attention for Test Run for cautions in test running.

Teaching Operation

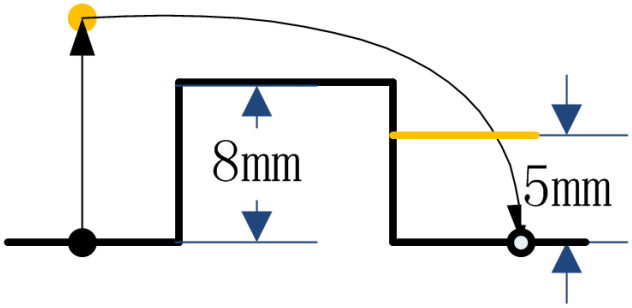
Common teaching operations are illustrated as follows:

Actions	How to do with gamepad
Add/insert point	Move cursor to the column ordinal in Teach interface, and press A to add/insert a teaching point in next line.
Delete point	Move cursor to the line you would like to delete and press LT+X.
Modify coordinate	Move cursor to the Coor column and press A to update the current coordinate to the selected teaching point.
Whether to do dispensing	Move cursor to the Dsp column and press A to check or cancel dispensing in current position.
Whether to unload material	Move cursor to the Unload column and press A to check or cancel unloading in current position.
Select material bin	Move cursor to Bin column and press A to select the number of material bin for the current point.
Position teaching point	Press B to make suction nozzle quickly move to the position.

When creating a teaching file, use a evading point on following conditions:

- the surface of workpiece is raised and higher than the lift height.
- it is unnecessary to do dispensing for the bulge.

Example: The bulge for workpiece is 8mm, and dispensing lift height is 5mm.



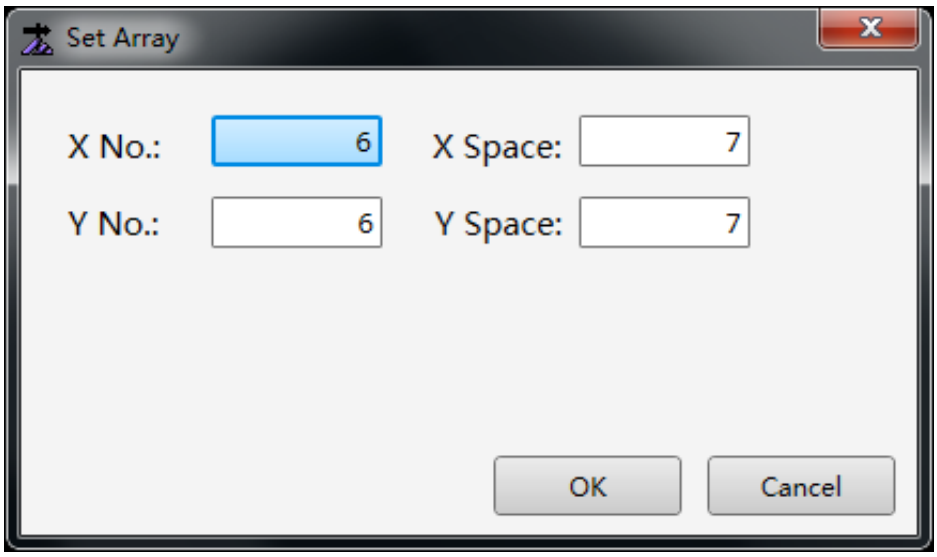
To avoid collision between the nozzle and the workpiece, and ensure the efficiency of dispensing, please set a teaching point as shown as the orange point in the figure. The system neither does dispensing nor unloads material at this teaching point.

Array

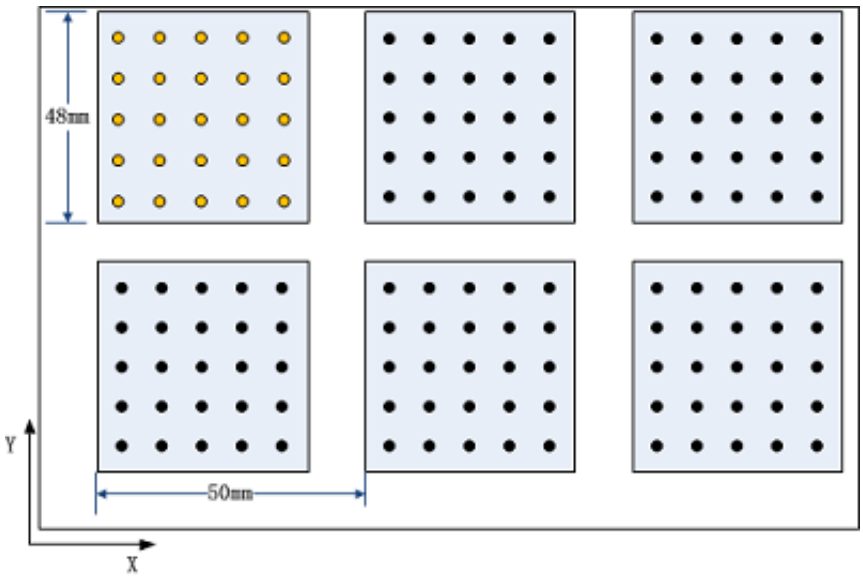
After completing teaching of the workpiece, you can use **Array** function to get batch teaching points for other workpieces. You need to set following parameters first:

- teaching points that have been set for the workpiece
- horizontal and vertical numbers of the workpieces
- spacing among two adjacent workpieces

Example: if the array setting in dialog box `Set Array` is as follows:



As a result, schematic diagram after arraying is as follows:



Attention for Test Run

Pay attention to the following for test run:

- During test run, the system neither does dispensing nor unloads material. It only locates with suction nozzle.
- During test run, you can adjust the speed.
- During test run, you can stop test run at any moment, modify coordinate of related point and choose whether to do dispensing and unload material for the point.
- When test run stops, the cursor is near the line where the system stops.

Starting Machining

Steps

1. Switch to `Mach` interface.
2. Click `load` to load machining file from the local or USB device.
3. Click `Set Part Zero` to set the first point of workpiece for the teaching file.
4. Click `Start`. The system starts machining from the beginning of program.
5. Optional: click `Stop` > `Start`, or press `Stop` > `Start` on the

machine. The system continues machining from where it stops.

6. Optional: click `Stop` > `Reset`, or press `Stop` > `Start` on the machine. The system starts machining from the beginning of program when it starts machining again.

When machining ends, the system will automatically return to the standby point. The standby position is specified by parameter **Return to Standby Position When Machine End**.

Note:

- The system will automatically load the local teaching file. Therefore, you do not need to load it manually.
- If a file has already been loaded, you do not need to load the machining file manually.

Additional Information

When machining starts, the motion process for the rhinestone adhesion machine is illustrated as follows:

1. Process of dispensing:
    1. The glue dispensing needle moves to the first dispensing position from the beginning of program.
        1. Z-axis lifts to the safety height.
        2. Dispensing cylinder is ejected.
        3. X-axis and Y-axis move to the top of the target point.
        4. Z-axis moves to the target point.
        5. The system executes dispensing.
    2. The glue dispensing needle moves to the second dispensing position from the first dispensing position.
        1. Taking the first dispensing position as starting point, Z-axis lifts to a certain height (if the target point is higher than the dispensing position, the

height is the sum of the height of target point and dispensing lift height; otherwise, it is the sum of the height of dispensing position and dispensing lift height).
        2. Z-axis moves to the target point.
        3. Executes dispensing.
    3. Repeat the above steps until all points finish dispensing.

    When dispensing ends, pressure relief is required before starting picking material.

2. Process of picking and unloading material:
    1. Pick material.
        1. Z-axis lifts to the height set by `Pick Lift H` in `Mach` interface.
        2. X-axis and Y-axis move to the specified top of picking position.
        3. Z-axis moves to the specified picking position.
        4. During Z-axis going down, open vacuum solenoid valve in specified advanced time.
        5. Pick material.
    2. Unload material.
        1. Z-axis lifts to the height set by `Pick Lift H` in `Mach` interface.
        2. X-axis and Y-axis move to the top of target point of workpiece.
        3. Z-axis moves to the target point of workpiece.
        4. During Z-axis going down, close vacuum solenoid valve in specified distance.
        5. Unload material.
    3. Repeat above steps until all points unload material.

Auxiliary Operations

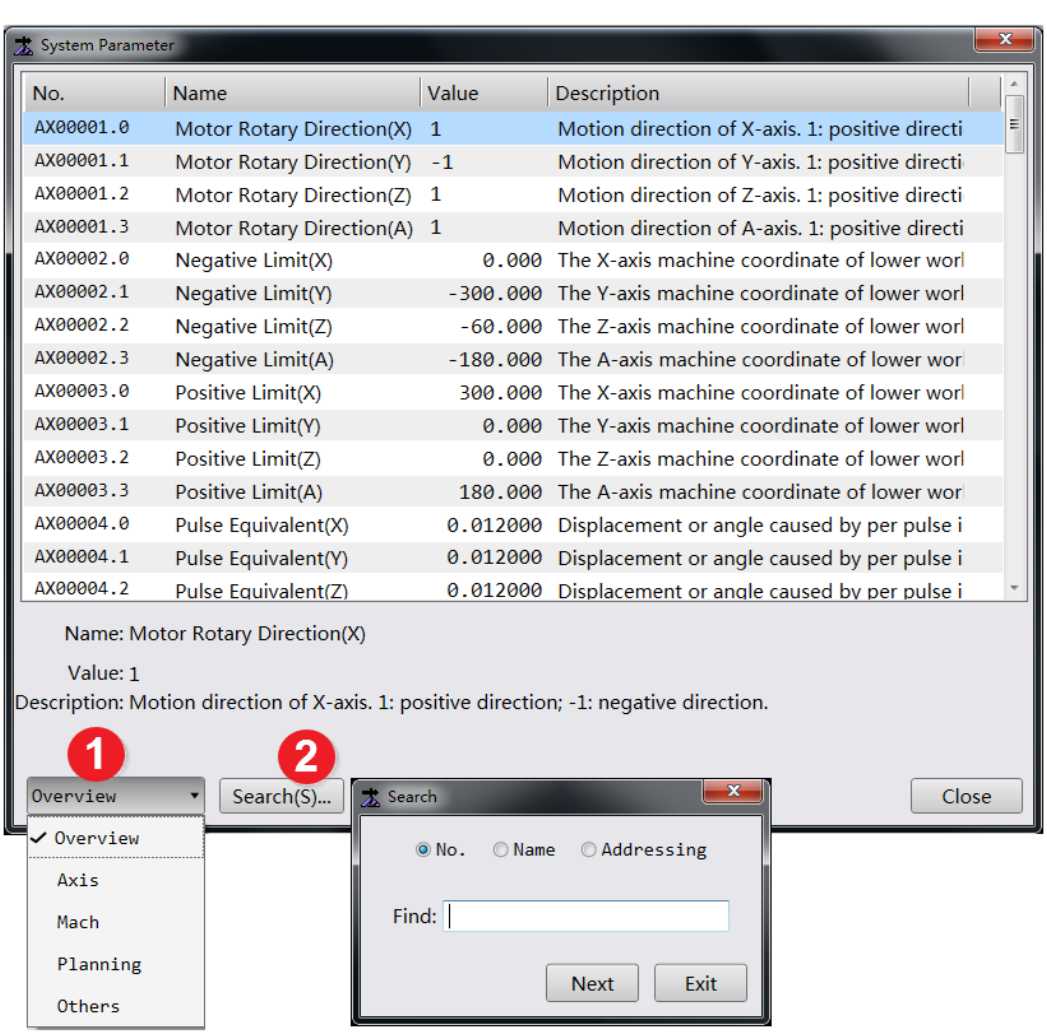
Auxiliary operations for Weihong Automatic Rhinestone Adhesion Machine include the following:

Modifying Parameter

To search or modify system parameter, do the following:

1. Click icon  at the upper right> System Parameter.

   The dialog box System Parameter pops up :



2. Do one of the following to find a parameter:
   - Select from `Overview`, `Axis`, `Machining`, `Planning` and `Others` in area ① and find the parameter by its class.
   - Search in `Search` box in area ②. You can find the parameter by its number, name or address.
3. Modify parameter value. Double click the parameter, and enter the value in the input box.

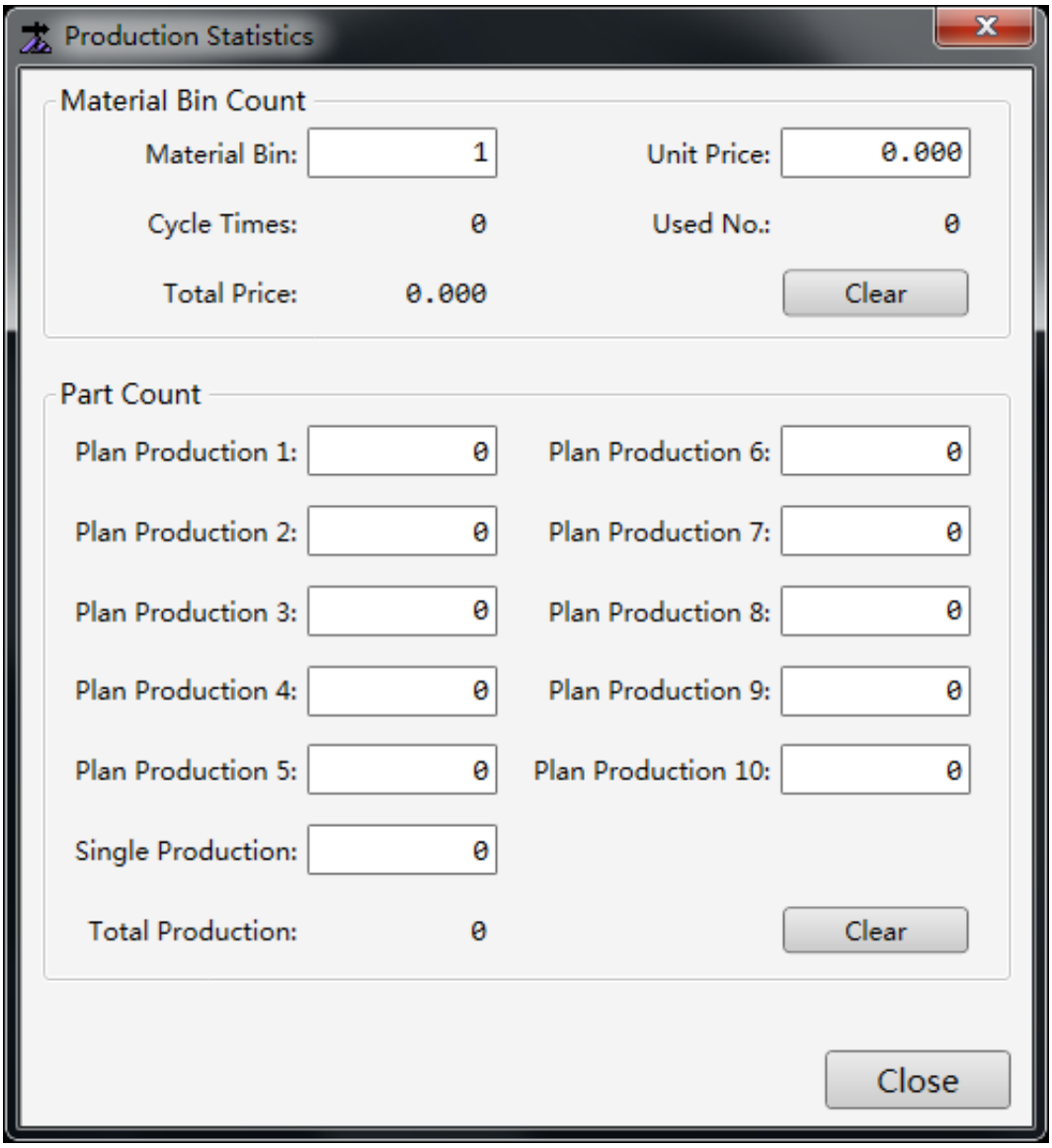
Managing Production Statistics

Steps

To manage production statistics, do the following:

1. Click icon ☰ at the upper right > `Production Statistics`.

   The dialog box `Production Statistics` pops up:



2. In the dialog box Production Statistics, count material bin and workpiece.

Parameter Definition

Production Statistics

It is used to count the used number of material bin and calculate workers' actual salary according to unit price.
Price/Material Bin=(Specification of Material Bin * Cycle Times+ Used No.) * Unit Price
Workers' Actual Salary=Total Price

Unit Price

Every material bin's unit price differs. You need to set it manually.

Cycle Times

It refers to the reloading times of material bin.

Used No.

The used number in the current material bin.

Total Price

The sum of every material bin's unit price.

Clear(Material bin)

It is used to clear material bin statistics. Once the button is clicked, the used No. in Mat. Bin interface will be cleared as well. As a result, you need to ensure the material bin is full before the system starts to calculate machining.

Part Count

When you need to machine workpiece with same model but different colors, you can use this function. When plan production is empty, it is unavailable.

Plan Production

The total workpiece number that needs to be finished.

Single Production

The number of workpiece that can be finished in a single machining.

Total Production

The sum of all single productions. It can reflect the machined number of the workpiece of the same model.

Clear (Production)

It is used to clear production when the workpiece is changed.

Entering into NcCloud

Please ensure your computer is well connected with Internet.

To enter into NcCloud, do the following:

1. Click icon  at the upper right > NcCloud.

The dialog box NcCloud pops up:

The **NcCloud** module only has Chinese version at present.

2. Do as tips to access the NcCloud interface.

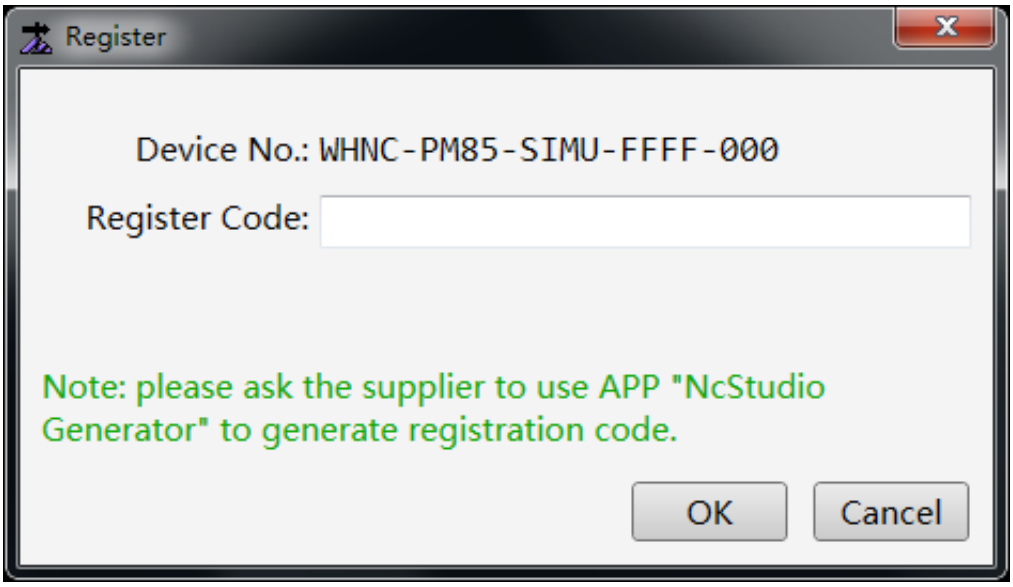
Registering Software

Please ask your supplier for a registration code first. The supplier can generate the code through an application called "NcStudio Generator".

To register software, do the following:

1. Do one of the following to open the dialog box Register:
   - Click icon at the upper right > Register Software.
   - Click icon at the upper right > System Info >Register.

   The dialog box Register pops up:



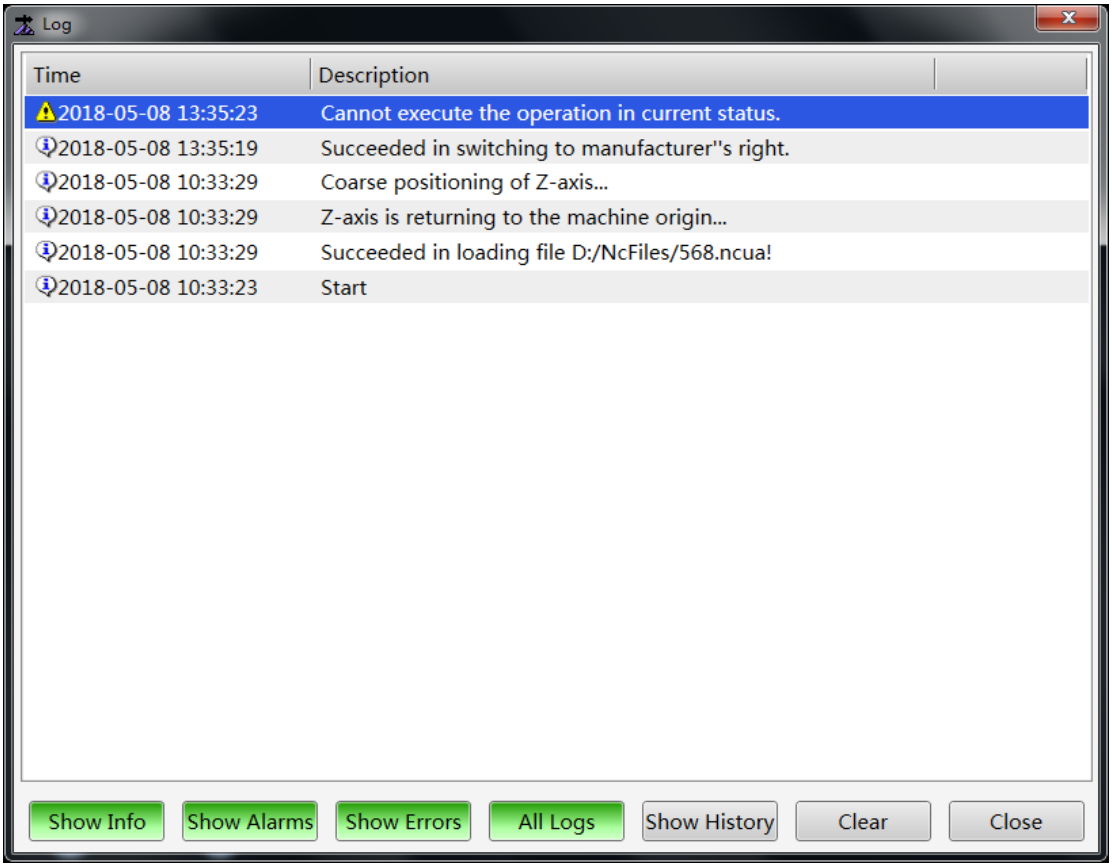
2. Enter the registration code that you get from your supplier.

Checking Log

To check log, do the following:

1. Click icon at the upper right > Log.

   The dialog box Log pops up:



2. In the dialog box Log, check different logs according to log types.

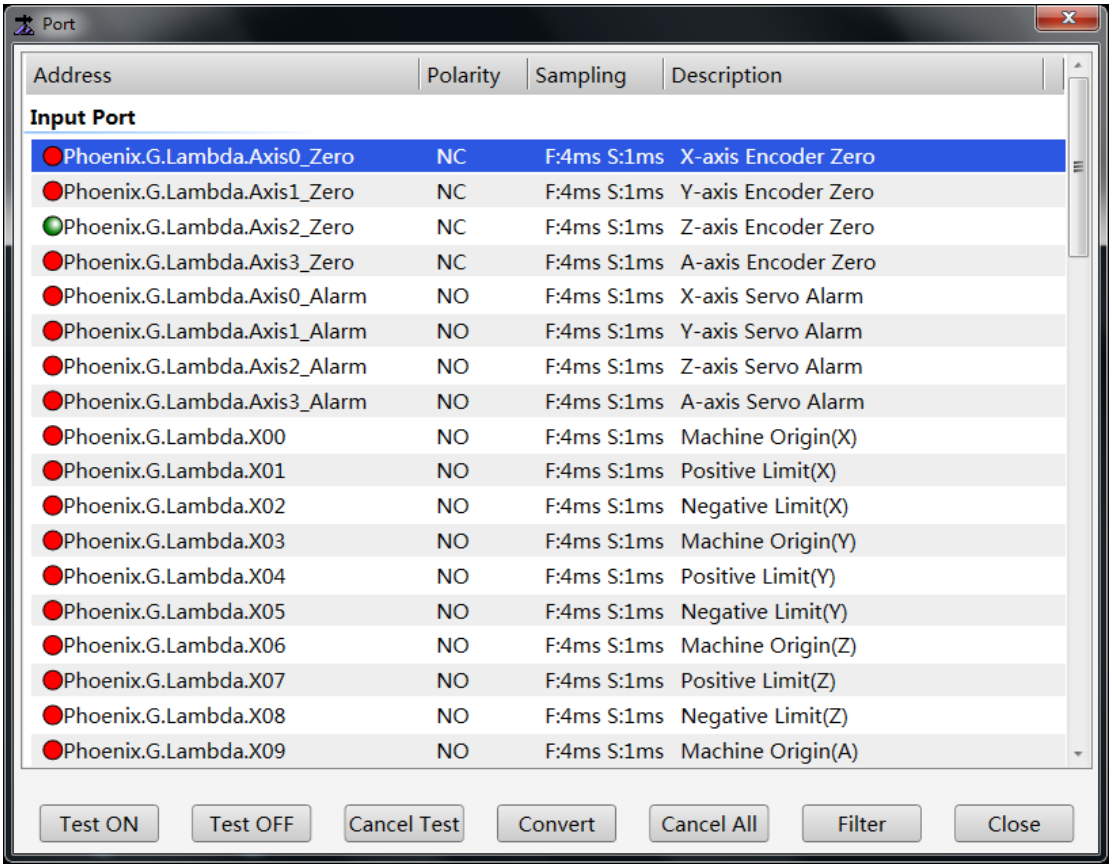
> **Note:**
>
> Please clear logs regularly. Otherwise, too many log files will slow down the system.

Checking Port

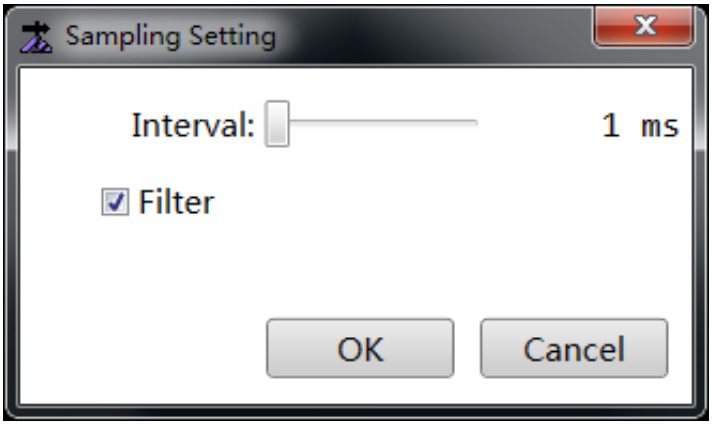
To check port, do the following:

1. Click icon at the upper right > Port List.

The dialog box Port pops up:



2. In the dialog box Port, do the following:
   - Test port: click Test ON/Test OFF to enable or disable port in simulation.
   - Cancel test : click Cancel Test/Cancel All to cancel test on selected port/all ports.
   - Convert port polarity: click Convert to make the port polarity opposite.
   - Set sampling and filter: drag the slide to set interval time and check the checkbox to enable filter.



Note:

The sign "T" next to the port means the port is under testing.

Switching Permission

To switch permission, do the following:

Click icon at the upper right, and select from the following:

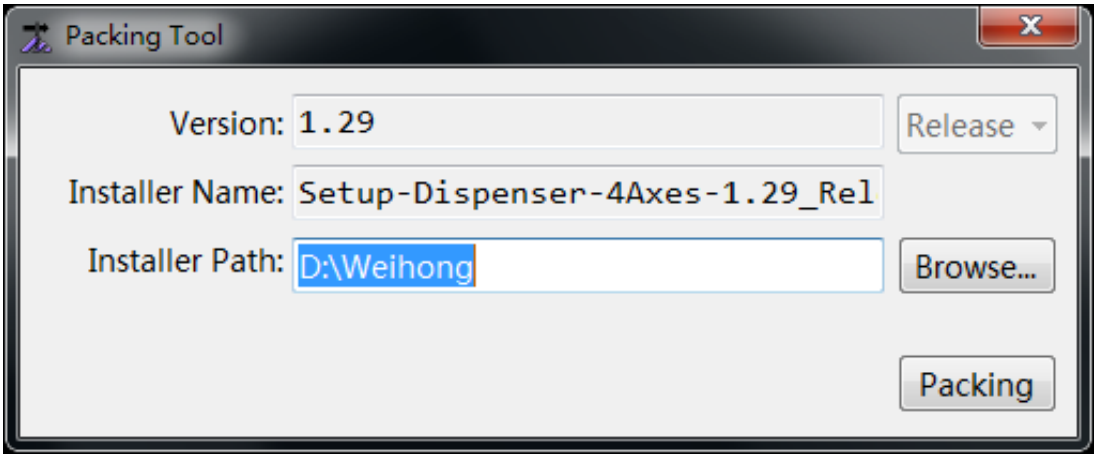
- Manufacturer:
  You need to input Manufacturer password to unlock function in menu .
- Operator:
  It is the default permission setting.

Generating Installation Package

To generating installation package, do the following:

1. Click icon at the upper right > Software Packing.

   The dialog box Packing Tool pops up:



2. In the dialog box Packing Tool, select the folder used to save the installation package.
3. Click Packing.

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