

HK-3D-L01 Automatic Dispense Machine User Manual

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Chapter 1 Summary

There are 4 controlling axis in the Automatic Dispense Machine control system called HK-3D-L01, which can support gantry structure with three axes. The teach box of the machine HK-3D-L01 adopt the 5 inch true-color LCD screen to make the operation menu and boot screen more abundant. To make the transmission speed faster and signal Anti-Interference, it adopts the Industrial field bus for connecting between main board and teach box. The teach box can not only storage dispense processing file, system configure file, but also copying file each other when using multiple machines (or using the U Disk to copy). HK-3D-L01 using ARM + DSP + FPGA control program, with a strong computing power, short refresh time, excellent acceleration and deceleration performance in motion control, HK-3D-L01 can support high-speed high-precision 3D-line, three-dimensional circular motion. HK-3D-L01 motion control board has 256M of storage space, can store 1000 dispense processing files, each file can store 4000 dispense programmed point, HK-3D-L01 can support work without teach box connection, dispense processing files available digital number display and button Options to select.

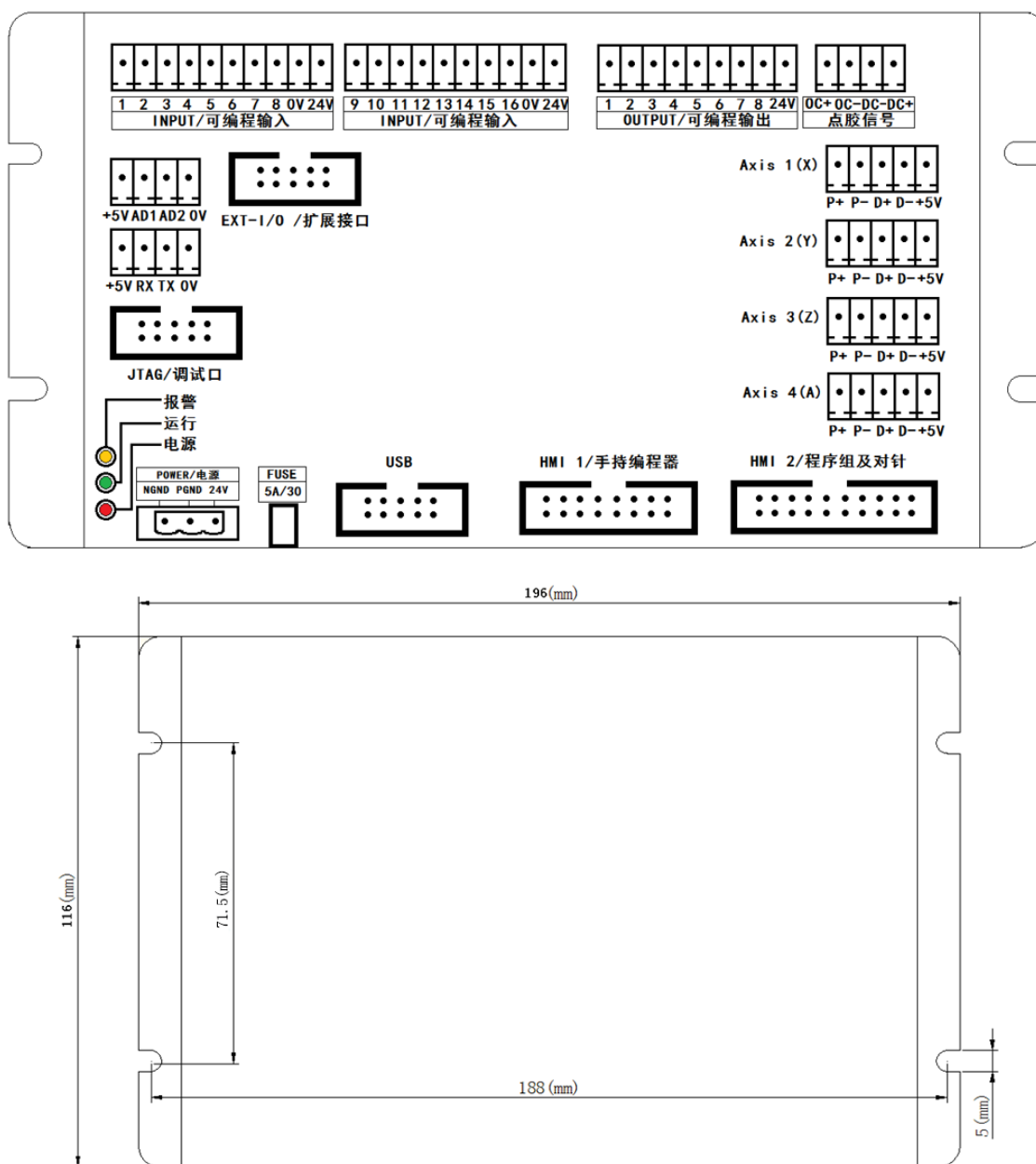
Chapter 2 Installation manual

2.1 Open-package inspection

Before opening the package, please check the packaging label product model is consistent with the ordered products. After opening the package, according to the product list, please check carefully whether accessories complete. Check the surface of the motion controller for mechanical damage, if the surface of the motion controller is damaged, or the product does not conform to the content, please do not use, immediately contact the constant control technology or distributor.

HK – 3D - L01 motion controller product list:

2.1.1 Main board (196 mm * 116 mm * 25 mm).



2.1.2 Teach box (242 mm * 142 mm * 26 mm).

2.1.3 Program group selection and needle (107 mm * 40 mm) of the calibration panel, printed circuit board (70 mm * 40 mm).



2.1.4 Connecting line (Length can be customized)

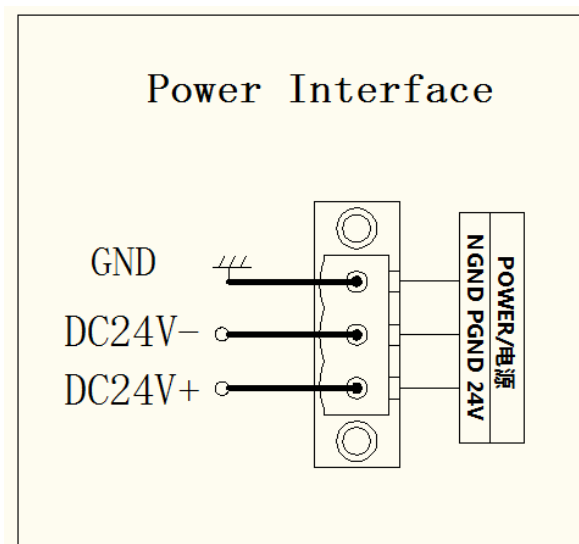


2.2 Installation steps

Note: The following the operation of the connection, please carefully understand the signal and motor drive controller interface definition, and to avoid electric plug interface. Otherwise, the signal connection error or charged operation may result in positive feedback system or hardware damage system cannot work normally.

1. Connect the controller power supply and motor drive power supply

Shut off the POWER switch, the switch POWER supply 24 v output of the POWER of positive and negative ends respectively connected to the controller/interface corresponding to the positive and negative POWER supply, and at the same time the corresponding positive and negative POWER supply connection motor drives. **Pay attention to the positive and negative must not reverse connection.** Make sure, after open the power switch, controller and motor drive was observed at this time of the power light is lit up normal.



2. Connect motor and drive

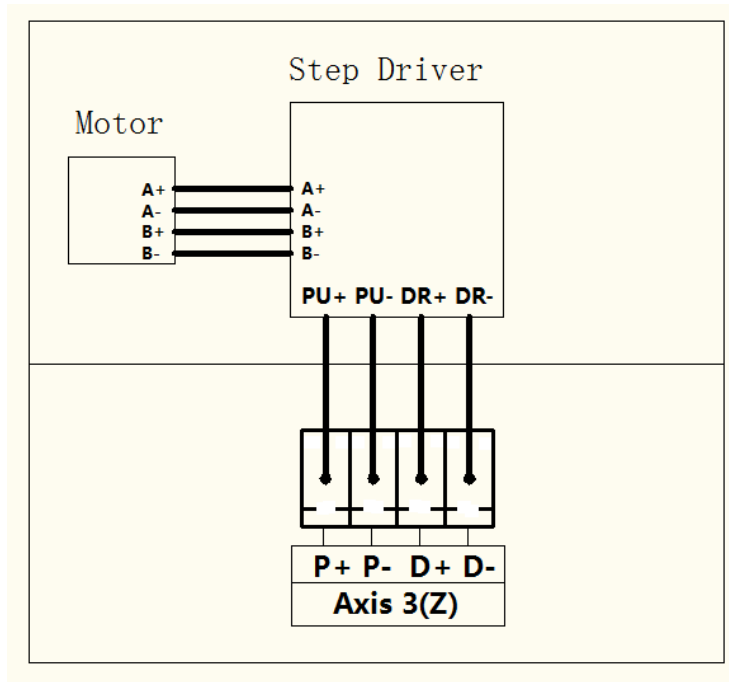
Shut off the power switch, connect before, be sure to turn the motor and load out, before the installation and debugging of the control system of unfinished, don't connect any electrical and mechanical equipment. Then the user must carefully read the drive manual, correct connection. According to the requirements of drive manual test drive and motor, make sure they work.

3. Connect the controller with the teach box

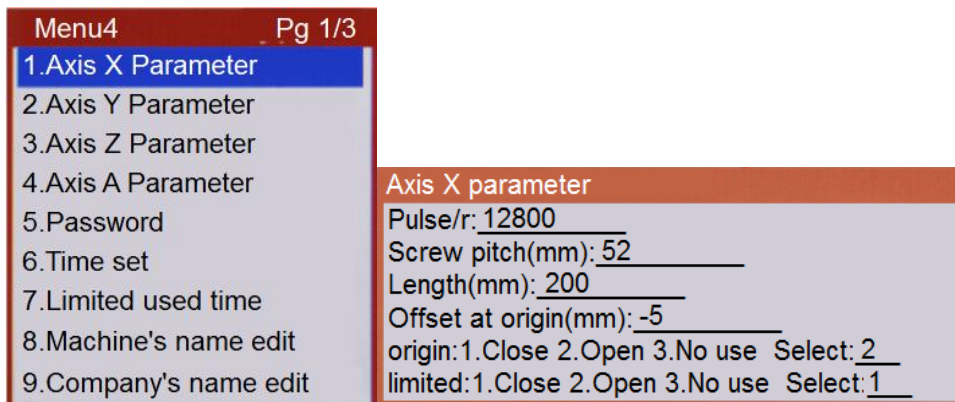
Shut off the power switch, with parts of the teach box thread, according to the shape of port teach box are connected at one end, and the other end connection control. The HMI of 1 / handheld programmer interface position. Be sure after open the power switch, the teach box on the screen, button interactive operation can be performed.

4. The connecting shaft signal interface

Shut off the power switch, with the XYZA four motor axis line in the accessories, respectively motor drive P + ,P - ,D + ,D - four thread and controller of the motor shaft interface of P + , P - ,D + ,D - four signal lines connected.

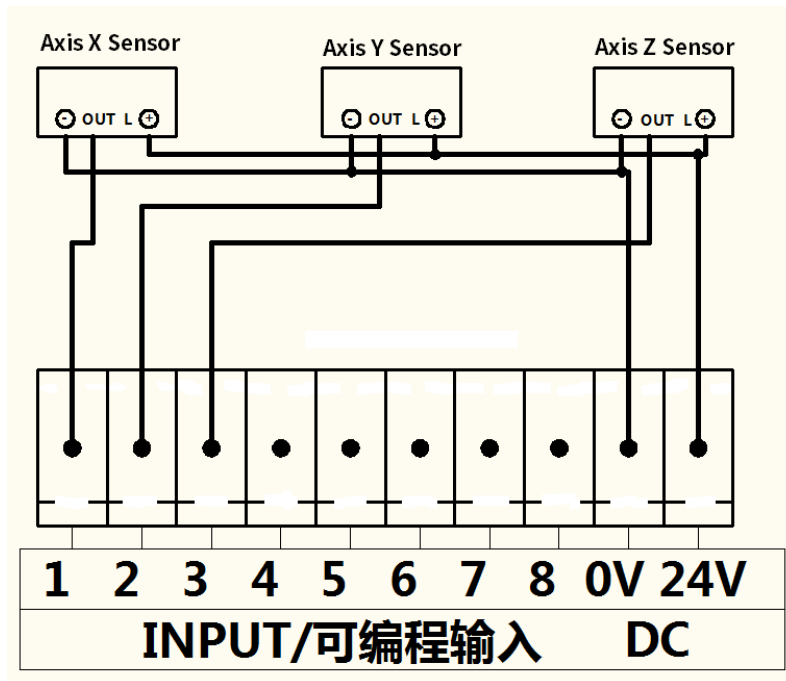


Open controller, power supply, make sure it is connected into the menu, four of the first page of the XYZ axis parameter Settings menu, according to the actual hardware conditions turn for each pulse number, pitch, three parameters configuration. Configuration completed return to the main interface, press the teach box XYZ direction key, the corresponding electric opportunity to corresponding direction.



5. Connect the origin signal

Shut off the power switch, respectively the XYZ axis three origin of positive and negative power cord and origin of sensor signal lines connected to the origin of the controller signal interface position. **Pay attention to the positive and negative must not reverse connection.**



Make sure it is connected, turned on the power switch, into the menu, four of the first page of the XYZ axis parameter Settings menu, according to the actual situation, set up the origin and the limit of the sensor normally open normally closed, if not use the sensor is set to block it.

Three and then enter the menu, the third page view state of input and output signals, if sensor is normally open state, after induction to corresponding shaft for the number 0, no induction to the corresponding axis for the number 1; If the sensor is normally closed state, the sensing, is 1, the corresponding shaft digits without induction to the corresponding axis for the number 0. Manual induction test and correct is normal.

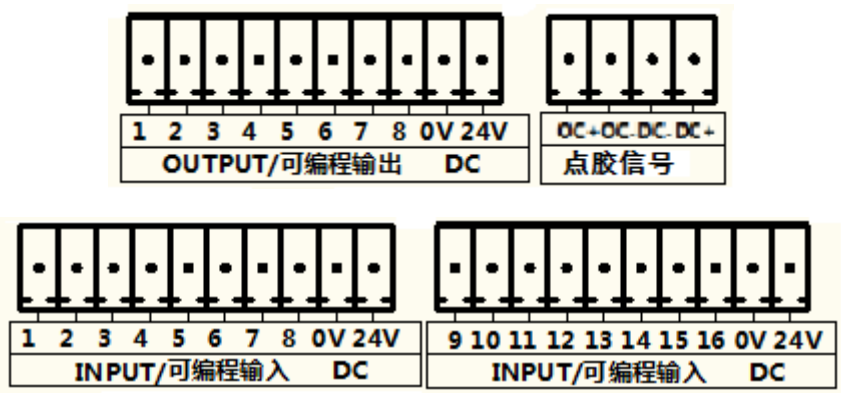
6. Interface connection program group and the needle

Shut off the power switch, the program group and the needle module will accessories line is connected to the controller of HMI 2 / program group and interface of needle. Then open the power switch, the file number of the digital tube display the current programming, through small keyboard keys can be carried out on the machine manual for injection.

7. Connect the system input/output port

General I/O port access, such as the key signal, limit signals, and general IO signal, etc. Various input signal. Three connection terminal support overall demolition, when replace the board, can be removed access to the new board as a whole.

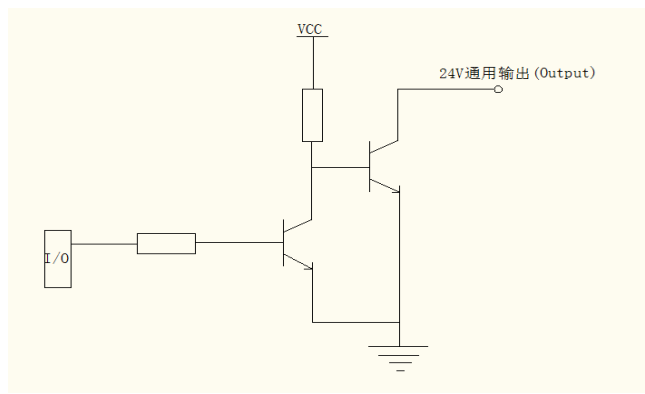
- a) Input port and 0 v is short circuit or with sensor drop down to 0 v to the input signal.
- b) Outlet for the open collector output, load on the + 24V of the anode, cathode on the output interface.
- c) Light output decoupling two output corresponding general output # 1 and general output # 2, and facilitate the user to configure different dispensing outlet.



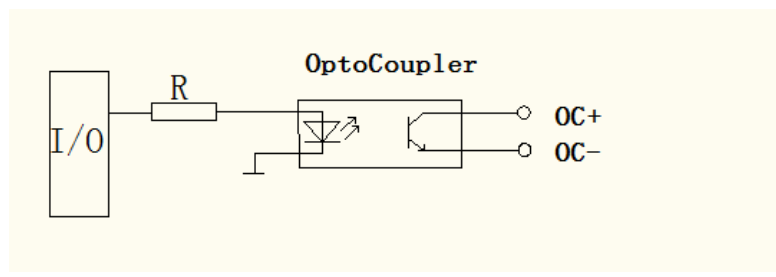
General input port pin definition:

pin	instructions	Pin reuse	pin	instructions
1	General input # 1	The X axis origin signal	9	General input # 9
2	General input # 2	The Y axis origin signal	10	General input # 10
3	General input # 3	The Z axis origin signal	11	General input # 11
4	General input # 4	-----	12	General input # 12
5	General input # 5	-----	13	General input # 13
6	General input # 6	-----	14	General input # 14
7	General input # 7	-----	15	General input # 15
8	General input # 8	-----	16	General input # 16

Common output port circuit diagram:



Optical coupling circuit diagram output port:



Output port pin definition:

pin	instructions	pin	instructions
1	OC output # 1	5	General output # 5
2	Optical coupling output # 2	6	General output # 6
3	General output # 3	7	General output # 7
4	General output # 4	8	General output # 8

Three connection after open the power switch, into the menu, the third page of the input and output signal testing, manual testing and correct is normal.



8. Back to the origin test

Back to the origin process is to determine the XYZ three origin sensor location and is set to 0 point of process.

Before back to the origin, to ensure that:


- a) XYZ axis of each axis parameter is set correctly;
- b) Manual test teaching box XYZ triaxial positive and negative direction is normal;
- c) Manual testing origin signal induced normal;
- d) Menu page 4-3-6. The machine installation is set correctly.

At this time, according to the origin button next time, each shaft successfully returns origin shaft position sensor, and the axis coordinate all show 0, the machine initialization is complete.

9. U disk to update the program

Motherboard manufacturer at all can burn write the default driver, DSP program and the application, if the subsequent need to upgrade the application or driver, the update steps as follows:

- A) Prepare a U disk, U disk formatting into FAT32 format (note: Only support U disk, does not support the card reader and mobile hard disk)
- B) Create a folder for the <点胶机> in the root directory, and then create a folder for the <升级文件> in the <点胶机> folder.
- C) Provide the suffix of manufacturer. The arm with the suffix. FPG, suffix. DSP program files into the < 升级文件 > folder.
- D) To open the dispensing machine power supply, the prompt back to the origin, press exit, need not back to the origin.

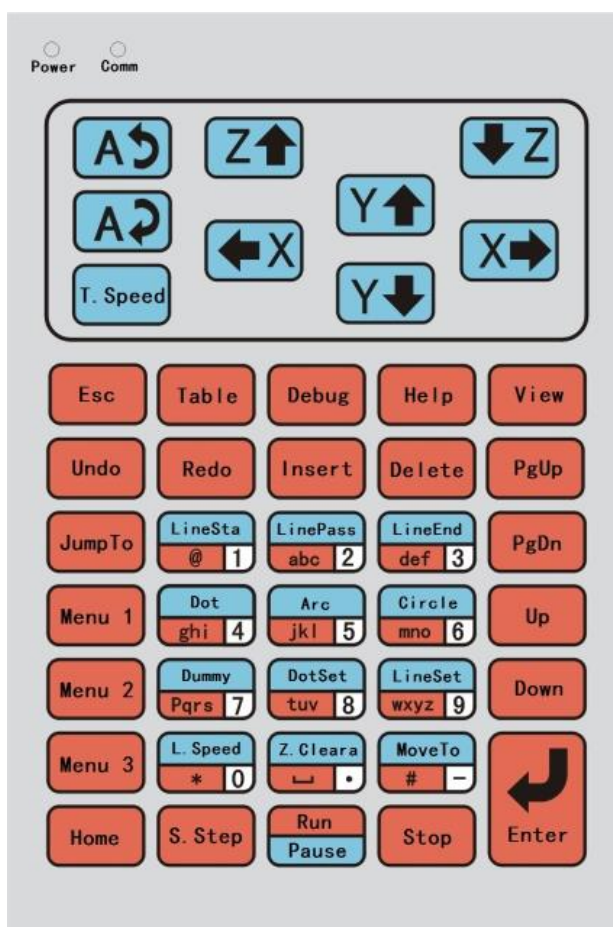
E) The U disc is inserted into the dispenser, see like this  in the upper right corner of the menu, to 3- page second -7. Program update, press the OK button to update, in the process of operation can't power, otherwise it will cause the program confusion, after updating the power reboot menu in 3 to continue to update the FPGA and DSP program. After the completion of the above steps to update.











Chapter 3 Hardware specifications























3.1 Summary of hardware







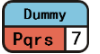











1. The motor shaft output: 3 shaft output, XYZ three-dimensional coordinate axis respectively.
2. The deceleration characteristics: S type curve deceleration mode, the acceleration and deceleration independent setting; The speed of 10 k refresh rate, let the machine better response performance, less noise.
3. The pulse output frequency: 4 MHz linear interpolation, 2 MHz circular arc interpolation (including three axis space circular arc interpolation), motor 20000 pulses per revolution, for example, can be up to 6000 r/min, enough to meet the high speed servo motor of the existing 5000 r/min.
4. The origin, limit input: Each motor shaft independent origin of special input, plus or minus limit input, without programmable universal input hardware resources.
5. A programmable input/output: Independent 16-way input and output 8 road, adopt optical coupling isolation, each output current up to 500 mA.
6. Support the three digital interface, can quickly select switch a scale of 0-999 to 1000 dispensing file.
7. The needle with a small keyboard, in the absence of handheld programmer can realize error caused by change of needles for a correction.
8. The function keys: With "run/pause, 'stop', 'back to the origin,' the glue test," and "emergency stop" and "one step test check 'six function buttons.
9. With CAN bus and RS - 232, can customize for customers with special needs special program.
10. U disk read and write functions: Using FAT32 file system, no longer subject to greater than the capacity of 2G U disk cannot be formatted into FAT format.
11. The storage space: Motherboard 256 MB, can store 1000 dispensing files, each file 4000 programming points; Handheld programmer 16 MB, can store the boot screen, dispensing file, copy each other in multiple machines dispensing file is particularly useful.
12. Handheld programmer screen: USES 480 * 480 pixels, 272 color true color 5 inches LCD screen, make operation menu interface and boot screen content more rich.
13. Working voltage: DC24V.
14. The working environment: temperature 0°C — 45°C and humidity of 40% - 80%.
15. Storage environment: temperature - 40°C — 60°C, humidity 0% - 95%.

3.2 Teach box key description

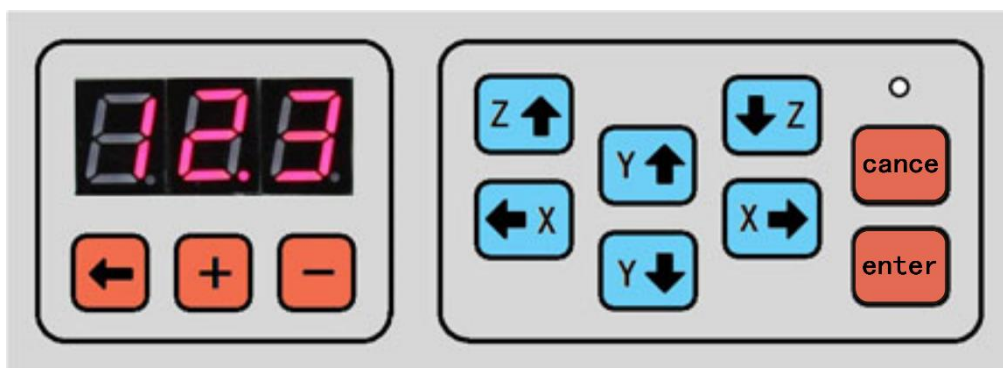














1.  The fourth axis named A axis counter clockwise rotation by manual.
2.  The fourth axis named A axis clockwise rotation by manual.
3.  Z axis up by manual.
4.  Z axis down by manual
5.  Y axis front by manual
6.  Y axis back by manual
7.  X axis left by manual
8.  X axis right by manual
9.  Switch manual speed “slow, middle, fast”
10.  Operation of exiting the menu or canceling the input dialog

11.  Cursor switch between “dispensing programming point” area and “short menu bar” area, or transform plane when previewing.
12.  Analysis of the current dispense file whether it's programmed point accord with the dispense programming rules, if yes, then the icon  will become gray.
13.  Press this key can pop up some help information of the current page, press any key to exit.
14.  Preview the glue out path graphic in current dispense program file in XY, XZ, YZ plane position, press  to change plane, press other any key to exit
15.   Undo and redo to the edition of programming points, up to 30 times, for preventing misuse effectively.
16.  In front of the cursor point of the selected insert a blank dispense program point.
17.  Delete the programming point of selected in main page, or in the menu state use for “delete” key.
18.  Jump to the special programming point address by manual input.
19.  Into Menu 1, for the dispense point of action, displaying as black.
20.  Into Menu 2, for dispense point of parameters setting, displaying as red.
21.  Into Menu3, for device of parameters setting and some application operation
22.  Perform to home.
23.  Perform step dispense test.
24.  Dispense working run or pause.
25.  Dispense working stop.
26.  Cursor up a page in main page state, or up a page in menu state.
27.  Cursor down a page in main page state, or down a page in menu state.
28.  Cursor up a line in main page state, or up a line in menu state, or up a line in input dialog.
29.  Cursor down a line in main page state, or down a line in menu state, or down a line in input dialog.

30.  Start point of dispense line program in main page, or input ‘1’ ,characters in input dialog.
31.  Middle point of dispense line program in main page , or input ‘2’ , ‘abc’ in input dialog.
32.  Finish point of dispense line program in main page , or input ‘3’ , ‘def’ in input dialog.
33.  Dispense dot program in main page, or input ‘4’ , ‘ghi’ in input dialog.
34.  Arc point of dispense line program in main page, or input ‘5’ , ‘jkl’ in input dialog.
35.  Dispense circle program in main page, or input ‘6’ , ‘mno’ in input dialog.
36.  Dispense dump point(dump point is just like the dispense dot, only move to the point coordinate, but no more action, mainly used to other expect dispensing ,such as clear needle, etc.) program in main page, or input ‘7’ , ‘pqrs’ in input dialog.
37.  Set parameters of dispense dot program in main page, or input ‘8’ , ‘tuv’ in input dialog.
38.  Set parameters of dispense line program in main page, or input ‘9’ , ‘wxyz’ in input dialog.
39.  Set parameters of dispense line speed program in main page, or input ‘0 ’ in input dialog.
40.  Set Z height parameters in main page, or input space character or decimal point in input dialog.
41.  Move the needle to the programming point of cursor selected in main page when there is coordinate occurred or switch IME or input negative value symbol in input dialog.
42.  +  Change Y axis between Y1 and Y2 then display when in double Y mode.
43.  +  Into menu 4, for bottom layer parameters of the device, suggested not open to users.
44.  +  Into menu 5, for system default parameters, proposed not open to users.

3.3 Program selection and needle buttons



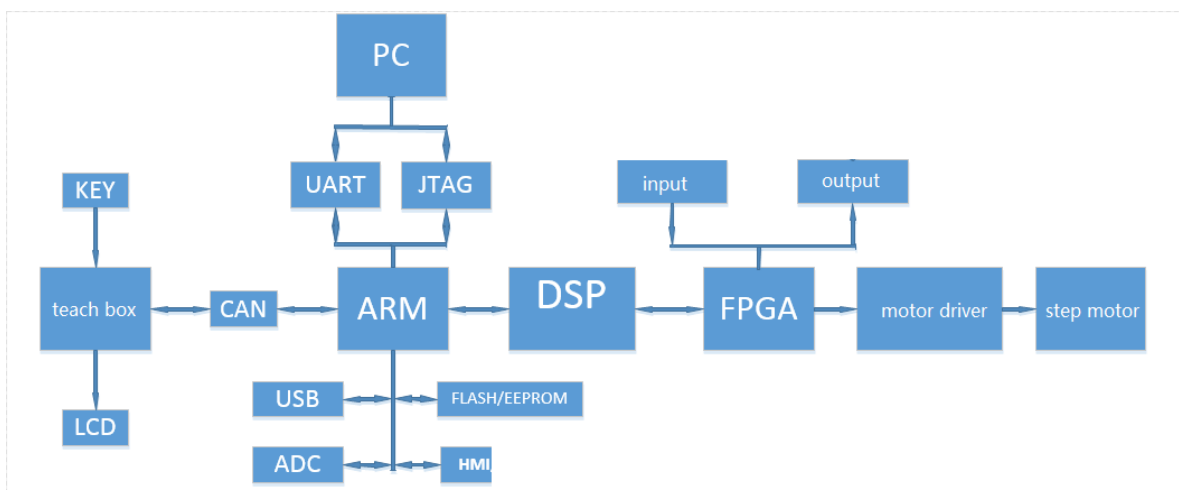
-  The current file selected is dispense file 123.
-  Move the decimal point bit of the current dispense file No., there is ‘+’ ,’ -’ operation follow with the decimal point bit.
-  Plus 1 on the bit of decimal point in the dispense File No.
-  Minus 1 on the bit of decimal point in the dispense File No.
-  Z axis move up by manual when adjusting needle point.
-  Z axis move down by manual when adjusting needle point.
-  Y axis move front by manual when adjusting needle point.
-  Y axis move back by manual when adjusting needle point.
-  X axis move left by manual when adjusting needle point.
-  X axis move right by manual when adjusting needle point.
-  Enter or confirm the adjustment operation for needle point, when enter the adjustment to the needle point position, LED on the back of the film began flashing, press manual key then press confirm key to finish the operation.
-  Cancel the adjustment operation.

Chapter 4 Software instructions

4.1 Summary of software

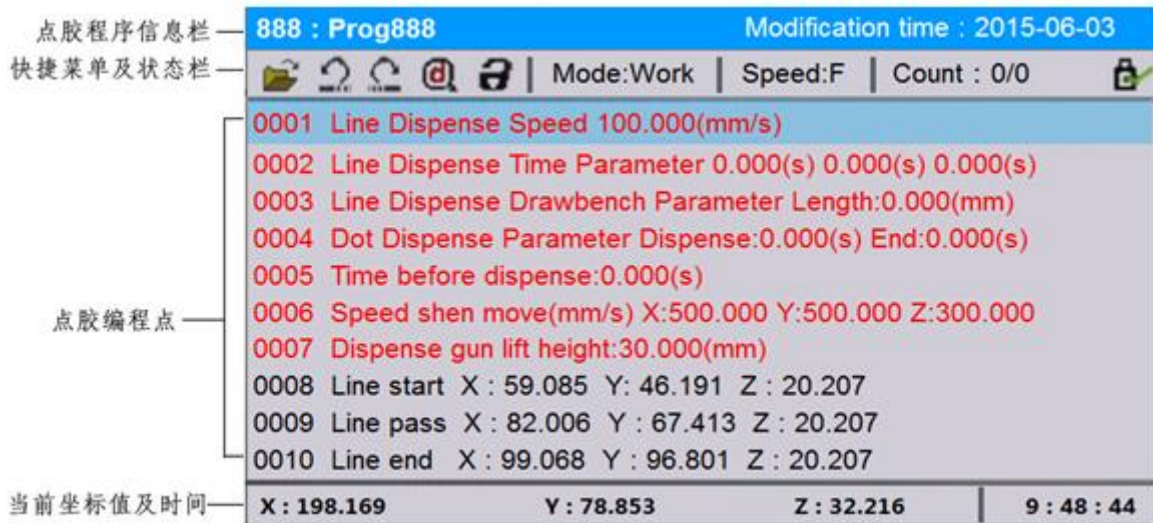
1. Three-dimensional linear interpolation, three dimensional space circular arc interpolation (not the real hardware three-dimensional space circular arc, line fitting).
2. Corner processing speed can be set with the route alignment of priority, turn to realize smooth transition.
3. DXF file conversion function, can be best dispensing path graph CAD export DXF files into glue.
4. For programming of editing can have 30 times "undo" "redo", effectively prevent wrong operation.
5. Dispensing parameter Settings in the form of programming point set, can be realized in the process of the same point glue dispensing parameters of different regions have different Settings.
6. After back to the origin action each shaft back to the origin XYZ three axis origin capture movement at the same time.
7. With full spelling Chinese input method.

4.2 The system frame




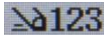
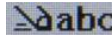



4.3 Main interface description

1. Main interface content distribution.



2. **888 : Prog888** Dispensing file serial number and the name of the file, "888" is the serial number, "888" program for the file name.
3. **Modification time : 2015-06-03** The latest modified time dispensing file.
4. Open the dispensing file icon, can use "switch" button switch the cursor to the icon.
5. "Undo" and "redo" status indicates the icon, can reach 30 times the number of "undo" "redo", such as the icon for the grey beyond operation "undo" or "redo".
6. Said that point file was edited, needs to be done "debug" operation, if the icon is gray, the file has been through the "debug".
7. Unlocked the file, the file is locked, the machine has been locked.
8. **Mode:Work** Operation mode, "work", "no plastic", "uniform" three modes; "Work" mode to normal dispensing processing mode; "No plastic" model for the rate of movement of the machine and the path like "work" mode, but not out of the glue; "Uniform" model for machine running path like "work" mode, but the speed according to the "uniform" model, and no glue, mainly used for testing of the path.
9. **Speed:F** Manual movement speed, fast, medium and slow speed, press the "speed" key switch in turn.
10. **Count : 0/0** Artifacts counter, numerical count for workpiece, in front of the back of the value was set to machining work pieces, such as work piece count value to set to the workpieces numerical counting will prompt the workpiece is full, if there is no machining count limit will work number set to "0".

11.  U disk inserted,  without U disk inserted.
12.  Pinyin input,  digital input,  input lowercase letters,  capital letter input, in the character input state press “#” key to switch input method.

4.4 Unit symbol explanation

1. The length of the unit (mm) = (mm)
2. Unit (s) = time (in seconds)
3. Speed unit (mm/s) = (mm) per second
4. Acceleration unit (mm/s) (s *) = (how many millimeters per second per second to accelerate the speed of)

4.5 Glue convention by the end of the program

Promotive for enhancing the readability of the program, the programming may retain a line between “not programming point blank” such as more than two consecutive lines “not programming point blank” is considered the end or subroutine returns; with the “end of the program or return” programming points.

4.6 Dispensing program operation mode

Dispensing program run from address in dispensing programming point of order 0001 started the implementation of each programming point down action or parameter Settings, until the end of the dispensing programming point or press the emergency “stop” and “stop” button. Action of these programming points in addition to single glue dots, linear glue, arc dispensing, circular point glue and glue, etc. Also include a call, array, jump, time delay and pause.

Due to the dispensing parameter setting, use programming can be achieved in the same point glue processing different dispensing area have different dispensing parameters, such as the following programming points:

```
0001 Line Dispense Speed 100.000(mm/s)
0002 Line start X : 0.000 Y : 0.000 Z : 46.451
0003 Line end X : 36.928 Y : 14.081 Z : 46.451
0004 Line Dispense Speed 100.000(mm/s)
0005 Line start X : 36.928 Y : 46.191 Z : 46.451
0006 Line end X : 36.928 Y : 96.801 Z : 46.451
0007 Line Dispense Speed 100.000(mm/s)
0008 Line start X : 36.928 Y : 46.191 Z : 46.451
0009 Line end X : 36.928 Y : 96.801 Z : 46.451
```

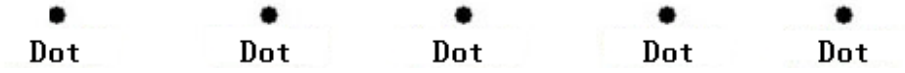
Is composed of 0002-0003 line dispensing at a speed of 100 mm per second, 0005-0006 line of dispensing at a speed of 200 mm per second, 0008-0009 line of dispensing at a speed of 300 mm per second.

4.7 The basic path of composition

The basic route of dispensing with single glue dots, three dimensional linear point glue, 3 d circular arc dispensing, XY plane circular point glue, x, y plane circular glue and XY plane rectangular glue, etc. including single glue dots, lines starting point, the line between point, line end points, circular and circular points of programming used by these points has a special shortcut keys on the keyboard, without having to go to menu choice; The following basic graphics for the dispensing process.

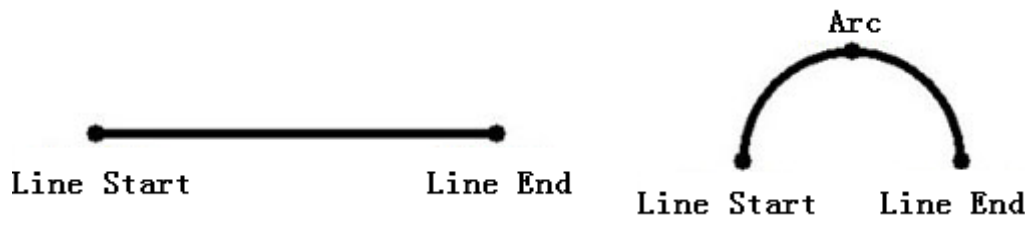
1. Single dot glue

Dot
ghi 4



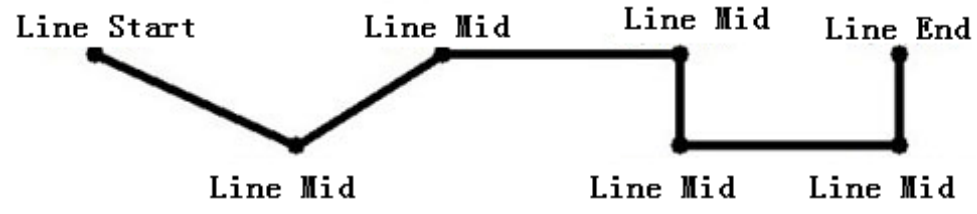
2. Separate line dispensing and arc dispensing

LineSta	LineEnd	Arc
@ 1	def 3	jkl 5



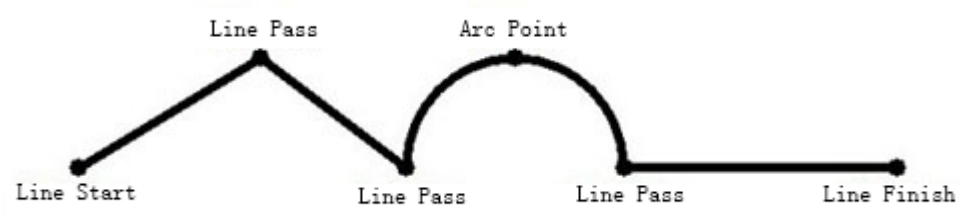
3. The straight line segment dispensing

LineSta	LinePass	LineEnd
@ 1	abc 2	def 3

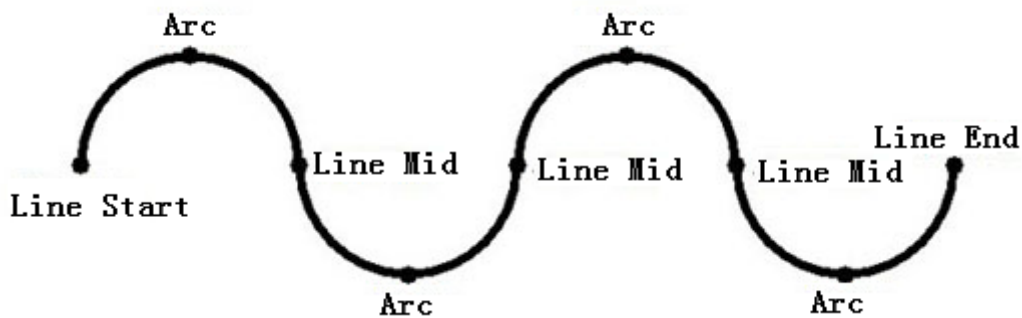


4. Straight line and arc dispensing

LineSta	LinePass	Arc	LineEnd
@ 1	abc 2	jkl 5	def 3



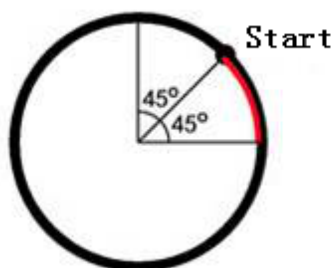
5. Continuous arc dispensing
- | | | |
|---------|-----|-------------|
| LineSta | Arc | LineEnd |
| @ | 1 | jkl 5 def 3 |



6. Circular dispensing
- | |
|--------|
| Circle |
| mno 6 |

Circular dispensing starting position can be made of Angle setting for the unit, at 12 o'clock position to 0 degrees, clockwise. Below dispensing starting point of 45 degrees, practical application if set the initial Angle of 45 degrees when the minimum jitter of inertia of the machine, it is highly recommended to set the starting Angle of 45 degrees.

Circular point glue can also set beyond the point of view, also is the needle through a circle clearance after glue can also go to a set of arc length, this feature allows the start and end of glue quantity is more uniform; s shown in figure beyond the Angle of 45 degrees, red to go beyond the Angle of the path.




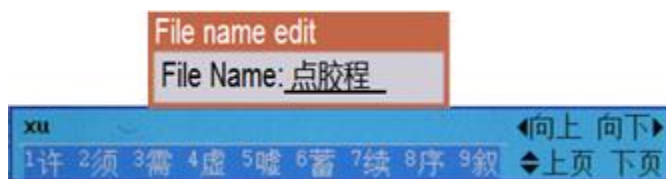
Chapter 5 Menu 1

Menu 1 for commonly used glue dispensing motion programming and file operations, menu 1 point of programming is usually generated by dispensing operation classes, with black display. The menu includes the following contents: 1

Menu1 Pg 1/3	Menu1 Pg 2/3	Menu1 Pg 3/3
1.File's name edit	1.Limited loop	1.Counter
2.Default parameters	2.Program end	2.Goto the free location
3.Multiple programming	3.Delay	3.Home(reset)
4.Label set	4.Pause	4.Multiple gun set
5.Array dispense	5.Input program	5.Reference point set
6.Array expand	6.Output program	6.Auto home counter
7.Call subroutine	7.Square brush	7.Gun clear counter
8.Call file	8.Circle brush	
9.Program goto	9.Dispense signal ON/OFF	

5.1 Page 1 1. File's name edit

As shown in figure, according to the key switch input method .



5.2 Page 1 2. Default parameters

As shown in figure, can produce the following seven commonly used parameters of dispensing, each point glue parameters can also be generated in the menu 2 single, generated in the main interface is selected to quickly modify them one by one. The function of various parameters see menu 2 individual instructions.

```

0001 Line Dispense Speed 100.000(mm/s)
0002 Line Dispense Time Parameter 0.000(s) 0.000(s) 0.000(s)
0003 Line Dispense Drawbench Parameter Length:0.000(mm)
0004 Dot Dispense Parameter Dispense:2.000(s) End:0.000(s)
0005 Time before dispense:0.000(s)
0006 Speed shen move(mm/s) X:500.000 Y:500.000 Z:300.000
0007 Dispense gun lift height:30.000(mm)
    
```

5.3 Page 1 3. Multiple programming

As shown in figure, edit multiple programming point has the following action items, if the model of single Y then there is no “9. In the Y axis”.

Multiple records edit

1.copy 2.delete 3.move 4.offset 5.Z value
6.plane rotation 7.zoom 8. Tech offset
Selet : ____
start : ____ end : ____

1. Copy, such as the following three as shown in figure, copies programming, 0001-0003 points to 0005 programming points, the third in the first figure to perform a second operation results.

0001	Dot X : 36.928 Y: 95.075 Z : 46.451
0002	Dot X : 67.303 Y: 95.075 Z : 46.451
0003	Dot X : 67.303 Y: 134.749 Z : 46.451
0004	non record
0005	non record
0006	non record
0007	non record
0008	non record
0009	non record
0010	non record

Multiple records edit

1.copy 2.delete 3.move 4.offset 5.Z value
6.plane rotation 7.zoom 8. Tech offset
Selet : 1
start : 1 end : 3
copy to : 5

0001	Dot X : 36.928 Y: 95.075 Z : 46.451
0002	Dot X : 67.303 Y: 95.075 Z : 46.451
0003	Dot X : 67.303 Y: 134.749 Z : 46.451
0004	non record
0005	Dot X : 36.928 Y: 95.075 Z : 46.451
0006	Dot X : 67.303 Y: 95.075 Z : 46.451
0007	Dot X : 67.303 Y: 134.749 Z : 46.451
0008	non record
0009	non record
0010	non record

2. Delete, such as the following three as shown in figure, delete programming, 0005-0007 points, the third in the first figure to perform a second operation results.

```
0001 Dot X : 36.928 Y: 95.075 Z : 46.451
0002 Dot X : 67.303 Y: 95.075 Z : 46.451
0003 Dot X : 67.303 Y: 134.749 Z : 46.451
0004 non record
0005 Dot X : 36.928 Y: 95.075 Z : 46.451
0006 Dot X : 67.303 Y: 95.075 Z : 46.451
0007 Dot X : 67.303 Y: 134.749 Z : 46.451
0008 non record
0009 non record
0010 non record
```

Multiple records edit

1.copy 2.delete 3.move 4.offset 5.Z value
6.plane rotation 7.zoom 8. Tech offset

Selet : 2

start : 5 end : 7


```
0001 Dot X : 36.928 Y: 95.075 Z : 46.451
0002 Dot X : 67.303 Y: 95.075 Z : 46.451
0003 Dot X : 67.303 Y: 134.749 Z : 46.451
0004 non record
0005 non record
0006 non record
0007 non record
0008 non record
0009 non record
0010 non record
```

3. Move, as following three pictures , move 0001-0003 program points to 0005 and behind, this function mainly used to adjust the order of all dispense processing files, the third picture is result when the first picture execute the second picture.

```
0001 Dot X : 36.928 Y1: 95.075 Z : 46.451
0002 Dot X : 67.303 Y1: 95.075 Z : 46.451
0003 Dot X : 67.303 Y1: 134.749 Z : 46.451
0004 Line start X : 67.303 Y1: 134.749 Z : 46.451
0005 Line end X : 106.815 Y1 : 134.749 Z : 46.451
0006 non record
0007 non record
0008 non record
0009 non record
0010 non record
```

Multiple records edit

1.copy 2.delete 3.move 4.offset 5.Z value
6.plane rotation 7.zoom 8. Tech offset
Selet : 3
start : 1 end : 3
Move to : 6

```
0001 Line start X : 67.303 Y1: 134.749 Z : 46.451
0002 Line end X : 106.815 Y1 : 134.749 Z : 46.451
0003 Dot X : 36.928 Y1: 95.075 Z : 46.451
0004 Dot X : 67.303 Y1: 95.075 Z : 46.451
0005 Dot X : 67.303 Y1: 134.749 Z : 46.451
0006 non record
0007 non record
0008 non record
0009 non record
0010 non record
```

4. Offset, as following three pictures, offset the 0001-0005 program point, the third picture is result when the first picture execute the second picture.

```
0001 Line start X : 67.303 Y1: 134.749 Z : 46.451
0002 Line end X : 106.815 Y1 : 134.749 Z : 46.451
0003 Dot X : 36.928 Y1: 95.075 Z : 46.451
0004 Dot X : 67.303 Y1: 95.075 Z : 46.451
0005 Dot X : 67.303 Y1: 134.749 Z : 46.451
0006 non record
0007 non record
0008 non record
0009 non record
0010 non record
```

Multiple records edit

1.copy 2.delete 3.move 4.offset 5.Z value
6.plane rotation 7.zoom 8. Tech offset
Selet : 4
start : 1 end : 5
offset X(mm) : 10
offset Y(mm) : 20
offset Z(mm) : -10

```
0001 Line start X : 77.303 Y1: 154.749 Z : 36.451
0002 Line end X : 116.815 Y1 : 154.749 Z : 36.451
0003 Dot X : 46.928 Y1: 115.075 Z : 36.451
0004 Dot X : 77.303 Y1: 115.075 Z : 36.451
0005 Dot X : 77.303 Y1: 154.749 Z : 36.451
0006 non record
0007 non record
0008 non record
0009 non record
0010 non record
```

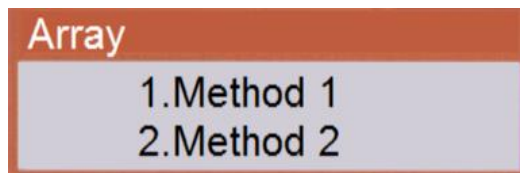
- 5. **Z value**, set the Z axis value of the programming point to the special coordinate value in the edit range. The mainly use is to make a number of programming points on the same plane dispensing.
- 6. **Plane rotation**, Rotating the programming point in the edit range, mainly used for correcting when the clamp tool is rotated without programming again.
- 7. **Zoom**, Zoom the graphic of dispense graphic in or out in the edit range, mainly used for correcting when DXF file generating processing file due to the accuracy of the machine caused the deviation by the processing size and the actual size.
- 8. **Teach offset**, generally used in CAD mapping, the CAD for teaching point and work on the corresponding point on deviation. Will edit the screw holes within the scope of a programming points accordingly coordinates deviation.

5.4 Page 1 4. Label set

Labels can not only used to called with array, loop, sub, jump, general input programming, etc. but also be used to program comments to improve the readability of the dispense program.

5.5 Page 1 5. Array dispense

If dispense processing fixture plate placed multiple horizontal and vertical arrangement of the work piece, and horizontal and vertical respectively spacing is consistent then can use array dispense, as long as the series good machining of one work piece, and then use the array dispense can achieve full disk work piece machining, so that programming efficiency is greatly improved. There are two ways for array dispense as follows:

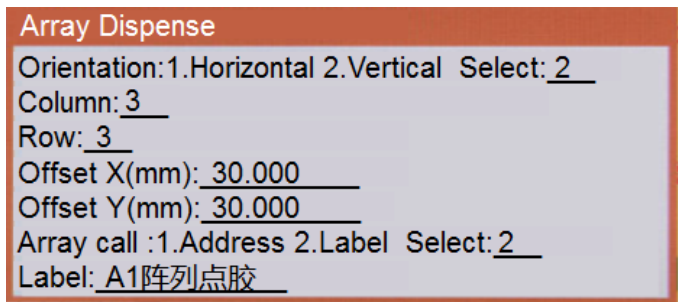


If processing fixture plate placed multiple horizontal and vertical arrangement of the work piece, and horizontal and vertical respectively spacing is consistent then can use array, as long as the series good machining of one work piece, and then use the array can achieve full disk work piece machining, so that programming efficiency is greatly improved.

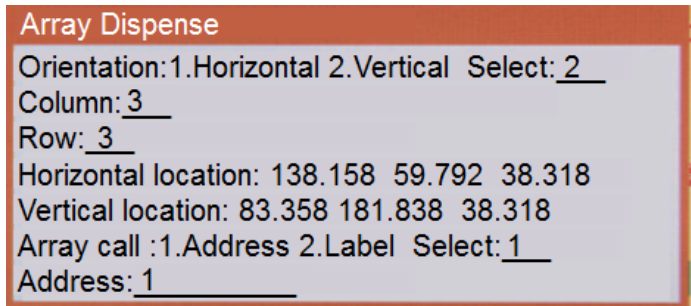
Dispense program as following:

```
0001 Label : A1阵列点胶
0002 Dot X : 29.689 Y: 32.752 Z : 38.318
0003 Line start X : 29.689 Y: 49.648 Z : 38.318
0004 Line end X : 69.469 Y : 49.648 Z : 38.318
0005 Line start X : 29.689 Y: 79.648 Z : 38.318
0006 Arc-dot X : 49.372 Y : 59.792 Z : 38.318
0007 Line end X : 69.469 Y : 79.648 Z : 38.318
0008 Vertical Call Label:A1阵列点胶 Column:3 Row:3
0009 non record
0010 non record
```

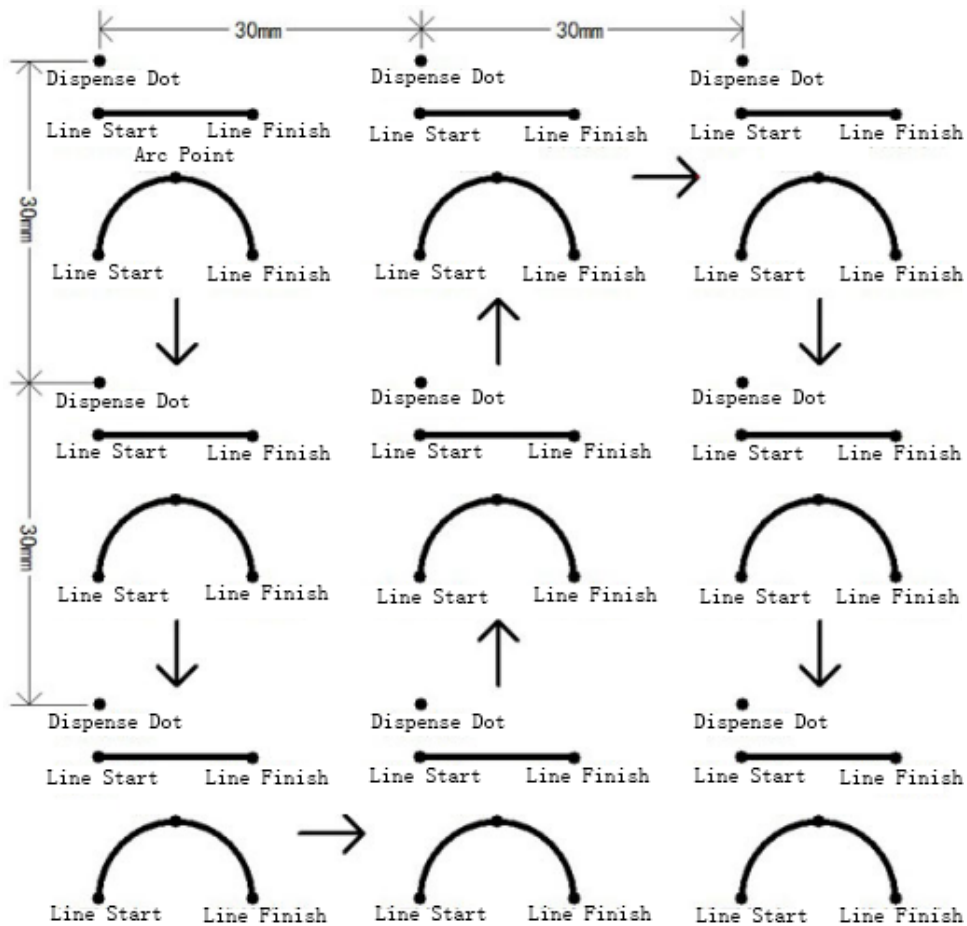
Program method of method 1:



Program method of method 2:



Result of dispense process as following picture:



5.6 Page 1 6. Array expand

Selected the array programming point of the cursor in the main page, performing array deployment can generate programming points with the same effect as the array. It can modify each screw hole when the tool disc is not regular.

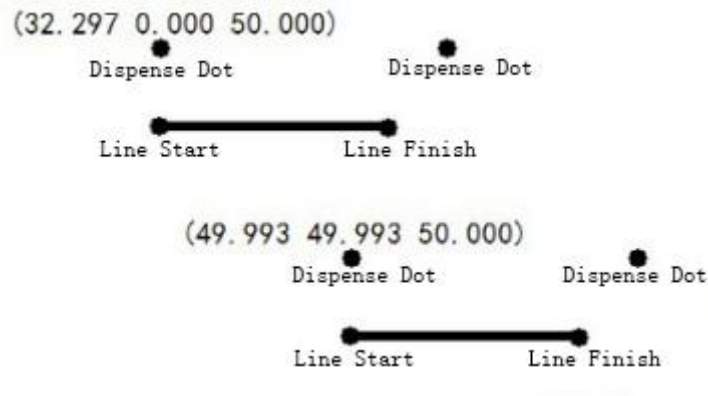
5.7 Page 1 7. Call subroutine

If dispense processing fixture plate placed multiple direction, But there is no rule of the work piece. It is only necessary to programming and dispensing of one work piece then call the subroutine in starting coordinate of each work piece. It can call the address or the label of the subroutine. Such as dispensing programming below:

```

0001 Call subroutine 32.297 0.000 50.000 Call add:0006
0002 Call subroutine 49.993 49.993 50.000 Call Label:子程序1
0003 non record
0004 non record
0005 Label :子程序1
0006 Dot X : 0.000 Y: 0.000 Z : 50.000
0007 Dot X : 39.098 Y: 0.000 Z : 50.000
0008 Line start X : 0.000 Y1: 12.366 Z : 50.000
0009 Line end X : 30.363 Y1 : 12.366 Z : 50.000
0010 program end
    
```

Result of dispense processing is following:



5.8 Page 1 8. Call file

The way to call file is the same to call subroutine, as long as change the called subroutine to a dispense file No., and change the dispense processing programming point from the subroutine to the file.

5.9 Page 1 9. Program goto

Program jump to special address or label to run when run to the current programming point, usually used to loop. As following picture, program will jump to 0001 label: loop dispense when work at 0007, keep working dispense action in 0002-0006 area.

```

0001 Label : 循环点胶
0002 Dot X : 0.000 Y: 0.000 Z : 50.000
0003 Dot X : 0.000 Y: 0.000 Z : 50.000
0004 Dot X : 0.000 Y: 0.000 Z : 50.000
0005 Line start X : 0.000 Y1: 12.366 Z : 50.000
0006 Line end X : 30.363 Y1 : 12.366 Z : 50.000
0007 Jump to label:循环点胶
0008 non record
0009 non record
0010 non record
    
```

5.10 Page 2 1. Limited loop

It is similar to the “program jump”, just the “program jump” is no limit counts when loop. As following picture: it will repeat 10 times dispense action in 0002-0006 area.

```

0001 Label : 循环点胶
0002 Dot X : 0.000 Y: 0.000 Z : 50.000
0003 Dot X : 0.000 Y: 0.000 Z : 50.000
0004 Dot X : 0.000 Y: 0.000 Z : 50.000
0005 Line start X : 0.000 Y1: 12.366 Z : 50.000
0006 Line end X : 30.363 Y1 : 12.366 Z : 50.000
0007 Loop Call Label:循环点胶 time:10
0008 non record
0009 non record
0010 non record
    
```


5.11 Page 2 2. Program end

When in a subroutine execution to the programming, the subroutine returns, when not in a subroutine execution to the programming is dispense processing the end of the program. If there are more than two lines of "no programming point" means the end of the program.

5.12 Page 2 3. Delay

If the program execution to the delay dispense programming point is processed to stop the time delay a certain period of time and then continue to execute the dispense processing point.

5.13 Page 2 4. Pause

If the program execution to the pause dispense programming point, waiting for the run key then continue to execute the dispense processing point.

5.14 Page 2 5. Input program

Programming input signal is when the program execution to the programming of the point, if the values of the input state accord with the specified input signals then program jump to the specified address or label, if not then program continue to execute. As following picture, when program work at 0002, it will check the state of ‘通用输出 1’, if input sign is ‘0’ then jump to 0001 and check the signal again, until this input sign become 1 then working below. Use this function can be achieved with other devices with the work or as a pause key input, etc. (Signal definition: if has the input signal then the signal is defined as the amount of 1, no input signal is defined as the amount of the signal 0).

```
0001 Label : 循环点胶
0002 When in <通用输入 01>= 0 Goto label:循环点胶
0003 Dot X : 0.000 Y: 0.000 Z : 50.000
0004 Dot X : 0.000 Y: 0.000 Z : 50.000
0005 Dot X : 0.000 Y: 0.000 Z : 50.000
0006 Line start X : 0.000 Y1: 12.366 Z : 50.000
0007 Line end X : 30.363 Y1 : 12.366 Z : 50.000
0008 Output <通用输出 01> is 1
0009 Delay:1.500(s)
0010 Output <通用输出 01> Is 0
```

5.15 Page 2 6. Output program

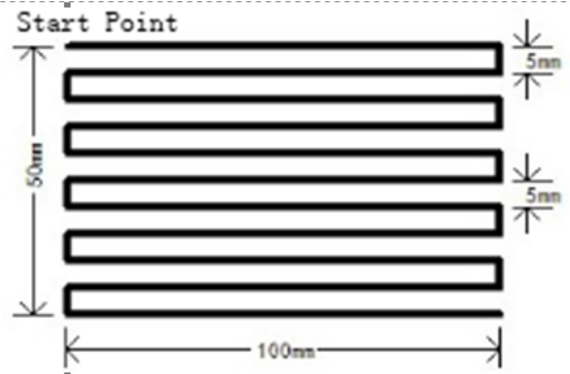
When the program is executed to the output signal programming point, then the output signal will output specified value, 1 as DC24V output, 0 as DC0V output.

5.16 Page 2 7. Square brush

The starting point of the square gluing is the upper left corner of the square, parameters including glue length, glue width, path distance, in actual use, glue length and width can be obtained by subtracting the coordinates of recording needle, the starting point coordinates of the confirmation of square glue programming. As following picture, we can program as left and get the path like the right.

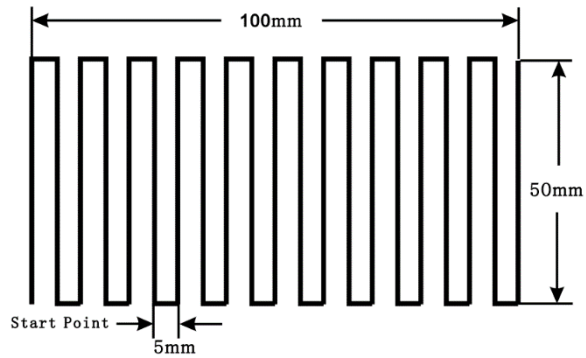
square brush

X Width(mm): 100
 Y Width(mm): 50
 path space(mm): 5
 Path 1.horizontal 2.vertical 3.return Select: 1
 Notice:Move the gun to the top left corner!



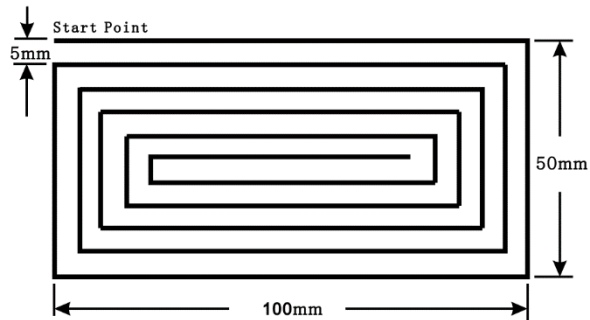
square brush

X Width(mm): 100
 Y Width(mm): 50
 path space(mm): 5
 Path 1.horizontal 2.vertical 3.return Select: 2
 Notice:Move the gun to the top left corner!



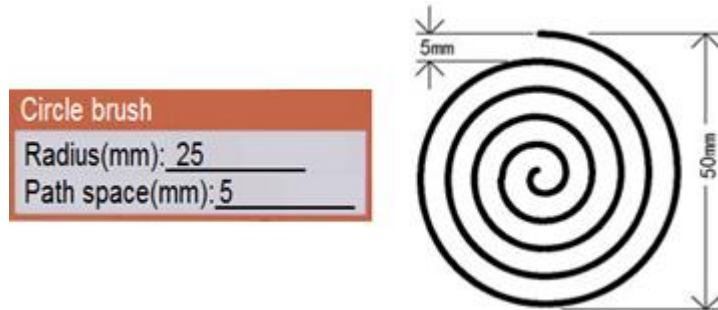
square brush

X Width(mm): 100
 Y Width(mm): 50
 path space(mm): 5
 Path 1.horizontal 2.vertical 3.return Select: 3
 Notice:Move the gun to the top left corner!



5.17 Page 2 8. Circle brush

Circular glue glues for spiral path, when programming let a needle placed to the center of the circular glue, then set the radius and path distance of circular glue. As following picture, we can program as left and get the path like the right.



5.18 Page 2 9. Dispense signal ON/OFF

Work at this program point, we can output the dispense control signal, this point can put between dispense lines, realization of the special out of glue application in the line segment

5.19 Page 3 1. Counter

When the program is executed, the work piece counter increases the corresponding set value and then compares the value of the counting value to overflow limit, if overflow then stopped. This function usually used to count loop work pieces.

5.20 Page 3 2. Go to the free location

Work at this order, then the needle will go back to free stop position, mainly use for clear needle in dispense processing.

5.21 Page 3 3. Home (reset)

This current programming point makes the machine back to the origin

5.22 Page 3 4. Multiple gun set

When set the guns number(0-12) in menu 4, then in this menu we can control them enable or disable, when set as 1 means enable, and set as 0 means disable, and default is 0. As following picture:



5.23 Page 3 5. Reference point set

Function reserved.

5.24 Page 3 6. Auto home counter

Every execute the command once, then increase the number of auto reset, and compared with the value set in menu 2, if match the value, then reset to go to home.

5.25 Page 3 7. Gun clear counter

Every execute the command once, then increase the number of clean needle, and compared with the value set in menu 2, if match the value , then go to the cleaning position to clean.

Chapter 6 Menu 2

Menu 2 is mainly for the dispense parameter settings of the programming point, Menu 2 generated by the programming point is usually display black. Menu 2 contains:

Menu2 Pg 1/3	Menu2 Pg 2/3	Menu2 Pg 3/3
1. Check point set	1. Line dispense time set	1. Auto check point set
2. Check by manual	2. Dot dispense set	2. Auto check
3. Limited Value of Z	3. Output when emergency	3. Free dispense point
4. Free point set	4. Output when boot	4. Auto home time set
5. Gun lift up	5. Free dispense time	5. Position gun clear
6. Speed when move	6. Mode 'slow' speed set	6. Gun clear action
7. Ahead of dispense set	7. Counter set	
8. Line dispense speed	8. Dispense pulse width	
9. Line dispense Drawben	9. Dispense speed modify	

6.1 Page 1 1. Check point set

Adjustment point, when there is some processing offset caused by the needle offset when changing needle, we can use the adjustment point to correct it. There are two ways to set the adjustment point, one is take the first dispense point coordinate as the adjustment point, the other is set the coordinate by manual, if choose the second one, move the needle to the specified position, then press confirm.

6.2 Page 1 2. Check by manual

When into the calibration menu, the needle move to the up 3mm than adjustment point automatically (Prevent collision), then move the needle to the specified coordinate to calibrate, pressing confirm to finish this calibration operation. Then all the dispense processing point will compensate the deviation from the offset of needle to ensure machining accuracy unchanged.

This function can also use the special calibration on the keyboard to operate while no teaching box available, as long as the machine in an idle state, we can press “confirm” key into the calibration operation, at the same time the keyboard mask on the LED will flash, then move the needle to the specified coordinate by manual, press “confirm” again to complete the calibration of the operation, then the LED will extinguish and exit.

6.3 Page 1 3. Limited Value of Z

Set this value to limit glue gun down to prevent the glue gun down to the number of collision work piece or the tool by manual.

6.4 Page 1 4. Free point set

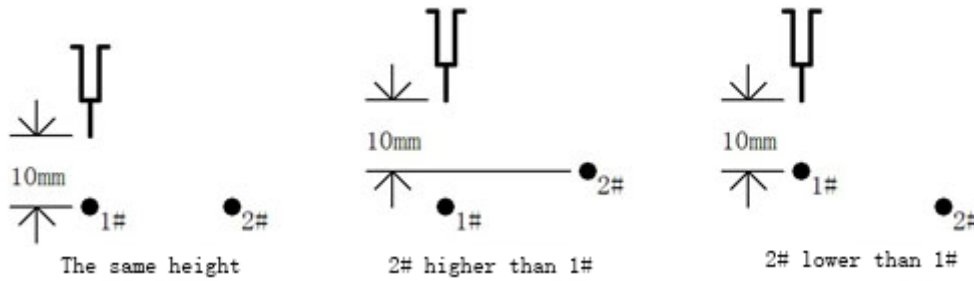
Free stop point means the position of stop when dispense processing is finished, can set as below:

1. Make the set coordinate as free stop point
2. Make the above of starting point as free stop point
3. Make the above of finish point as free stop point

The dispensing processing general can choose 2 or 3 work efficiency will be higher, but it need to choose 1 when needle have to clear or timing glue, then we can set the coordinate as the clear position or timing glue position.

6.5 Page 1 5. Gun lift up

This height is the glue gun lift height for moving glue gun from one to the next after dispense finished this point, to improve efficiency, this value not too large, As long as the guarantee does not meet the height of the work piece. Such as lift a 10mm height, if the two processing points are not in the same plane height then take the higher as standard, as following pictures are lift height when moving glue gun from 1# dispense dot to 2# dispense dot.



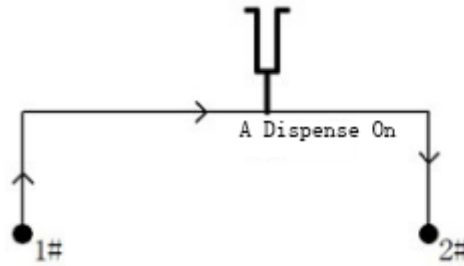
6.6 Page 1 6. Speed when move

Move speed refers to the speed in the process from the completion of a dispensing processing after moving to a dispensing process, Translation speed and down speed set independently, the size of the speed directly affects the efficiency of the machining process. But setting also have to reference the actual performance of the machine and the load weight, etc.

6.7 Page 1 7. Ahead of dispense set

As the glue has a certain viscosity, so the glue will take some time to open from the dispensing valve, in order to improve the work efficiency, the process is put in the process of the spatial shift. For example the glue time is set to 0.1 seconds, then calculating air shift open position according to the dispensing signal set null shift speed and acceleration in the process, but in order to prevent the glue from dropping out too quickly, the glue time should be set according to the viscosity of the glue, it should not be too large.

As following picture, the gun move to 2# to dispense when 1# dispense finished, if the glue time is set as 0.1 second, calculating from A position to 2# need 0.1s according empty move speed and acceleration, then the dispense valve open at A position instead of position 2#.



6.8 Page 1 8. Line dispense speed

Dispense line speed means the glue gun move speed when gluing, including dispense line, dispense arc, dispense circle, glue, etc. all use this speed. The speed of the setting can be referred to the adhesive viscosity, pressure, the amount of glue, etc.

6.9 Page 1 9. Line dispense Draw bench

Drawing action is to solve the problems caused by tailing for plastic sticky glue and lag, the set is effective for dispense line, dispense arc, dispense circle, glue rectangle. The settings are as following picture:

Line dispense Drawbench

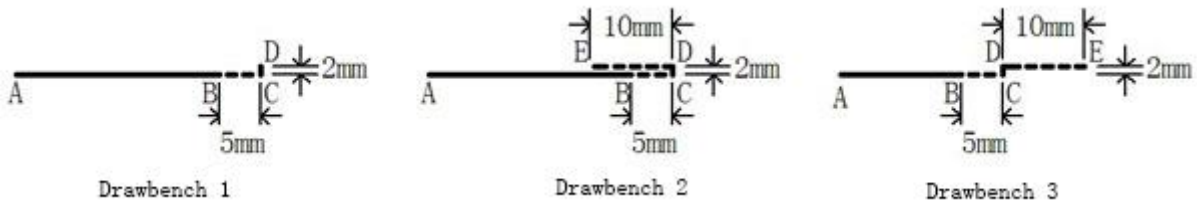
Drawbench height(mm): 2

Drawbench length(mm): 10

Drawbench speed(mm/s): 50

Drawbench action: 1. | 2. | 3. | 4. \ 5. / **Select: 2**

According to the parameters above, below is the end of line drawing sketch of dispensing action.



Point A and C are the starting point and finish point of dispense line, solid line is the path for glue valve open to go, dotted line is glue valve close to go, as the advance distance is 5 mm, so close glue valve at position B. Before Point C is dispense speed to go, after C is drawing speed to go, after drawing, lift the glue gun as empty speed and lift height ever be set.

6.10 Page 2 1. Line dispense time set

In dispense line time parameters setting.

‘Line starting point stop time’ means the needle move to starting point and open valve then wait, mainly to solve the lag problem, with the advance of glue similar function.

‘Line finish point stop time’ means lift after stop a moment when dispense finish, a complement for drawing.

This setting is useful to dispense arc, dispense circle, too.

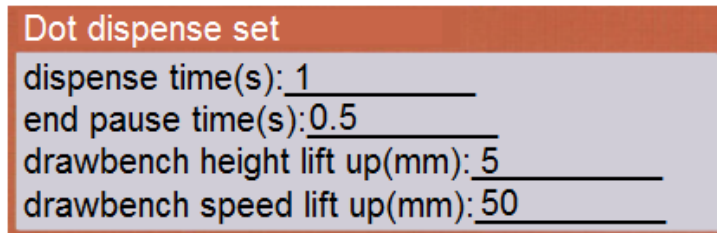
6.11 Page 2 2. Dot dispense set

In dispense dot parameters setting,

‘dispense time’ means at dispense dot position, open the valve and wait the time for glue.

‘end pause time’ means the time for glue valve keep stay after close at dispense dot position, this is mainly to solve the problem of glue lag, prevent wire drawing.

‘draw bench height lift up’ means after dispense dot finish, first lift a special height with ‘draw bench speed lift up’, then lift to gun lift height with empty move speed. This is mainly to solve the problem of wire drawing, this value can be set as 0.



6.12 Page 2 3. Output when emergency

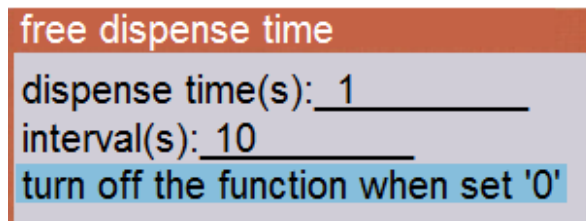
Set the general output signal when emergency occurrence, 1 means 24V, 0 means 0V.

6.13 Page 2 4. Output when boot

Set the general output signal when turn on the machine, 1 means 24V, 0 means 0V.

6.14 Page 2 5. Free dispense time

This function is mainly used to prevent the easy to dry glue is not working when the glue in the needle mouth curing, If the function is not enabled, the glue time or interval time can be set to 0. As setting below, every 10 seconds for 1 seconds to open the automatic dispensing signal.



6.15 Page 2 6. Mode ‘slow’ speed set

This speed is used for ‘no glue’ or ‘uniform’ run mode.

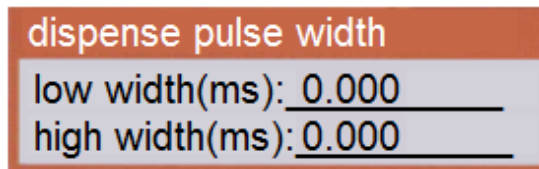
6.16 Page 2 7. Counter set

We can set the count value and limit count value in the work piece counter, as running, the count value will add the set number when execute to the programming point, if the count value larger than the count limit value, prompt that count overflow, and stop processing, until set the count again. If not use the work piece count limit, please set the count limit value as 0.

6.17 Page 2 8. Dispense pulse width

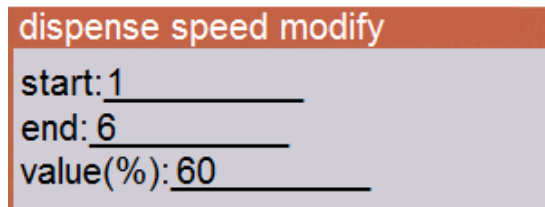
This function mainly to control the glue interval time, the low level pulse width time indicates that the period of time is not gluing, and the High level pulse width time indicates the period of time is gluing.

For example: Dot dispense for 1 second, setting pulse width time all 100 ms. Then the effect is gluing for 100ms, and stop 100ms, then gluing 100ms again, stop 100ms , until 1s ends.



6.18 Page 2 9. Dispense speed modify

This function is to modify a section address of dispense speed.



6.19 Page 3 1. Auto check point set

Move the needle to the center of the automatic needle sensor, at a moderate height. Press "OK", the needle will be left and right, front and back, up and down movement, search X, Y, Z direction sensor trigger point. Get the needle to pin coordinates.

6.20 Page 3 2. Auto check

Automatic alignment of points on which the needle moves to the last point of the needle. Then proceed around, move up and down, search for X, Y, Z, direction, sensor, trigger point. A new pair of needle point coordinates is obtained. By comparing the previous and new pairs of needle point coordinates, the X, Y, and Z coordinate differences are obtained. The coordinates of all hole programming points are shifted according to the difference, and the new programming point coordinates are obtained.

6.22 Page 3 3. Free dispense point

Here can set the position for dropping glue when free, move the needle to a designated place by manual, then press 'Enter'.

6.23 Page 3 4. Auto home time set

This function can set the interval times to reset, if not use, set as 0.

6.24 Page 3 5. Position gun clear

Here can set the position for clearing needle, move the needle to a designated place by manual, then press 'Enter'.

5.25 Page 3 6. Gun clear action

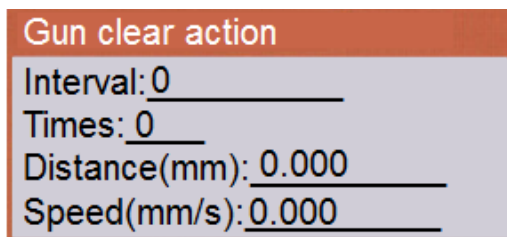
This function can set the parameters of clear needle, if not use, set as 0.

Interval: means how many times to go to the cleaning position to clean.

Times: means how many times to return the needle in the clean process.

Distance (mm): means return distance of the needle in the clean process.

Speed (mm/s): means return speed of the needle in the clean process.



Chapter 7 Menu 3

Menu 3 is mainly machine setting or menu operation, no programming point generated. Menu 3 contains:

Menu3	Pg 1/3	Menu3	Pg 2/3	Menu3	Pg 3/3
1.Moveto selected record		1.Buzzer of Key		1.Help system update	
2.Product file copy		2.speed priority set		2.Input view	
3.DXF file convert		3.Smallkey locked		3.Button status view	
4.File locked		4.File view		4.extern input view	
5.Machine locked		5.Machine's information		5.extern ouput view	
6.File password		6.Program edition			
7.Machine password		7.Program updt e			
8.Input name edit		8.FPGA update			
9.Output name edit		9.DSP update			

7.1 Page 1 1. Move to selected record

When input the specific coordinate of needle and press “confirm” key after enter the menu, the needle will move to the coordinate just inputted. As following picture, the needle will move to x:100, y: 100, z: 50.

Moveto selected record

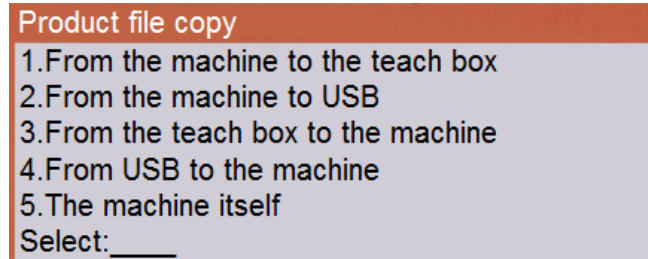
X location(mm): 100

Y location(mm): 100

Z location(mm): 50

7.2 Page 1 2. Product file copy

This function can storage in U Disk or teach box and copy dispense files between each machine, when there are several machines process the same file, we can just program in one dispense machine and copy it to others. The teach box copying applies to the field using, and the U Disk copying can not only between dispense machines, but also storage in the computer as backup. File copying operation contains:



1. Form dispense machine to teach box

This operation copy the current dispense processing file to the teach box.

2. From dispense machine to U Disk

The operation is currently open dispensing processing files copied to the root directory of U Disk “点胶机-点胶程序” folder, the extension file name is ‘DJF’. (Note: U disk must be formatted as FAT32 format).

3. From teach box to dispense machine.

This operation copy the storage dispense file in the teach box to replace the current dispense processing file in the dispense machine.

4. From U Disk to dispense machine

Copy the dispense file in the root directory of U Disk called “点胶机-点胶程序” to current open dispense processing file. (Note: U disk must be formatted as FAT32 format)

5. Copy between each dispense programs.

This operation copy dispense files with different File No. to replace, mainly used to make a dispense processing files backup. We can use the backup file when can't undo after an error program operation.



7.3 Page 1 3. DXF file convert

Save the Auto CAD graphics file as Auto CAD 2010 DXF format file to “点胶\DXF 文件” folder, then operating this menu to convert graphics files into dispense processing files.


Only supported ‘dot’, ‘line’, ‘arc’, ‘circle’, ‘multiply lines’, once have some complex graphic, such ‘Spline curve’ or ‘ellipse’, then need to convert to ‘multiply lines’.

As Y axis between Auto CAD and dispense machine is contrary, so in CAD, Y axis travel value as a dispenser of Y axis 0 coordinates

7.4 Page 1 4. File locked

When the file unlock, icon display  in the status bar, meanwhile the parameters of current file and machine all can be modified; when the file lock, icon display  in the status bar, meanwhile the current file can't be modified , but not the parameters of the machine.

7.5 Page 1 5. Machine locked

When in unlock states, the parameters of machine can be modified, whether the file is locked is up to the file lock/unlock setting; when in lock states, icon display  in the status bar, meanwhile all the parameters of dispense file and machine are locked.

7.6 Page 1 6. File password

This menu is used to set the password for the “Page 1 4.file locked” .

7.7 Page 1 7. Machine password

This menu is used to set the password for the “Page 1 5. Machine locked” .

7.8 Page 1 8. Input name edit

The default name of programmable universal input port is “通用输入 01” — “通用输入 16” , to improve the readability of the program, each programmable universal input port can be named according to the function of the application, so that the programming is more convenient.

7.9 Page 1 9. Output name edit

The default name of programmable universal output port is “通用输出 01” — “通用输出 16” , to improve the readability of the program, each programmable universal output port can be named according to the function of the application, so that the programming is more convenient.

7.10 Page 2 1. Buzzer of key

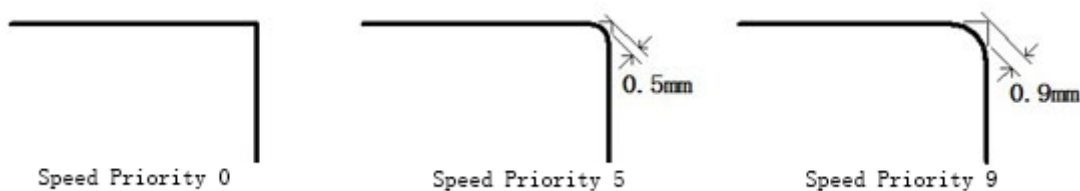
This menu can set whether the key voice of teach box is on or off.

7.11 Page 2 2. Speed priority set

While the Long men type three dimensional machine is in actual movement process, it is actual a positive inversion process for a single axis motor in the corner, in order to reduce the vibration of the machine and prevent the loss of step, must be reduced to close to 0 in positive reversal, It is the machine that must be slowed down at the corner.

But if the dispensing speed inconsistency will lead to inconsistent amount of glue, to solve this problem, In the case of the accuracy of the situation at the corner turned into a small arc transition, In this way, we can make the speed and straight line at the corner more consistent, so it can solve the problem amount of plastic inconsistent, but this is achieved at the expense of the path accuracy , so set the value of the time to speed and path accuracy should be referred to a neutral value.

The value of the speed priority level is 0 - 9, the bigger the value is, the more uniform the velocity is, the bigger the path error is, for the 0 level, the path is complete without error, but the speed of the inflection point will be reduced, the following figure is the relationship between priority and path errors:



7.12 Page 2 3. Small key locked

Small keyboard means special keyboard for the check adjustment point, this menu usually used to prevent misuse with locking this keyboard and taking the teach box away.

7.13 Page 2 4. File view

Because the dispense processing file is so many (1000 files), it's terrible to open and search file one by one, so we can use this function for tabbed browsing, find the number of file we wanted then open it.


7.14 Page 2 5. Machine's information

Display the device information, such as machine number, etc.


7.15 Page 2 6. Program edition

Display the program version information.


7.16 Page 2 7. Program update

As long as put the application program file into U Disk of FAT32 format with folder called “点胶机/升级文件”， enter the menu and update the program after insert the U Disk. If the U Disk can identify correct, icon  will display at the right in status bar.

7.17 Page 2 8. FPGA update

As long as put the driver program file into U Disk of FAT32 format with folder called “点胶机/升级文件”， enter the menu and update the program after insert the U Disk. If the U Disk can identify correct, icon  will display at the right in status bar.

7.18 Page 2 9. DSP update

As long as put the DSP program file into U Disk of FAT32 format with folder called “点胶机/升级文件”， enter the menu and update the program after insert the U Disk. If the U Disk can identify correct, icon  will display at the right in status bar.

7.19 Page 3 1. Help system update

Help system update, this function is not open yet.

7.20 Page 3 2. Input view

As shown in the following picture:



The screenshot shows a menu titled "Input output test" with two sections. The first section is "General input 01-16" and the second is "General output 01-08". Each section contains a table with two rows: 'b' for bit status and 'v' for voltage status.

Input output test																
General input 01-16 :																
b	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
v	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
General output 01-08 :																
b	01	02	03	04	05	06	07	08								
v	0	0	0	0	0	0	0	0								

0-16 of “general input” is 16 input states for programmable input port, when check input signal for ‘1’ , no input signal for ‘0’ .

01-08 of “General output” is check the status of the general output, you can also control the output status of the ordinary output. Setting 1 to set the corresponding output port, set 0 to turn off the corresponding output port.

7.21 Page 3 3. Button status view

As following picture:

Button status view		
Origin:0	Run:0	Stop:0
Step:0	Dispense:0	auto position:0

View the input state of function key, when no key means states is 0, when check key down means states is 1.

7.21 Page 3 4. Extern input view

Input view																
General 01-16 :																
b	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
v	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend input 17-32 :																
b	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
v	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0-16 of “general input” is 16 input states for programmable input port, when check input signal for ‘1’ , no input signal for ‘0’ ;

17-32 of “extend input” 16 input states programmable extension input port, when check input signal for ‘1’ , no input signal for ‘0’ .

7.22 Page 3 5. Extern output view

As following picture:

Output view																
General out 01-08 :																
b	01	02	03	04	05	06	07	08								
v	0	0	0	0	0	0	0	0								
Extend out 09-24 :																
b	09	10	11	13	13	14	15	16	17	18	19	20	21	22	23	24
v	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

View general output state, also control the output state of general output port. Set 1 means open the corresponding port, set 0 means close the corresponding port.

“Extend out 08-23” can be used when inserting extended modules.

Chapter 8 Menu 4

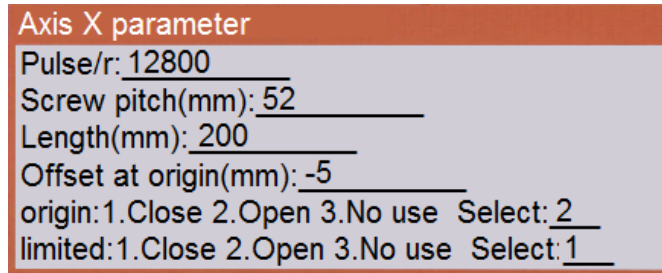
Press “Stop” + “Menu1” into Menu 4, Menu 4 is the menu for manufacturer to set parameters of machine, not recommend opening for users. Menu 4 contains:

Menu4 Pg 1/4	Menu4 Pg 2/4
1.Axis X Parameter	1.Start/Stop speed
2.Axis Y Parameter	2.ACC set
3.Axis Z Parameter	3.Maximum speed set
4.Axis A Parameter	4.Home's speed set
5.Password	5.Speed by manual
6.Time set	6.Pinyin method update
7.Limited used time	7.Boot screen update
8.Machine's name edit	8.Control select
9.Company's name edit	9.Number of Y

Menu4 Pg 3/4	Menu4 Pg 4/4
1.System programs cop	1.set axis plus mode
2.Emergency mode	2.Chinese-English shift
3.Multiple gun	
4.Home way boot	
5.Auto check input set	
6.Move mode of X and Y	
7.Z height when check	
8.special output port	
9.special input port	

8.1 Page 1 1-4. Set parameters of XYZA axis

The motor shaft parameter setting options are shown below:



Pulse/r: means the number of pulses for the driver motor per revolution, or the fine fraction of driver motor.

Screw Pitch: means the run distance for the driver motor per revolution, or the circumference of the belt pulley or the pitch of lead screw.

Offset at origin (mm): Home offset can be 0 or others, as well as offset the error value as coordinate 0 after capture the home position.

Origin: close if capture sensor output low voltage when motor shaft don't trigger the origin, and the opposite is open.

8.2 Page 1 5. Password

Before set the use limit time, set the password first.

8.3 Page 1 6. Time set

As the use of time to limit the need have to refer to the clock machine, so if you set the time limit to modify the machine, you must enter a password that uses a time limit.

8.4 Page 1 7. Limited used time

When out of factory we can set to limit the use of time, then when the limit time become, it will pop a dialog to ask for the password to relieve while turn on the machine, or input the password in menu to relieve.

8.5 Page 1 8. Machine's name edit

The name of device edited will display at "menu 3, page 2, 5.device information"

8.6 Page 1 9. Company's name edit

The name of company edited will display at "menu 3, page 2, 5.device information" .

8.7 Page 2 1. Start/stop speed set

The motor has a process of acceleration and deceleration in motor control applications when running, to improve work efficiency, start/stop speed can set neither 0 nor too large, the greater the load, the smaller the start/stop speed, or it will cause the loss of step or mechanical noise, general recommendations in 20 mm/s.

8.8 Page 2 2. Accelerate set

Various acceleration contains:

ACC set(mm/(s*s))
Start ACC: <u>4000</u>
Stop ACC: <u>4000</u>
Emergency ACC: <u>6000</u>
Manual ACC: <u>300</u>

The manual move speed can set a little smaller in actual use, generally between 100-500, manual moving acceleration is set a little smaller to have an obvious start acceleration process in manual operation, it is easy to move a short distance when it is moving at a high speed, satisfied the speed and short distance requirements.

The control card support asymmetric acceleration and deceleration, start acceleration and stop acceleration can be set to different values, the actual application of the general will be set larger to stop the acceleration than the start acceleration. The acceleration of the size of the setting must be according to the motor drive capacity, load size, mechanical properties, etc. taking not lose step, shaking not big as the standard.

8.9 Page 2 3. Maximum speed set

Setting the maximum value allowed by each axis speed in user programming, this will prevent the user from setting a speed that is greater than the speed of the machine design requirements, so that prevent the lose of step. Including following contents:

Maximum speed set(mm/s)
Axis X/Y: <u>1000</u>
Axis Z: <u>800</u>
Axis of line dispense: <u>500</u>

Here the x y axis max speed is set for the plane moving speed of the plane moving speed of the application of the pointing glue is allowed to the maximum. Z axis max speed is dispensing application programming on the moving speed of the hollow shift the maximum allowable value, dispense max speed is dispensing application programming in line allows maximum dispensing velocity.

8.10 Page 2 4. Home's speed set

Origin capture is record the position of motor shaft when it trigger the origin signal, in order to be in the same position every time, it must be triggered in the same direction every time, so we must move to the correct direction first then perform origin capture when the position of motor shaft is not at the direction of origin capture direction.

“move speed” is the speed that the motor shaft move from error direction to the direction of origin capture, this speed can be upper, generally set range as 50-150mm/s, “capture speed” is the speed that motor shaft move to trigger the origin signal, to improve the accuracy, this speed should not be too high, generally set range as 20-60mm/s.

8.11 Page 2 5. Speed by manual

Manual movement speed is high, medium and low speed of three, press “speed” can cycle switch. Generally set high speed as 80mm/s, middle speed as 40mm/s, low speed as 1mm/s.

8.12 Page 2 6. Pinyin method update

Pinyin IME use the GB2312 library, almost 7000 commonly used Chinese characters, usually the factor has been updated the Pinyin IME, so it's no need to perform this action.



8.13 Page 2 7. Boot screen update

Make the required boot logo to a 480X272 pixels,24 bit color bitmap file with Photoshop, then save it to the folder called “点胶机/LOGO” of the U Disk, insert the U Disk and perform the update operation. (Note: The U Disk must be formatted as FAT32)

8.14 Page 2 8. Control select

We can use two ways to select the dispense processing file, dial switch and digital tube, if using the dial switch , we can have 1 bit, 2 bit, 3 bit, and the high bit will default as 0 if not use. As well as there is no conflict between the opened file number and the value of the dial, the function which opening file of the teach box will be shield.

8.15 Page 2 9. Number of Y

We can set as single Y or double Y work mode, out factory default is single Y mode. If set as double Y work mode , then use  +  to change Y axis, and coordinate value in the display area will display as Y1 or Y2.

8.16 Page 3 1. System parameters copy

The function of this menu is copying the system parameters from one machine to teach box or U Disk and then copy it from teach box or U Disk to other same size machines, no need to set them one by one.

If save to the U Disk, must create the folder called “点胶机-配置文件” first, and the suffix of this file must be “CFG” . (Note: U Disk must be formatted as FAT32)

The contents of the copy include the machine parameters and the default values of the factory settings.

8.17 Page 3 2. Emergency mode

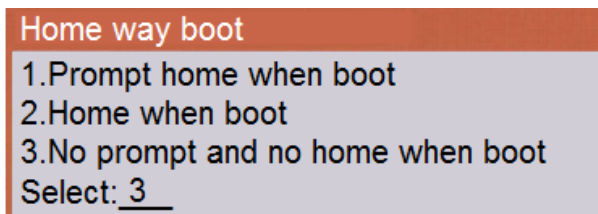
When prompt “emergency” press “cancel” to enter the menu of set emergency mode, so we can modify it quickly if the emergency stop switch damaged or need to modify the emergency mode.

8.18 Page 3 3. Multiple gun

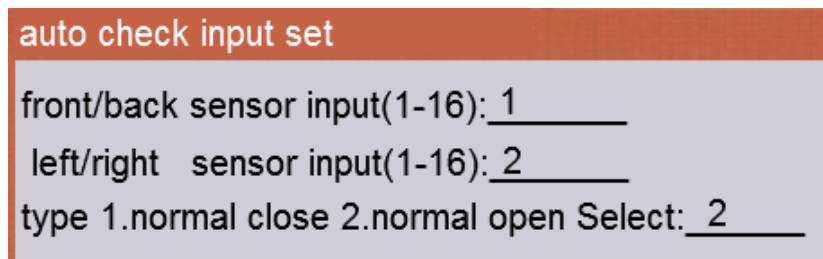
Here set the number of the glue guns for the system.

8.19 Page 3 4. Home way boot

1. Prompt home when boot: prompt to go back to the origin when the machine power on, press “home” to perform this action.
2. Home when boot: go directly to the origin when the machine power on.
3. No prompt, no home when boot: must press “home” to perform this action after the machine power on.

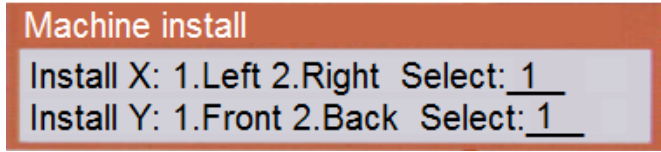


8.20 Page 3 5. Auto check input set



Set needle sensor automatically: Can not only in a position at the same time to search for X.Y detection. But also X.Y were detected at different locations.

8.21 Page 3 6. Move mode of X and Y



Install X axis home: when on the left, then the right way is the positive direction, and it will move to left to search the home sensor when go to home. When on the right, then the left way is the positive direction, and it will move to right to search the home sensor when go to home.

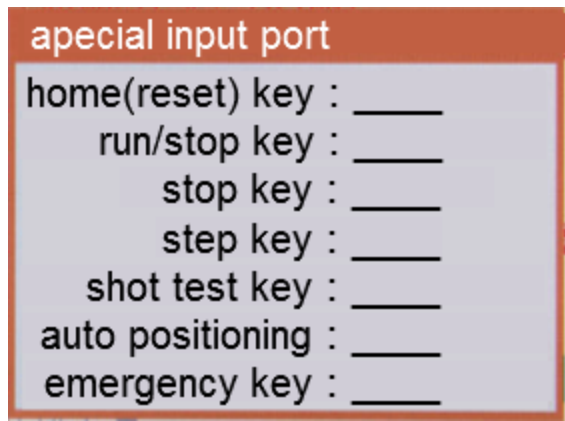
Move style of Y axis: when select the platform, then the backward is the positive direction, and it will move forward to search the home sensor when go to home. When select the second one, then the forward will be the positive direction, and it will move backward to search the home sensor when go to home.

8.22 Page 3 7. Z height when check

Here set the safe height of Z axis when adjusting the needle.

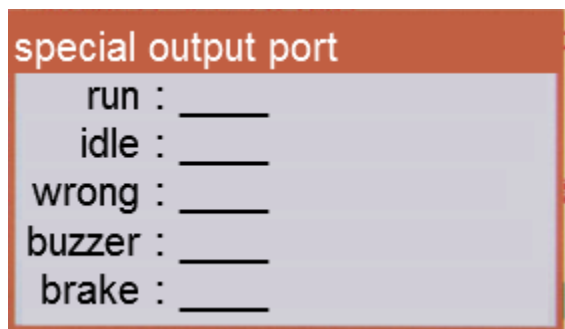
8.23 Page 3 8. Special output port

The special output signal can be set according to the actual wiring.



8.24 Page 3 9. Special input port

The special input signal can be set according to the actual wiring.



8.25 Page 4 1. Set axis plus mode

The board provides two pulse modes: pulse + direction and positive and negative pulse. Matched with drive pulse mode.

```
set axis plus mode
X axis:1.plus+dir 2.CWW+CCW select: 1
Y axis:1.plus+dir 2.CWW+CCW select: 1
Z axis:1.plus+dir 2.CWW+CCW select: 1
A axis:1.plus+dir 2.CWW+CCW select: 1
```

8.26 Page 4 2. Chinese-English shift

This function mainly to change the display language between Chinese and English.

Chapter 9 Menu 5

Press “Stop” + “Menu2” into default parameters setting menu, this is not recommend opening for users. Default parameters setting menu contains following contents:

Default value	Pg 1/2	Default value	Pg 1/2
1.Line speed	:100.000	1.dot end sp	:100.000
2.Line st time	:0.000	2.dot end hei	:0.000
3.Line en time	:0.000	3.height Z	:30.000
4.Line length	:0.000	4.speed X/Y	:500.000
5.Line height	:0.000	5.speed Z	:300.000
6.Line end sp	:100.000	6.Slow speed	:100.000
7.Line len non	:0.000	7.ahead time	:0.000
8.dot time	:0.000		
9.dot end time	:0.000		

The default value is the main processing parameters in the application of glue dispensing parameters, if not set above parameters in dispense program file, then the dispense machine will use the default parameters value.

Appendix 1

Method for setting the use time limit

Use the time limit setting method is no longer a password, but the way to use the authorization. We can achieve any change in the use of the period, the use of the time limit is the way to use the date, not the number of days.

To set or modify the restriction of the use of date, as long as input the 16 bit number, which in front of the 8-bit said year, month, day (YYYYMMDD). Low 8 bit is to verify the legitimacy of eight former date character verification code, encryption using XOR mode. The following is the use of the method:

1. Set or modify the password in Menu 4-1-5.

This 8-bit password used for achieving the XOR algorithm or modifying system time after setting the use limit. (Because the use of the time limit is based on the system time to judge, so set the use of restrictions on the clock can't be arbitrarily modified, once you have set the use of restrictions, the machine will be locked if customer destroy the clock power or chip.)

2. Set use time limit in Menu 4-1-7.


Enter the 16bit setting characters, the former 8 are the use of the period of years, months, days. Latter 8 are used for verification code.

The generation of verification code is as follows:

Such as the password of the machine is 12345678, to authorize the machine to use in August 11, 2013, then the verification code of manufacture if 20130811 XOR 1234578 equals 26167989, then get the legal authorization code 2013081126167989, This license code allows the machine to be used to the machine clock in August 11, 2013. We can continue to authorize delay when expired. If you want to unlock the permanent use of a time, then use a legal authorization code with "3" at the first character of time to unlock.

Note:

Use method of XOR:

1. Use computer to open the calculator.
2. Select view/science mode.
3. 20130811  12345678 then got the result 26167989.

Appendix 2: Common troubleshooting (To be continued)